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A Pilot Study of Point of Care Ultrasonography of Optic Nerve Sheath to Predict Elevated Intracranial Pressure and Comparison with Standard Methods

Dr. Ronak Joshi, Dr. Harsh Parikh, Dr. Parin Patel, Dr. Pratibha Dileep

Institute / organization name: Zydus hospital, Ahmedabad, Gujarat, India.

ABSTRACT

Background: Objective: Measurement of optic nerve sheath diameter using non-invasive method (USG) for dynamic, real time monitoring of ICP changes. **Methods:** Elevated intracranial pressure (EICP) is a potentially lethal disorder in patients. ICP measurement is essential as clinical signs of raised ICP are often unreliable or too late. Optic nerve is a part of CNS and is surrounded by CSF enclosed in a sheath called optic nerve sheath. This sheath is continuous with dura mater and diameter of this sheath changes rapidly with changing CSF pressure. Optic nerve sheath diameter (ONSD) > 5mm is the indirect indicator of EICP. No of patient: 20. USG is emerging as a non-invasive tool that can reliably detect EICP by measuring optic nerve sheath diameter. USG to detect EICP is useful as it leads to faster diagnosis and avoids problems faced during transportation. Until recently invasive ICP monitoring was gold standard but now USG is emerging as reliable tool. ONSD was analysed and patient with ONSD > 5mm was considered to have EICP. **Results:** USG examination revealed that mean right and left ONSD were 5.32mm and 5.33 mm respectively. Study suggested that ONSD > 5mm by USG has 92.8% sensitivity and 83.3% specificity as compared to standard methods like CT/MRI brain or fundoscopy to predict EICP. Out of 20 patients, 13 were true positives and 5 were true negative, 1 patient each was false positive and negative. **Conclusions:** As untreated elevated ICP is associated with mortality and poor outcomes, point of care method like sonography of optic nerve sheath diameter can lead to timely and accurate interventions for raised ICP as a diagnostic protocol and is useful in centres where CT/MRI is not available. As the number of participants are less, larger study is required to strengthen our results.

Keywords: ONSD- optic nerve sheath diameter, ICP: intracranial pressure, EICP: elevated intracranial pressure.

Comparative Assessment of Pain in Critically Ill Patients Admitted in Intensive Care Unit Using Critical Care Pain Observation Tool and Behavioral Pain Scale

Azeem V P, Syed Moied Ahmed, Abu Nadeem

Institute / organization name: Department of Anesthesiology and Critical Care, JNMCH, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: The severity of the pain experienced by critically ill patients in ICU is often underestimated because of barriers in verbal communication. Identifying the most appropriate behavioral based pain assessment tools for use in non-communicative patients in any ICU significantly enhances the likelihood of effective pain management and pain related outcomes. Therefore, the primary aim of the study was to compare between BPS and CPOT in assessing pain in critically ill patients. **Methods:** After obtaining approval from departmental BOS and IEC, 30 patients age ranging between 20 – 60 years of either sex where studied. Neurosurgical and gynecological patients were excluded. The observer was well trained with both assessment techniques. To avoid observer variation, a single observer assessed both techniques one after the other. The measurements with both scales were obtained 1 min before, during and 20 minutes after the procedures. Wilcoxon and Friedman statistical tests were used to compare the score of pain in different situations and Spearman correlation coefficient was also used to measure the correlation of pain score measured by two scales. Settings: ICU, J N Medical College, AMU, Study Design: Prospective, observational study. **Results:** Patients experienced no pain at rest (CPOT score 0 & BPS 3) and moderate to severe pain on tracheal suctioning (CPOT 6 +/- 1, BPS 10 +/- 1). Pairwise comparisons between pain scores in different situations using wilcoxon test showed a significant difference in both the scales ($p < 0.05$). There was a strong correlation ($r > 0.8$, p value < 0.05) between pain score measured by BPS and CPOT. BPS is found to be less sensitive (sensitivity 68.2 % and specificity 90.6 %, accuracy 72.04%) and specificity is low for CPOT (CPOT sensitivity 78.5% and specificity 72.8 %, accuracy 72.68 %). The ROC curve obtained with association of both BPS and CPOT scales summing arithmetically the two scales normalised showed specificity 75 % and sensitivity 80.4 % with an accuracy 78.67 % with an AUC = 0.84. **Conclusions:** The high correlation between CPOT and BPS suggests that both pain scales can be used successfully for assessment of pain in critically ill patients in intensive care unit. However, when both the pain scoring system was added the sensitivity and specificity improved.

Comparative Evaluation of Dexmedetomidine and Midazolam as Sedative During Non-Invasive Mechanical Ventilation: A Randomized, Double-Blind, Prospective Study

Dr. Shamse Alam, Prof (Dr) Qazi Ehsan Ali

Institute / organization name: Department of Anaesthesia, JNMCH, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: Effective non-invasive mechanical ventilation (NIV) requires a patient to be comfortable and in synch with the ventilator, for which sedation is usually needed. Choice of the proper drug for sedation can lead to improved clinical outcomes. **Objective:** The aim of this study was to compare the effectiveness of dexmedetomidine and midazolam on sedation and their effects on hemodynamics and gas exchange. **Methods:** In this randomized, double-blind study, intensive care unit patients with covid-19 pneumonia undergoing NIV were equally randomized to receive a loading dose of 1 µg/kg IV dexmedetomidine or 0.05 mg/kg midazolam over 10 minutes followed by a maintenance infusion of 0.5 µg/kg/h dexmedetomidine (group D) or 0.1 mg/kg/h midazolam (group M). The following parameters were measured at baseline and 1, 2, 4, 6, 8, 12, and 24 hours after the loading dose was administered: Ramsay Sedation Score (RSS), Riker Sedation-Agitation Scale (RSAS), and vital signs. **Results:** A total of 40 patients were included in the study. In both groups ($n = 20$), RSS significantly increased and RSAS levels significantly decreased after the loading dose, compared with baseline ($P < 0.05$). RSS levels were significantly lower beginning at 4 hours in group D compared with group M ($P < 0.05$). RSAS levels were not significantly different between the 2 groups in the first 8 hours. However, RSAS levels were significantly higher at 8 hours after the loading dose was administered in group D compared with group M ($P < 0.01$). **Conclusions:** Dexmedetomidine and midazolam are both effective sedatives for patients with NIV. Dexmedetomidine required fewer adjustments in dosing compared with midazolam to maintain adequate sedation.

Correlation of Serum Magnesium Levels with Clinical Outcome: A Prospective Observational Study on Critically Ill Patients Admitted to a Tertiary Care ICU in India

Dr. G.Vineesha, Dr. Vandana Talwar

Institute / organization name: Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India.

ABSTRACT

Background: Objective: To study the incidence of Magnesium disturbances in critically ill patients admitted to Intensive care unit and to correlate serum magnesium levels on the day of ICU admission with clinical outcome. **Methods:** This study was conducted on 280 critically ill patients aged above 18 years and admitted to ICU. Monitoring of serum Mg, biochemical and hematological parameters, APACHE II and SOFA scores were done on days 1, 3, 10 and weekly thereafter till patient's ICU stay. The obtained values were correlated with mortality, need for and duration of mechanical ventilation, duration of ICU stay, presence of co-morbid conditions, sepsis and other electrolyte disturbances. **Results:** In our study, the incidence of hypomagnesemia and hypermagnesemia at admission was 40.9%, and 13.9% respectively. We found a significantly higher mortality in hypomagnesemia as compared to normomagnesemic and hypermagnesemic patients (51.3% vs. 29.3% vs. 23.1% respectively, HypoMg vs. NormoMg, HypoMg vs. HyperMg, p value= 0.001, 0.002 respectively). The association of mean Mg levels with outcome was found to be statistically significant ($p=0.001$). The need for mechanical ventilation was significantly higher in hypomagnesemic and normomagnesemic group as compared to hypermagnesemic group ($p=0.012$). Baseline APACHE II and SOFA scores were higher in hypomagnesemic group (p value=0.001 and 0.002 respectively). There was high incidence of hypokalemia and hypocalcemia among hypomagnesemic patients (p value = 0.0003 and 0.039 respectively) and of hyperkalemia and hypercalcemia among hypermagnesemic patients (p value=0.001 and 0.005 respectively). Incidence of gastrointestinal disorders and alcoholism was significantly higher among hypomagnesemic patients (p value=0.023, 0.003 respectively) and that of CKD was significantly higher in hypermagnesemic patients (p value=0.0009). There was no significant association of serum Mg levels with sepsis and with duration of stay and mechanical ventilation. **Conclusion:** Our study highlights the role of Mg monitoring in critically ill patients admitted to ICU and its value for a favorable outcome. We found that hypomagnesemia was significantly associated with adverse outcome and higher mortality in critically ill patients. Intensivists should therefore maintain a high index of suspicion for hypomagnesemia and the need for Mg replacement therapy. We further add that Mg disturbances should be identified and corrected at the earliest to improve the overall prognosis of patients admitted to ICU.

Pregnancy Management in COVID - Our Experience

Dr. Neharika Malhotra, Dr. Narendra Malhotra

ABSTRACT

Background: Covid-19 virus disease has caused a pandemic in the world. Many women during pregnancy got infected in 2020 (First wave in India). During the 2021 second wave by the mutated strains the disease was more severe in pregnancy in India. This paper analysis the situations in first & second wave. **Methods:** All Covid and pregnancy cases were studied in detailed presented during the study. Maternal and Fetal Outcome with mode of delivery was documented. **Conclusions:** Covid (SARS-COV-2) (Corona Virus) is here to stay for long time. Our observations indicate, if we give proper care we can manage most of the COVID-19 pregnancies safely. COVID-19 did alter the course of pregnancy in late third trimester & Neonatal outcome is affected in the second wave of infection (2021). Finally a vaccine universally available for at least 60% population & lactating mother & also children and an effective drug treatment will be the answer to this pandemic.

Keywords: Corona, Covid 19, SARS-COV-2, Pregnancy, Lactation, SIPPE, MEWS, SOFA.

Clinical Profile of Covid-19 in Children – Study from a Medical College Hospital

Dr. Rhea Suzanne John, Dr. K. Shreedhara Avabratha

Institute / organization name: Father Muller Medical College Hospital, Mangalore, India.

ABSTRACT

Background: COVID 19 was declared a pandemic on March 12th 2020. On February 10th 2021 a second wave of COVID-19 struck India, the mortality was higher and was affecting younger people more than the first wave. **Purpose:** To assess the clinical features, investigations and outcomes in the paediatric population admitted with COVID-19 to a tertiary teaching hospital from March 2020 to July 2021. **Methods:** All children 18 years and below, with a confirmed diagnosis of COVID-19, admitted in our hospital between March 2020 to July 2021 were studied for chief complaints, COVID-19 exposure, ICU admissions, oxygen use, medication history, blood investigations, chest x-rays, type of COVID testing done, severity of COVID-19 and outcomes. **Results:** 64 children had COVID-19, 27 in the first and 37 in the second wave. In 25 patients the parents were the contacts for the disease. The age groups mainly affected were 1-5 years(30%) and 10-18 years(27%). 56(87%), 3(5%) and 5(8%) had mild, moderate and severe COVID-19 respectively, with one death. Presenting symptoms were 38(60%) with fever, 13(21%) had febrile convulsions, 12(19%) had vomiting and 9(14%) were surgical cases who tested positive. 25(40%) patients were admitted to the ICU. 9(14%) children had MIS-C with 5 being severe. 30% of 37 chest x-rays showed opacities and 1 HRCT was done which showed a low CORAD score. The tests used for diagnosis were mainly rapid antigen test in 29(46%) and CB-NAAT in 20(32%). **Discussion:** Similar studies by Bhuiyan et al had >50% infants, Patel et al had found cough to be the most common symptom (48%) and Kumar R. et al had noted that children with a pre-existing comorbidity were at risk for the severe form of the disease. **Conclusions:** Our study has found that majority of cases in children had no contact with COVID-19 suspect and were having mild disease. More children were affected in the second wave. Fever was the most common complaint with CNS and gastrointestinal complaints coming a close second. 14% were surgical cases testing positive for COVID 19. The most common age groups affected were 1-5 years and 10-18 years of age.

Clinical Profile, ICU Course and Outcomes of Covid 19 Patients with Cytomegalovirus

Madhura Bhide, Deven Juneja, Omender Singh

Institute / organization name: Max Superspeciality Hospital, Saket, New Delhi, India.

ABSTRACT

Background: Objective: Active cytomegalovirus (CMV) infection can occur in upto 36% of critically ill patients. Severe COVID 19 disease have all risk factors that predispose to CMV infection. CMV infection can be associated with increased morbidity and mortality and could be an occult cause of deterioration in clinical condition in severe COVID 19 despite all the therapies. There is a dearth of literature regarding reactivation of CMV in COVID patients. We undertook this retrospective analysis to assess the clinical course and outcome of such patients admitted in an ICU of a tertiary care private hospital. **Methods:** We retrospectively analysed data from 26 patients admitted to ICU with severe COVID 19 disease who tested positive for CMV PCR between April and November 2020. Data regarding type of underlying co morbidities, severity of illness, ICU course and outcome were obtained. **Results:** The mean age was 58.69 years with a predominantly male population (84.6%). Thirteen patients (50%) had underlying immunocompromised condition with diabetes mellitus being the most common seen in 8 patients (30.76%). Average SOFA and APACHE II score on admission to ICU were 4.23 and 9.08 respectively. The overall hospital mortality rate for this cohort was 50%. Increased mortality was associated with higher SOFA scores ($p=0.04$), predicted mortality rate (PDR) by APACHE II score ($p=0.04$) and in patients who were administered pulse steroids ($p=0.03$). Area under the curve (AUC) was estimated for mortality prediction was highest (0.982) for SOFA score and the lowest for CMV copies (0.69). There was no association between mortality and number of CMV copies and treatment with anti-CMV therapies. **Conclusions:** The data give an insight into risk factors, clinical course and outcomes of CMV infection in patients with severe COVID 19 disease. Further studies are required to establish a cause – effect relationship between CMV infection, increased mortality effect of anti- CMV therapies.

Evaluation of The Effects of N-Acetylcysteine and Vitamin C on C-Reactive Protein and Lactic Dehydrogenase Enzymes in Abdominal Sepsis Patients-A Randomised Placebo Controlled Study

Anjali Kumari*, Syed Moied Ahmed

Institute / organization name: Department of Anaesthesiology and Critical Care, JNMCH, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: Sepsis is the most common cause of death in ICU worldwide. Rise in various biomarkers is due to the oxidative stress caused by any infective insult. Recently, the biomarkers CRP and LDH have played a significant role in diagnosing and assessing the severity of COVID-19 disease. The rise in reactive oxygen species (ROS) due to oxidative stress can be reduced by various anti-oxidants. The aim of the study was to evaluate the effect of antioxidant agents N-acetylcysteine (NAC) and Vitamin C in reducing the level of LDH and CRP in patients with abdominal sepsis. **Methods:** adult patients with abdominal sepsis were enrolled after approval from IEC and BOS of the Department. Setting: ICU, Anaesthesiology & Critical Care, JNMCH, AMU. Group Division: 60 patients were randomly divided into 4 groups of 15 patients each. Randomisation was done using computer generated random numbers. Group A (Placebo) received 100ml of 5% dextrose 8hrly for 3 days. Group B (NAC) received NAC @ 70mg/kg in 100 ml of 5% dextrose 8hrly for 3 days. Group C (Vitamin C) received Vitamin C @ 25mg/kg in 100ml of 5% dextrose 8hrly for 3 days. Group D received both NAC + Vitamin C. Blood samples were collected preoperatively, post op day 1 (before giving drug) and day 4 of study. Level of markers on day 4 and day 1 were compared within the groups and between groups using ANOVA test followed by Post Hoc Tukey test to detect which is the best of two. **Results:** The level of CRP and LDH in the blood significantly decreased ($p<0.01$) in groups B, C and D, while no change in A. The percentage change was more in group D but not significantly different from B and C. **Conclusion:** We conclude that antioxidants N-acetylcysteine and Vitamin C administered individually and in combination can significantly reduce the oxidative stress following sepsis. The results of the study may be implied in patients suffering from COVID-19 disease. However, a study may be designed with a larger sample size to evaluate the 28 days mortality outcome.

Correlation between sepsis biomarkers and the severity of sepsis - A prospective observational study.

Ayushi Saxena*, Prof. Syed Moied Ahmed

Institute / organization name: Department of Anaesthesiology and Critical Care, J N Medical College, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: Objective: Sepsis is one of the most important cause of mortality worldwide. The incidence of mortality increases with severity. APACHE II is a scoring system that measures severity of illness. CRP and D Dimer are routinely performed investigations to diagnose and assess the progress of infection. Very recently these markers played a significant role in Covid19 infection. Therefore, the aim of present study was to evaluate the correlation between the biomarkers (CRP and D Dimer) with APACHE II score in patients suffering from Abdominal sepsis. **Methods:** After obtaining approval from the BOS and IEC, 45 patients of either sex age ranging between 18–60 years suffering from abdominal sepsis were selected applying the inclusion and exclusion criteria. Study Design: Prospective observational double-blind study. Setting: ICU: J N Medical College, AMU. Group Division: The patients were divided into three groups depending on their APACHE II scores: Group A – 15 patients had APACHE II score < 10, Group B - 15 patients had APACHE II score 10 to 20 and Group C – 15 patients had APACHE II score > 20. Samples for CRP and D Dimer were collected and sent for estimation. The researcher analysing the sample was blind about the APACHE II scoring of the patients. The association between the dependent variable (biochemical markers) with that of the independent variable (APACHE II) was analysed applying linear regression and ANOVA was applied to assess the significant changes of markers with severity. A p value of < 0.05 was taken as statistically significant at 80% power. **Results:** The demographic profile of the patients in the groups were comparable. The square of correlation coefficient (r^2) between APACHE II score and CRP was found to be 0.447, 0.182 and 0.697; and that between APACHE II and D Dimer was 0.880, 0.127 and 0.820 in Group A, B and C respectively. The rise of both the biomarkers was not significantly different between Group A and B ($p=3.8$ for CRP and 3.36 for D Dimer) and B and C ($p=0.824$ for CRP and 1.66 for D Dimer). However, a significant difference was seen between Group A and Group C ($p=0.002$ for CRP and 0.03 for D Dimer). **Conclusions:** CRP and D Dimer are not only reliable sepsis biomarkers, but also correlate with the severity of sepsis. Thus, both these biomarkers can be used to monitor the progress of the disease and establish the prognosis of patients.

Safety of Obstetric Anesthesia During the COVID-19 Pandemic

Dr Surendra Kumar

ABSTRACT

Background: Safety of Obstetric Anesthesia During the COVID-19 Pandemic. With increasing numbers of coronavirus disease 2019 (covid-19) cases due to efficient human-to-human transmission of severe acute respiratory syndrome coronavirus 2 (sars-cov-2) in the United States, preparation for the unpredictable setting of labor and delivery is paramount. The priorities are 2-fold in the management of obstetric patients with covid-19 infection or persons under investigation: caring for the range of asymptomatic to critically ill pregnant and postpartum women; protecting health care workers and beyond from exposure during the delivery hospitalization (health care providers, personnel, family members). The goal of this review is to provide evidence-based recommendations or, when evidence is limited, expert opinion for anesthesiologists caring for pregnant women during the covid-19 pandemic with a focus on preparedness and best clinical obstetric anesthesia practice. **Conclusions:** Early neuraxial labor analgesia is strongly recommended to ensure availability of neuraxial anesthesia in the event of an intrapartum cesarean delivery, and spinal anesthesia should be provided if needed.

Mucormycosis in COVID-19: An Additional Epidemic in Ongoing Pandemic – Tertiary Care Center Experience

Dr Sravani M V, Dr Gunchan Paul, Dr Birender Paul, Dr Manish Munjal
Dr Sahil Goyal, Dr P L Gautam, Dr Bishav Mohan

Institute / organization name: Dayanand Medical College & Hospital, Ludhiana, Punjab, India.

ABSTRACT

Background: During the second wave of COVID-19 infection in May 2021, there was huge surge in cases of mucormycosis across the country and Government of India declared it as notifiable disease. **Objectives:** To study the risk factors, clinical features, treatment received and outcome of mucormycosis patients in COVID-19. **Methods:** This was a multicentric retrospective study of patients with COVID-19 infection who had mucormycosis admitted to tertiary care hospital across the state of Punjab from May to July 2021. Mucor infection was identified a notifiable disease and patients were admitted to tertiary care hospitals as amphotericin was available at this treating hospital only. We studied demographics factors, comorbidities, treatment received and outcome in COVID-19 patients with mucormycosis. **Results:** A total number of 100 rhino-orbito-cerebral mucormycosis were reported. The mean age of presentation was 54.1 ± 10.2 years. The mean time interval between COVID symptoms and Mucor diagnosis was 20.6 ± 4.8 days. The most common comorbid condition was diabetes mellitus found in 83% patients ($p < 0.0001$), followed by obesity (30%). Around 87% received either oral or intravenous steroids as the main stay of treatment ($p < 0.0001$) with at least 70% receiving steroids for 7 to 14 days for COVID-19 infection. About 70% patients received oxygen therapy ($p = 0.0001$) and daily change of humidifier was observed only in 35% patients. Other possible risk factors looked were use of cotton face mask in 72% ($p < 0.0001$). With regard to the clinical manifestation most of patients had rhinal symptoms in 59%, orbital in 54% and cerebral symptoms in 10% patients. About 81% of the patients received Amphotericin-B while 20% received combination of amphotericin and posaconazole. Functional endoscopic sinus surgery performed in 50% cases, maxillectomy in 21% cases and orbital exenteration in 12% cases. Mortality rate of mucormycosis in COVID-19 patients was observed to be 13% in our cohort. **Conclusions:** Our study showed painful rhino-orbital Mucormycosis being the most common form of fungal infection seen in post-COVID-19 infected patients. The strongest contributing factors were uncontrolled diabetes, use of steroids and prior use of oxygen therapy.

Correlation of Central Venous-to-Arterial Carbon Dioxide Difference to Arterial-Central Venous Oxygen Difference Ratio to lactate clearance and prognosis in Patients with Septic Shock

Dr. Kavya Sindhu1, Dr. Deepak Malviya, Dr. Samiksha Parashar, Dr. Chandrakant Pandey, Dr. Soumya Sankar Nath, Dr. Sujeet Rai

Institute / organization name: Department of Anaesthesiology and critical care medicine, Dr. Ram Manohar lohia institute of medical sciences, Lucknow, Uttar Pradesh, India.

ABSTRACT

Background: To evaluate the relationship between the ratio of difference of venoarterial CO₂ tension ($P(v-a)CO_2$) and difference of arteriovenous oxygen content ($C(a-cv)O_2$), i.e., $P(v-a)CO_2/C(a-v)O_2$ with lactate clearance (LC) at 8 and 24 hours, to define a cut-off for the ratio to identify $LC > 10\%$ and $> 20\%$ at 8 and 24 hours, respectively, and its association with prognosis. **Methods:** Adult septic shock patients were included. Blood samples for arterial lactate, arterial, and central venous blood gases were drawn simultaneously at T0 (insertion of a central venous catheter), 8 (T8), and 24 hours (T24). At T8, patients were divided into Group 8A ($LC \geq 10\%$) and Group 8B ($LC < 10\%$). At T24, patients were divided into Group 24A ($LC \geq 20\%$) and Group 24B ($LC < 20\%$). **Results:** 98 patients were included. AUC of $P(v-a)CO_2/C(a-v)O_2$ at T8 (0.596) and at T24 (0.823) was highest when compared to $P(v-a)CO_2$ and $C(a-v)O_2$. The best cutoff of $P(v-a)CO_2/C(a-v)O_2$ as predictor of $LC > 10\%$ was 1.31 (sensitivity 70.6%, specificity 53.3%) and for $LC > 20\%$ was 1.37 (sensitivity 100%, specificity 50%). At both T8 and T24, $P(v-a)CO_2/C(a-v)O_2$ showed a significant negative correlation with LC. 8A and 24A groups showed lower ICU mortality than 8B and 24B, respectively. Values of $P(v-a)CO_2/C(a-v)O_2$ at T8 were comparable, but at T24, there was a significant difference between the survivors and non-survivors. **Conclusion:** $P(v-a)CO_2/C(a-v)O_2$ predicts lactate clearance, and its 24-hours value appears superior to 8 hour value in predicting LC and mortality in septic shock patients.

Comparison of the Effects of Vitamin-C and Thiamine On Refractory Hypotension in Patients with Sepsis

Dr. Nandhini N, Dr. Deepak Malviya, Dr. Chandra Kant Pandey, Dr. Soumya Sankar Nath, Dr. Samiksha Parashkar, Dr. Manoj Tripathi
Institute / organization name: Department of Anaesthesiology and critical care medicine, Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow, Uttar Pradesh, India.

ABSTRACT

Background: Role of thiamine and ascorbic acid (AA) in septic shock remains controversial as we find conflicting results. To evaluate the effect of thiamine and AA on mortality, SOFA score, duration and dose of vasopressor support and need for renal replacement therapy (RRT) in patients with septic shock with refractory hypotension. **Methods:** Consenting adult ICU patients of septic shock with refractory hypotension were included in this prospective, double blind, randomized control study. Patients were divided into three groups: Group A received 100 ml of balanced salt solution eight hourly, Group B received 2mg/kg of thiamine eight hourly, Group C received 25mg/kg of AA eight hourly. Patients received respective medication along with hydrocortisone for 72 hours. Following parameters were analysed: Serum lactate, dose & duration of vasopressor support, SOFA score, need for RRT and outcome. **Results:** SOFA Score was significantly lower in Group B whereas it was comparable in Group A and C at 24, 48 and 72 hours. Dosage of norepinephrine was lower in Group B at 66 hours and thereafter, whereas in Groups A and C it was comparable at all-time points. Mortality in Group B (28%) was significantly lower, whereas in Groups A (60%) and C (48%) it was comparable. The need for RRT was significantly lower in group B (44%) compared to the control group (88%), but comparable in Group C (76%). **Conclusions:** Thiamine supplementation resulted in earlier correction of organ dysfunction, reduced need for RRT and mortality benefit in patients with septic shock whereas ascorbic acid supplementation did not demonstrate any beneficial role. The trial was registered at Clinical Trial Registry of India (CTRI/2021/02/031043).
Keywords: Septic shock, Thiamine, Ascorbic acid, Hydrocortisone, SOFA score, Serum lactate.

ABSTRACT

Background: Metabolic alkalosis is a common problem in multi system disorders in critical care patient. The present case report shows a patient with diagnosis – DM2 – Hypothyroid – IHD - ILD - Post Covid Fibrosis – Fungal Sepsis – Septic Shock - Metabolic Alkalosis. Work up revealed the cause of metabolic alkalosis to be diuretics. She was given IV Fluids with NIV with other supportive treatment.

Comparison of C-Mac® Videolaryngoscope and Macintosh Laryngoscope Using Aerosol Barrier Box for Intubation During Covid-19 Pandemic

Dr Renu Bansal, Dr Anil Thakur, Dr Soumya Gupta

Institute / organization name: ESI PGIMS and Model Hospital, Basaidarapur, New Delhi, India.

ABSTRACT

Background: Coronavirus disease (COVID-19) is a highly infectious disease caused by a newly discovered SARS-CoV-2. The major challenges in managing patients with the COVID-19 disease are bilateral pneumonia and acute respiratory distress syndrome. Many patients with COVID-19 are in critical condition and need intubation. To avoid Health Care Workers from contracting SARS-CoV-2 infection during Aerosol Generating Procedures, aerosol box is being used nowadays in concurrence with WHO recommended Personal Protective Equipment. The aerosol box decreases the risk of aerosol transmission but at the same time increases the difficulty in airway handling. This study was done to compare the intubating conditions with aerosol box, while doing intubation with C-MAC video laryngoscope or Macintosh laryngoscope. The primary observation was to compare the time for successful tube insertion. The secondary observations noted were the number of attempts, use of intubation aids (stylet, bougie) and external laryngeal maneuver and comparison of hemodynamic variations. **Methods:** This prospective randomized trial was conducted on 100 patients undergoing elective surgeries requiring general anaesthesia, who were not suffering from COVID-19. Patients were randomly assigned in two groups: VL and ML using 100 sealed numbered opaque slips (SNOS). In group VL laryngoscopy was performed using C-MAC video laryngoscope and in group ML, with Macintosh laryngoscope. **Results:** Mean time taken for intubation was 21.5 seconds in the VL group and 26.2 seconds in the ML group. No intubation aids were required in VL group, though 40 percent

patients in ML required bougie for intubation. External laryngeal maneuver was required in 30 percent patients in ML group and in 10 percent patients in VL group. First pass success rate was comparable between the two groups. There was no incidence of failed intubation in either of the groups. **Conclusions:** Intubating conditions were favourable with C-MAC video laryngoscope resulted in easier orotracheal intubation as compared to intubation with Macintosh laryngoscope in the presence of an aerosol box.

Changing Trends of Steroid Dose on Mortality Among COVID ICU Patients at Tertiary Care Hospital

Dr. Kumar M, Dr. Kumari M, Dr. Manohar, Dr Aggarwal A, Dr. Shweta I, Kumar P

Institute / organization name: Department of Anesthesiology, Pt. BD Sharma PGIMS, Rohtak, Haryana, India.

ABSTRACT

Background: Since the start of the outbreak, Coronavirus disease 2019 (COVID-19), caused by the novel coronavirus SARS-CoV-2, has spread globally from Wuhan, China. Within few months, over 210 countries globally, were affected by the virus. Manifestations starting from mild respiratory symptoms, to multi-organ involvement where 6-13% of patients require ICU admission. In ICU settings, patients are mostly managed with ventilatory support, steroid therapy and thromboprophylaxis. Steroids were found to be the first effective drug reducing mortality among ICU patients. But still there is confusion among clinicians regarding use of corticosteroids among Covid patients in ICU. **Methods:** Retrospective audit of one of the three Covid ICUs of tertiary care covid centre was done to review mortality amongst covid patients. The primary aim was to compare the mortality among ICU patients before and after extensive use of steroids. **Results:** Mortality data among Covid patients in the months of June and July 2020 was compared with September and October 2020. Mortality of 21 out of 56 (37.5%) in month of June, 29 out of 75 (38.66%) in July was recorded when less of steroids were used. Steroids came in enhanced use after recover trial in July 2020. Mortality of September was 38 out of 110 (34.54%) and 35 out of 102(35.35%) in October among ICU patients. Combined mortality among ICU patients for 2 months before steroid approval was 38.16 % and that of post steroid use was 34.43%. **Conclusion:** Though there was apparent reduction in mortality after enhanced use of steroids in ICU patients. However, its statistical significance cannot be propagated. The mortality in COVID 19 was multi factorial with multiple arms playing the role.

Comparative Evaluation of Effect of Inducing Agent, Propofol and Ketamine on Sepsis Markers

Manoj Kumar, Syed Moied Ahmed

Institute / organization name: Department of Anaesthesiology and Critical Care, J N Medical College & Hospital, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: Infection in sepsis is the main cause of oxidative stress leading to production of Reactive Oxygen Species (ROS). To counter the ROS there is upsurge of biochemical markers. Various studies have reported propofol to have antioxidant properties. However, not much has been mentioned about ketamine. Therefore, the aim of the present study was to evaluate the effect of propofol and ketamine on biochemical marker in patients with abdominal sepsis undergoing laparotomy. **Methods:** After obtaining approval from departmental BOS and IEC, 30 abdominal sepsis (peritonitis) patients of both sexes, age ranging between 20 – 60 years were enrolled for the study. The patients were randomly divided into two groups each comprising of 15 patients. Setting: Emergency Unit & ICU, J N Medical College, AMU Group Division: Group A (n=15, control) - induced with propofol 1.5 -2 mg/kg, Group B(n=15, study) - induced with ketamine 2 mg/kg, Blood sample was collected and sent pre-operatively and post-operatively day 1 for analysis of biochemical marker. The analyser was blind about the groups. The values of biochemical marker were recorded and compared between the two drugs using students t test. ANOVA test was used to identify the most significant rise amongst the three markers. **Results:** The levels of serum LPO, serum CPR and serum LDH increased significantly after inducing with ketamine (p<0.05) in comparison to propofol. There was a significant rise in LPO in comparison to other markers (p<0.05). **Conclusions:** We therefore conclude that though ketamine has a better haemodynamic stability but it can lead to rise in the biochemical markers. This could be probably due to a significantly antioxidant effect of propofol. However, a study with larger sample size may be conducted to validate our findings.

Coping Strategies Adopted by HCWs in Relation to Stress During Covid-19 Pandemic-Braving the Storm

Shruti Sharma, Sarit Sharma, Gunchan Paul, PL Gautam

Institute / organization name: Dayanand Medical College and Hospital, Ludhiana, Punjab, India.

ABSTRACT

Background: The COVID-19 pandemic has brought with itself myriad of problems involving high morbidity and mortality in patients, and HCWs are caught in the middle of this storm. Objectives: To estimate the prevalence and magnitude of stress experienced by the HCWs and to explore the factors leading to stress, To identify and describe the coping strategies used by HCWs to deal with stress related to the COVID-19. **Methods:** This cross-sectional, web based survey was conducted based on standard guidelines (based on PSS-10-C scale and Brief COPE scale) to collect responses about stress levels, and coping strategies adopted by HCWs to mitigate stress. Snow ball sampling technique was used to conduct study and collect data. Data was analyzed using SPSS statistical software for dependent variables using percentages and proportions. **Results:** Out of 402 HCWs, 65% were doctors and 35% were staff nurses/paramedics. Most of the HCWs (72%) had been caring for all three categories of Covid patients (mild, moderate and severe) for more than one year (56%). Stress about infecting self, family members (77.1%), sick patients' survival (75.6%), long duty hours(67%) and aggression by patients and relatives (70.3%) were some of the major stressors reported. Nearly 87% of participants experienced moderate stress (PSS-10 C scale) of which nearly half were interns, residents and medical officers. Many participants adopted emotion focused coping strategies such as positive reframing (67.6%), emotional support (64.4%), acceptance (63.4%), and turning to religion (58.2%). Problem focused strategies used were planning and strategization (68%), tackling problems (66.7%), taking advice (61%), whereas dysfunctional coping methods adopted were self-distraction to other activities (62%), behavioral disengagement (32%), venting out frustrations (19-27%), denial (19%), self blame (15.7%) and substance abuse (8.2%) as reported by HCWs. **Conclusions:** Moderate stress levels in HCWs caring for Covid patients are a cause for worry. Our observations support role of appropriate coping strategies which are needed so as to help HCWs in tackling pandemic/work related stress. Physical, mental and financial health of HCWs should be looked after with adequate support and counseling so that they do not suffer from acute or chronic anxiety issues.

Association of Rotational Thromboelastometry Parameters with the Outcome of COVID-19 Patients: An Observational Study

Dr. Manoj Kamal, Dr. Hariprasad R, Dr. Pradeep Kumar Bhatia, Dr. Sanjeev Misra, Dr.Praveen Sharma, Dr. Mahendra Kumar Garg, Dr. Nikhil Kothari, Dr. Manoj Gupta, Dr. Geeta Singariya

Institute / organization name: All India Institute of Medical Sciences, Jodhpur, Rajasthan, India.

ABSTRACT

Background: Hypercoagulopathy is one of the main concern of Coronavirus disease-19 (COVID-19). Rotational thromboelastometry (ROTEM) gives complete picture of coagulation cascade, which are not diagnosed with conventional coagulation assays. However, the benefit of performing it in disease management and to predict the outcome of COVID-19 patients are yet to be established. Aims and Objectives: To evaluate association between the ROTEM parameters and the demographic characteristics, comorbidities, severity and the final outcome (mortality and survival) of patients. **Methods:** This single-centre retrospective observational cohort study was conducted in confirmed RT-PCR for COVID-19 adult patients, between July and August 2020. The data of 23 critically ill and 11 stable patients were retrieved from hospital information system and patient charts and analyzed retrospectively. The patients with pre-existing congenital bleeding or thrombotic disorders and/or pre-existing acquired coagulopathies, active cancer and/or chemotherapy, and pregnancy were excluded. The critically ill patients were further divided into two groups as survivor and non-survivor. The INTEM and FIBTEM (Fibrinogen part of ROTEM) were performed on day 0 for both critically ill and stable patient, and on day 10 for critically ill patient. The analysis was made for association between INTEM, FIBTEM parameters and patient characteristics, and the final outcome. **Results:** The mean age and comorbidities were more in critical ill patients compared to stable COVID-19 patients. The median FIBTEM amplitude at 5 min (A5) and maximum clot firmness (MCF) were elevated in both stable and critically ill patients (24 vs 27 mm, p= 0.46 and 27.5 vs 40 mm, p=0.011). The FIBTEM MCF > 25 at day 0 and day 10 were statistically not significant between alive and dead patients. **Conclusions:** The increasing age, comorbidities and D-dimer values were associated with worse prognosis of COVID-19 patients. The hypercoagulable state as detected by ROTEM parameters at day 0 and day 10 had no relation with severity of disease and mortality of COVID-19 patients, hence it cannot be used as a prognostic test. Further large studies are required to ascertain the exact cause of mortality.

Tocilizumab-A Potential Therapeutic Target in The Late Stage of Cytokine Storm Phase of COVID-19.

Gulabani Michell, Pragma,Vasudev Prerna, Saxena Ashok K

Institute / organization name: University College of Medical Sciences, Delhi-95, India.

ABSTRACT

Background: Tocilizumab administration in worsening critically ill COVID-19 patients as a pharmacological modality during late phase of the disease. **Methods:** Tocilizumab acts on interleukin 6 (IL-6) receptor and downregulates immune response which is the major cause of pathological damage to lungs in COVID-19. It is a recombinant humanized monoclonal antibody against both soluble and membrane bound IL-6 receptor and improves the outcome in critically ill COVID-19 patients. **Results:** We administered Tocilizumab in three patients at 18-20 days of symptom onset (9-11 days of ICU administration). These patients were showing clinical recovery initially but they had a sudden increase in the levels of inflammatory markers C-reactive Protein>70 and IL-6>200, worsening dyspnea and radiographic evidence of COVID-19 deterioration. All patients had severe disease with RR > 30/min, breathlessness, worsening ABG (Arterial Blood Gas) and falling Spo2. They were on Non-invasive Ventilation and their worsening clinical condition warranted endotracheal intubation and mechanical ventilation. All these patients had already received the institutional standard treatment protocol for COVID-19 which included broad spectrum antibiotics, Inj Methylprednisolone 62.5 mg BD, Inj Enoxaparin 60 mg OD and supportive care. These patients received tocilizumab after excluding secondary bacterial and fungal infections as their inflammatory markers increased suddenly during the late phase of the disease. Their liver and kidney functions were acceptable and no neutropenia or thrombocytopenia was ensured. Within 24 hours post intervention their inflammatory markers improved significantly. Their clinical condition gradually improved, oxygen requirement decreased and we were successfully able to shift them to wards from where they were finally discharged. **Conclusion:** After intensive search of literature, the exact timing for Tocilizumab administration could not be ascertained. Therefore, we would like to emphasize consideration of Tocilizumab in worsening critically ill COVID-19 patients as a pharmacological modality even during late phase of the disease. COVID-19 in its clinical presentation, progression and response to therapeutic modalities is dynamically evolving and host immune response varies extensively, therefore interventional decisions need to be tailor made for each patient.

Clinical Profile and Outcome of Covid-19 Patients Admitted to a Tertiary Care Hospital in Mysuru

Madhusudhan K, Vaidyanathan R, Adarsh S P, Deepu Chengappa, Pooja Bhandari

Institute / organization name: Cauvery Heart and Multispecialty Hospital, Mysuru, Karnataka, India.

ABSTRACT

Background: COVID 19 was declared as a pandemic in March 2020 by WHO. Covid 19 cases peaked during second wave from March 2021 to July 2021 in our country with healthcare system getting stretched and overwhelmed. In this retrospective analysis we evaluated the socio-demographic factors, clinical profile and possible factors affecting the in hospital mortality in these cases. **Methods:** We conducted a single centre retrospective observational study of all hospitalized cases between 1st March 2021 to 1st August 2021 with COVID 19 in Cauvery Heart and Multispecialty hospital. All 581 patients admitted with RT PCR positive reports were included in the study. Cases with negative RTPCR reports were excluded. Detailed history of patients, vaccination status, severity of illness, presence of co-morbid conditions, routine investigations, specific laboratory/radiological investigations, SOFA scoring, CT severity index, inflammatory markers and level of respiratory support required were analyzed in all the patients. All the patients received treatment as per National protocol for COVID 19. Any complications and co morbidities were treated as per institution protocol. Primary outcome as death was evaluated and any possible predictors of mortality were looked for from among the clinical, radiological or laboratory parameters. Patients were also analyzed for need of mechanical ventilation, duration of ventilation, length of ICU stay and number of hospital days. **Results:** Preliminary results showed a male preponderance and highest cases in 40-50 yrs age group. Most common causes of hospitalization included severe hypoxia, severe breathlessness or referral from other hospitals for need of ICU beds. Presence of co morbidities like DM, HTN, IHD, advanced age, SOFA score and severity of the disease were significantly associated with increased length of hospital stay, ICU admission, need for ventilation and mortality. Single dose of vaccination didn't seem to influence the severity of disease; ICU stay or ventilator requirement. **Conclusions:** To conclude preliminary findings of our study showed advanced age, low Spo₂ on admission and presence of comorbidities to be significantly associated with increased duration of hospital stay, ICU stay, ventilator requirement and mortality. Single dose vaccination doesn't seem to confer any protection with respect to severity of disease or mortality.

Keywords: Covid-19, Vaccination, Mortality.

Providing CPAP with Bain Circuit in COVID Patients on NIV for Intra-Hospital Transport

Utsav Anand Mani, Haider Abbas, Mukesh Kumar, Pranay Gupta

Institute / organization name: Department of Emergency Medicine, King George's Medical University, Lucknow, Uttar Pradesh, India.

ABSTRACT

Background: Comparison of Intra-hospital transport of COVID patients on NIV from Emergency Medicine Department to ICU's and Radiology between Bain Circuit and Transport Ventilator through a case-series. **Methods:** During the second surge of COVID from April to July 2021 we shifted a total of 50 patients on NIV to various COVID ICU's, Post COVID ICU's and Radiology department for CT scans of Thorax. The maximum distance being 1.9 kilometers to COVID ICU and minimum distance of 100 meters to CT Scan from the Emergency Medicine Department. This study is a Case Series observing for hazards during the process of shifting patients on NIV by either CPAP mode of transport ventilator or Bain circuit attached to the face interface. All patients who were transported were accompanied by ACLS certified doctors and those transported to the designated COVID ICU's were done in ACLS ambulances. A pre transport ABG was performed to rule out insufficient oxygen delivery in all cases. All 50 patients were diagnosed cases of COVID pneumonia on clinical examination, RT-PCR, bedside X-ray and HRCT thorax during the course of hospitalization. **Results:** Of the 50 instances of transfer noted in our study, 40 such patients were transported using Bain circuit attached to the NIV interface attached to the oxygen cylinder providing a steady flow of 10 -15 l/min. During transfer using transport ventilator out of the 10 instances, 3 times patients have desaturated resulting in the usage of spare cylinder. No catastrophic event (Death) was recorded. **Conclusions:** Bain circuit when attached to the NIV mask proved to be more reliable in transporting patients to COVID ICU than CPAP mode of transport ventilator. We strongly recommend this approach to improve the safety of COVID patients in transport who is on NIV. There is a need to compare the results of this study at multiple centers so as to arrive to a generalized outcome.

Atypical Presentation of Disseminated Koch's in an Elderly Male/ Disseminated Tuberculosis with Involvement of the Bone Marrow/ Pancytopenia as a Presenting Symptom in an Elderly Patient of Disseminated Koch's

ABSTRACT

Background: Tuberculosis is still a major public health concern in India with nationwide efforts for TB control in place. Disseminated koch's is a life threatening disease resulting from the hematogenous spread of Mycobacterium tuberculosis. The diagnosis is challenging and it is important to be familiar with unusual presentations of disseminated tuberculosis.

Keywords: Pulmonary Koch's/ Tuberculosis/ Extra pulmonary Tuberculosis/ Pancytopenia/ Hemophagocytosis/ ATT/ Bone marrow.

Incidence of difficult airway in Post-COVID 19 Patients after prolonged use of Non Invasive Ventilation

Mohd Amir Hasan Khan, Syed Moied Ahmed

Institute / organization name: Department of Anaesthesiology and Critical Care, JNMCH, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: During this long COVID-19 pandemic outbreak, non-invasive ventilation (NIV) was being widely used to treat patients with moderate to severe acute respiratory failure (ARF). CPAP via a face mask produced physiological benefits and reduced the need for ETI in patients with acute lung injury. (1) Various studies have shown that around 20 – 30% of patients on NIV failed and required endotracheal intubation. To the best of our knowledge no studies have reported the incidence of difficult airway in these patients. Therefore, the aim of the study was to evaluate the incidence of difficult airway. **Methods:** In this retrospective cohort study, 40 post covid 19 patients age ranging between 20 – 60 years of either sex were recruited who became RTPCR negative but were still had ARF and receiving NIV in non-covid ICU. The demographic, clinical data and the laboratory data were recorded at admission. The patients who could not maintain there SpO₂ > 88% with a RR > 30 were declared failed NIV and intubated. All the patients were intubated using C-MAC video laryngoscope. Setting: NON COVID ICU: J N Medical College, AMU. The patients were divided into 2 groups according to the duration of NIV. Group Division: Group A (N = 20) – patients received NIV for more than 7 days, Group B (N = 20) – patients received NIV for less than 48 hours. Primary objective was to evaluate the rate of success of intubation on first attempt while Secondary objective was intubation time. **Results:** All the patients could be successfully intubated in both the groups. The Single attempt success rate was 65% in GROUP A while it was 95% in GROUP B (p value <0.05). The mean ± SD intubation time in GROUP A was 32.2 ± 4.3 seconds meanwhile in GROUP B was 22.4 ± 3.1 seconds (p value < 0.05). The no. of attempts required in group A were significantly more (p < 0.05) and the Group B patients. **Conclusion:** Therefore, we conclude that the duration of NIV in post Covid 19 patients would influence the airway management. Prolonged NIV in a COVID 19 patient was associated with increased time and more attempts to intubate in comparison to patients who were intubated within 48 hours of NIV.

Covid Vaccine Adverse Effects Following Immunization: Vaccine Associated Myocarditis: A Case Report

Dr. Rajdeep Bhattacharjee, Dr. Brajendra Lahkar, Dr. Chandana Sarma, Dr. Reshu Gupta, Dr Rakhee Baruah

Institute / organization name: Healthcity Hospital, Guwahati, Assam, India.

ABSTRACT

Background: With the world reeling from the sars cov2 pandemic, the discovery of covid vaccines gave the world a fresh new hope. However these vaccines have had their own set of adverse effects ranging from mild fever and myalgia to vaccine induced thrombocytopenia and myocarditis being reported from all across the world. Identification and awareness about such adverse effects following immunization will lead to prompt management and better public acceptance. **Case Description:** The patient concerned was a 32 year old healthy male with no known co morbidities, who presented with cervical lymphadenopathy, fever and headache 5 days post vaccination. He was provisionally diagnosed to be in sepsis with shock. The patient was further evaluated and investigated which revealed elevated cardiac markers with global hypokinesia with severe lv dysfunction (ef – 35%). All cultures (blood, urine, tracheal) turned up negative with raised procalcitonin levels. He was initially put on niv support but he had to be put on invasive ventilation and vasopressor support due to increasing respiratory distress and hemodynamic instability. **Conclusions:** The patient was successfully treated with injectable broad spectrum antibiotics and mechanical ventilation and subsequently weaned off from ventilator support within 48 hours. He was discharged after 10

days of hospital stay with a final diagnosis of vaccine associated myocarditis and lymphadenopathy.

Keywords: SARS COV 2, Covid Vaccine, Myocarditis, Adverse Effects.

Covid Double Valve and Bypass Surgery One of 1st in World

Ziyokov Joshi

Institute / organization name: Tagore Heart Care and Hospital, Jalandhar, Punjab, India.

ABSTRACT

Background: Post Covid Double Valve and Bypass Surgery in Covid Pandemic. **Methods:** We have done 260 cardiac surgery in our hospital out of which 10 case are post covid case 8 case cabg i case cabg and dvr and one case mvr. All case we have done 6 week after Covid report negative. We have bundle of pre anaesthesia investigation for all patient, RT PCR negative report, cpp, esr sgot sgpt pti total prtein urea creatine hb tlc dlc pletlet count mcv c mch cok mb tropi hs ecg x ray chest ct scan –chest echo angiography and complete systemic body evaluation by team of cardiac anaesthesiologist all cabg we have done on beating heart dvr and cabg on cardiopulmonary bypass all case dischARGE on 8 th day there is no mortality in all our case in non covid cabg we got to post bypass surgery patient become positive one pt we lost she was 75 year female on 23th day. We recommend for all cardiac surgery patient should undergo complete pac and beating heart surgery for coronary artery surgery and all team member should use covid precaution protocol. **Results:** We have done total 260 cardiac surgery from May 2020 till August 2021 10 case are post Covid 8 case cabg and 1 mitral valve surgery 1 case double valve surgery and bypass surgery one of 1st in world all post covid patient discharge on 8 th day no mortality in our post covid case out of 260 cardiac case two patient become covid positive one patient we lost. We advise post covid case we should do cardiac elective case 6 week after covid negative report and complete pac is very important and every one take all covid preventive protocol every time **Conclusions:** All post covid case we should do cardiac surgery 6 week after covid complete pac evaluation is very important every time covid prevention protocol for every in hospital for coronary artery bypass surgery beating heart surgery is safe technique.

Changing Trends of Steroid Dose on Mortality Among COVID ICU Patients at Tertiary Care Hospital

Dr. Kumar M, Dr. Kumari M, Dr. Manohar, Dr Aggarwal A, Dr. Shweta, Kumar P

Institute / organization name: Department of Anesthesiology, Pt. BD Sharma PGIMS, Rohtak, Haryana, India.

ABSTRACT

Background: Since the start of the outbreak, Coronavirus disease 2019 (COVID-19), caused by the novel coronavirus SARS-CoV-2, has spread globally from Wuhan, China. Within few months, over 210 countries globally, were affected by the virus. Manifestations starting from mild respiratory symptoms, to multi-organ involvement where 6-13% of patients require ICU admission. In ICU settings, patients are mostly managed with ventilatory support, steroid therapy and thrombo-prophylaxis. Steroids were found to be the first effective drug reducing mortality among ICU patients. But still there is confusion among clinicians regarding use of corticosteroids among Covid patients in ICU. **Methods:** Retrospective audit of one of the three Covid ICUs of tertiary care covid centre was done to review mortality amongst covid patients. The primary aim was to compare the mortality among ICU patients before and after extensive use of steroids. **Results:** Mortality data among Covid patients in the months of June and July 2020 was compared with September and October 2020. Mortality of 21 out of 56 (37.5%) in month of June, 29 out of 75 (38.66%) in July was recorded when less of steroids were used. Steroids came in enhanced use after re-covert trial in July 2020. Mortality of September was 38 out of 110 (34.54%) and 35 out of 102(35.35%) in October among ICU patients. Combined mortality among ICU patients for 2 months before steroid approval was 38.16 % and that

of post steroid use was 34.43%. **Conclusions:** Though there was apparent reduction in mortality after enhanced use of steroids in ICU patients. However, its statistical significance cannot be propagated. The mortality in COVID 19 was multi factorial with multiple arms playing the role.

Coping Strategies Adopted by HCWS in Relation to Stress During Covid-19 Pandemic-Braving the Storm

Shruti Sharma, Sarit Sharma, Gunchan Paul, PL Gautam

Institute / organization name: Dayanand Medical College and Hospital, Ludhiana, Punjab, India.

ABSTRACT

Background: The COVID-19 pandemic has brought with itself myriad of problems involving high morbidity and mortality in patients, and HCWs are caught in the middle of this storm. Objectives: To estimate the prevalence and magnitude of stress experienced by the HCWs and to explore the factors leading to stress, To identify and describe the coping strategies used by HCWs to deal with stress related to the COVID-19. **Methods:** This cross-sectional, web based survey was conducted based on standard guidelines (based on PSS-10-C scale and Brief COPE scale) to collect responses about stress levels, and coping strategies adopted by HCWs to mitigate stress. Snow ball sampling technique was used to conduct study and collect data. Data was analyzed using SPSS statistical software for dependent variables using percentages and proportions. **Results:** Out of 402 HCWs, 65% were doctors and 35% were staff nurses/paramedics. Most of the HCWs (72%) had been caring for all three categories of Covid patients (mild, moderate and severe) for more than one year (56%). Stress about infecting self, family members (77.1%), sick patients' survival (75.6%), long duty hours(67%) and aggression by patients and relatives (70.3%) were some of the major stressors reported. Nearly 87% of participants experienced moderate stress (PSS-10 C scale) of which nearly half were interns, residents and medical officers. Many participants adopted emotion focused coping strategies such as positive reframing (67.6%), emotional support (64.4%), acceptance (63.4%), and turning to religion (58.2%). Problem focused strategies used were planning and strategization (68%), tackling problems (66.7%), taking advice (61%), whereas dysfunctional coping methods adopted were self-distraction to other activities (62%), behavioral disengagement (32%), venting out frustrations (19-27%), denial (19%), self blame (15.7%) and substance abuse (8.2%) as reported by HCWs. **Conclusion:** Moderate stress levels in HCWs caring for Covid patients are a cause for worry. Our observations support role of appropriate coping strategies which are needed so as to help HCWs in tackling pandemic/work related stress. Physical, mental and financial health of HCWs should be looked after with adequate support and counseling so that they do not suffer from acute or chronic anxiety issues.

Providing Cpap with Bain Circuit in Covid Patients on NIV for Intra-Hospital Transport.

Utsav Anand Mani, Haider Abbas, Mukesh Kumar, Pranay Gupta.

Institute / organization name: Department of Emergency Medicine, King George's Medical University, Lucknow, Uttar Pradesh, India.

ABSTRACT

Background: Comparison of Intra-hospital transport of COVID patients on NIV from Emergency Medicine Department to ICU's and Radiology between Bain Circuit and Transport Ventilator through a case-series. **Methods:** During the second surge of COVID from April to July 2021 we shifted a total of 50 patients on NIV to various COVID ICU's, Post COVID ICU's and Radiology department for CT scans of Thorax. The maximum distance being 1.9 kilometers to COVID ICU and minimum distance of 100 meters to CT Scan from the Emergency Medicine Department. This study is a Case Series observing for hazards during the process of shifting patients on NIV by either CPAP mode of transport ventilator or Bain circuit attached to the face interface. All patients who were transported were accompanied by ACLS certified doctors and those transported to the designated COVID ICU's were done in ACLS ambulances. A pre transport ABG was performed to rule out insufficient oxygen delivery in all cases. All 50 patients were diagnosed cases of COVID pneumonia on clinical examination, RT-PCR, bedside X-ray and HRCT thorax during the course of hospitalization. **Results:** Of the 50 instances of transfer noted in our study, 40 such patients were transported using Bain circuit attached to the NIV interface attached to the oxygen cylinder providing a steady flow of 10 -15 l/min. During transfer using transport ventilator out of the 10 instances, 3 times patients have desaturated resulting in the usage of spare cylinder. No catastrophic event (Death) was recorded. **Conclusions:** Bain circuit when attached to the NIV mask proved to be more reliable in transporting patients to COVID ICU than CPAP mode of transport ventilator. We strongly recommend this approach to improve the safety of COVID patients in transport who is on NIV. There is a need to compare the results of this study at multiple centers so as to arrive to a generalized outcome.

Fluid Management 100% Non-Invasive for Covid Patient in ICU by Sterling Stroke Volume Guided Resuscitation

Dr. Ziyakov Joshi

Institute / organization name: Tagore Heart Care and Hospital, Jalandhar, Punjab, India.

ABSTRACT

Background: Non Invasive Fluid Management in Covid Shock Patient in ICU **Methods:** Our hospital we use sterling stroke volume guided fluid management for covid shock patient .in university of kaansas health system evaluated 200 case for stroke volume (sv) guided fluid resuscitation this study show icu length of stay reduce by 2.89 days, risk of mechanical ventilation reduce by 51%, initiation of acute dialysis therapy reduce by 13.2 %, this system save an estimated \$14498 per treated patient this system use Bioreactance technology to measure sv in shock patient in two senser place above heart and two below heart and continue meassurment of sv done in 48 second. Validation studies over 500 patient published clinical studies result are same all major technologies (Swan ganz, pulse contour, Doppler, fick) and over 100 peer =reviewed publications are there. this technique is100% noninvasive accurate flexible -- this sterling system use PLR or bolus test for SV management we are using in emergency for our rapid response team in MICU OT for perioperative fluid management and all surgical ICU. **Results:** ICU length of stay reduce by 2.89 days 2 risk of mechanical ventilation reduce by 51% 3 initiation of acute dialysis therapy reduce by 13.5% 4 -----save an estiamated \$14498 per treated patient. **Conclusions:** Sterling monitoring platforms use unique, patented Bioreactance technology to take measurescontinously and precisely, and they eequire only four easy to place sensor pads. the sensors can be ----anywhere on the chest two above heart and two below heart to creating a box around the heart we advise sterling stroke volume guided fluid management in emergency medical ICU surgical ICU and perioperative and RRT for accurate fast and 100% noninvasive technique for covid patient.

Prolonged Prone Ventilation in Severe Covid ARDS is Feasible and Effective

ABSTRACT

Background: Prone position ventilation is an established method to improve oxygenation in severe acute respiratory distress syndrome (ARDS), and its application was able to reduce mortality rate. About 5% of SARS Cov-2 need mechanicalventilation. With manpower constraints in a pandemic like Covid, repeated proning cycles would result in overworkload to HCW. Conventional prone ventilation is instituted for 16 hours. Prone ventilation has evolved as a technique in ards. Initial studies did proning for shorter duration of time. This showed improved oxygenation only without survival benefit. Survival benefit was from proseva trial and it is one of the strategy in ards having mortality benefit. Prolonged proning for 45 hours was attempted in our case of severe covid with severe ards with sustained improved oxygenation. Despite prolonged prone positioning patient did not have pressure sores several potential advantages of prolonged proning beyond conventional proning. First, oxygenation improvement might be higher during prolonged pronation than during standard pronation, and the gain might be more sustained over time. Second, in the condition of work overload for healthcare assistants, this strategy might reduce the number of pronation cycles needed for a single patient in covid severe ARDS. Prolonged prone position beond conventional 16 hours is feasible, safe, and may offer potential clinical and organizational advantages.

Perceived Competence in End-of-Life Care Among Health Care Providers in the Intensive Care Unit - An Evaluation in Sri Lankan Tertiary Care Setup

Subasinghe, SDLP, Kulasiri RADeS

Institute / organization name: National Hospital of Sri Lanka, Colombo, Sri Lanka.

ABSTRACT

Background: The need for improved end-of-life care (EoLC) in intensive care practice has gained attention in the recent years. The objective of this study is to describe intensive care unit (ICU) health care providers' self-perceived competence related to the provision of EoLC, as a first step in planning educational interventions for ICU staff. **Methods:** A two-hundred-and-forty mixed population of ICU staff members working in 07 specialty ICUs over a period of 03 months, at National Hospital of Sri Lanka was included in the survey. A validated self-administered questionnaire, "the Scale of End-of-Life Care in the ICU" (EoLC-ICU), was used and the analysis of data was descriptive and correlational. **Results:** The response rates varied between 85-100% according to questions under study and the subgroups. More than 75% of the population achieved satisfactory levels of perceived competence scores. Only 40% had past education in EoLC. Population was negatively skewed in most instances. Significant associations were found among medical staff between years of practice and competence levels. There were statistically significant associations between some demographic parameters and several EoLC subscales and domains, as well among domains themselves with $p < 0.05$. **Conclusions:** Engagement in previous EoLC education was less common among the study population. Majority achieved satisfactory levels of self-perceived competence in EoLC. Only doctors showed a proportional relationship between best levels of self-perceived competence and their years of practice. More years of experience in critical care demonstrated enhanced capability among the staff in ensuring emotional and organizational support as ICU professionals. Having past education had improved self-perceived behaviours pertinent to EoLC and had reinforced the expertise in symptom management of the dying. Important associations were identified among some of the EoLC domains, suggesting cross-enhancement. Teaching/training activities on EoLC should be integrated early into critical care career.

A Paradigm Shift in ICU care. It is the Future?

Dr Vipul Khandewal, Dr Priya Mathur, Dr Namrta Pradhan, Dr Shailesh Jhawar

Institute / organization name: APEX Hospitals Pvt Ltd, Jaipur, India.

ABSTRACT

Background: To assess the role of TELE- ICU (E- ICU) in management of COVID patients. **Methods:** This was a study to evaluate the efficacy and use of E ICU in hospitalized COVID -19 patients admitted in ICU. Approx. 350 patients were evaluated & monitored through E – ICU which consisted of a Command Centre where the intensivist used to sit. Cameras were installed on a mobile cart and placed in all ICUs. Simultaneously, the monitors of ICU were connected to Central unit at command centre. All investigations were uploaded on central system directly, which helped in a daily assessment and comparisons. Patients were monitored by camera with help of nursing staff. It was a 24*7 observation from command center. Intensivist rounds and all specialty rounds were taken through virtual mode, bed to bed for all patients in ICU. Communication with patients was also done through AV mode by the same system. Even relatives of patients used the command centre to talk to their patient in ICU and see them on screen by Audio visual mode. **Results:** All Patients were successfully monitored through E ICU set up without much direct patient/ doctor contact, hence diminishing the risk of COVID transmission to healthcare workers and improved patient care as well. **Conclusions:** Authors conclude that E ICU can be a promising future not only for Covid care but also as a means to evaluate critical patients where the facilities are not up to the mark in the form of lack of expertise. It is a promising tool for ICU aid to lesser developed parts of our country. Remote monitoring looks like a bright future in ICU care.

Oxygen crisis- A challenge during Covid pandemic at a tertiary care hospital in South India

Dr. Roshni Benedicta R, Dr.M. Manjuladevi, Dr. Arpana Kedlaya

Institute / organization name: St. John' s Medical college hospital, Bengaluru, Karnataka, India.

ABSTRACT

Background: The SARS-COV 2 was a global challenge. The impact was profound in developing world with their resource limited settings. India was hit hard with over thirty-two million cases with over four hundred thousand deaths. Oxygen crisis was noted during the peak of the first wave but it recurred on a much larger scale during the peak of the second wave. The study was planned to quantify the oxygen shortage in a 1500 bedded tertiary care center recognized by the state government to help in national crisis and to have a plan for pandemic preparedness. **Objective:** To determine the oxygen consumption in a tertiary care center in Bengaluru Karnataka state, India during Covid pandemic. **Methods:** Institutional ethics committee approval was obtained. Monthly data on the oxygen supply, stock, consumption (including cylinders and liquid oxygen) were collected from the manifold room from March 2020 to August 2021. Everyday use of oxygen during the two waves (first wave – August to October 2020 and second wave- April to June 2021) were tabulated and statistically analyzed. **Results:** The pre-pandemic average oxygen consumption at our hospital was 1528 cu.m per month. During the first surge (August to October 2020) there was an increase in the oxygen consumption to 3466 cu.m per month, with further increase during the second surge (April to June 2021) to 5237 cu.m per month which peaked in May 2021 to 8528 cu.m (5798 cu.m to 11063 cu.m). **Conclusions:** An unprecedented demand of oxygen leading to crisis and disaster unpreparedness during the Covid challenge mandated adequate planning and efficient management. Emphasis on alternative sources of oxygen including oxygen concentrators, providing a low-flow oxygen source, reinforcing existing oxygen plants were the steps taken in our hospital to strengthen the existing health care system.

Keywords: ?

Review of a Series of Hospitalised Covid 19 Patients with AKI

Dr. Abhimanyu Kalita, Dr.Pallabi Bordoloi, Dr. Brajendra Lahkar, Dr. Reshu Gupta, Dr. Kusum Baruah

Institute / organization name: Health City Hospital, Guwahati, Assam, India.

ABSTRACT

Background: The coronavirus 19 (COVID 19) disease is the ongoing global pandemic, caused by the Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first described in December 2019 in Wuhan, China. The major cause of mortality in covid 19 is pulmonary complications and ARDS, but now AKI is also seen to be a common complication, often associated with worse outcomes. Herein we review the incidence and outcomes of series of 58 patients admitted in our hospital in a period of three months, who had developed AKI. **Methods:** This retrospective, observational study involved a review of 58 patients with COVID-19 admitted in a tertiary care hospital, who developed AKI. We describe the frequency of AKI and dialysis requirement, incidence of AKI on preexisting CKD, AKI recovery, and adjusted odds ratios (aORs) with mortality. **Results:** Out of 234 patients hospitalised during this period 24.7 % developed AKI. 40 percent of pts had CKD. 70 percent of pts had other risk factors like HTN, diabetes mellitus. In-hospital mortality was 34 % among patients with AKI versus 10 % among those without AKI. Of survivors with AKI who were discharged, 76 % had not recovered to baseline kidney function by the time of discharge. **Conclusion:** AKI is common among patients hospitalized with COVID-19 and is associated with high mortality. Of all patients with AKI, only 34% survived with recovery of kidney function by the time of discharge.

Pulmonary Mucormycosis in a Covid Positive Patient: A Case Report

Dr. Indu Singh, Dr. Rati Prabha

Institute / organization name: King George's Medical University, Lucknow, Uttar Pradesh, India.

ABSTRACT

Background: A number of fungi are opportunistic and are usually non-pathogenic except in an immunocompromised host. However, the incidence has increased in the recent times due to the growth of the number of severely immunocompromised patients owing to the widespread use of broad spectrum antibiotics, immunosuppressive agents and solid organ transplantation. SARS-CoV-2 infection also induces an immunosuppressive state that exposes the patient to the risk of developing opportunistic infections. Mucormycosis is caused by a species belonging to the order Mucorales. It is a relatively rare but life threatening opportunistic fungal infection. Several shared risk factors including high glucose level (Steroid induced hyperglycemia and Unmonitored glucose levels in long term diabetics), high iron levels (Increased Ferritin), SARS-CoV-2 and steroid mediated immunosuppression causing decreased phagocytic activity of white blood cells and prolonged hospitalization with or without mechanical ventilators have played a pivotal role in the setting of current COVID-19 pandemic to cause the unparalleled surge in the cases of Mucormycosis. Rhino-Orbital-Cerebral Mucormycosis is the most common form of the disease followed by Pulmonary Mucormycosis found globally. The high mortality rates of Pulmonary mucormycosis is mainly due to rapid progression, delays in diagnosis, and absence of a definitive treatment. The present study describes the case of an isolated pulmonary mucormycosis in a 60 year old COVID positive male with diabetes immunosuppressed with dose of steroids taken in quantities and for duration that far exceeded WHO recommendation. This report emphasizes on the importance of high index of clinical suspicion in appropriate clinical settings with prompt imaging for early diagnosis and acquisition of samples for histopathological confirmation of the same. Multimodal approach was applied for the management of this case which included antifungal therapy in the form of injection liposomal Amphotericin B and tablet Posaconazole later on and aggressive surgical debridement (Thoracotomy) of the pulmonary lesion.

Incidence of Difficult Airway in Post Covid-19 Patients Admitted to Non-Covid Intensive Care Unit Requiring Invasive Ventilation

Shivani Gupta, Syed Moied Ahmed

ABSTRACT

Background: Airway management in COVID-19 patients could be difficult because of use of personal protective equipments and airway oedema caused by COVID-19. Tracheal intubation for these patients often takes longer time and may involve multiple attempts. Our primary aim was to find out incidence of difficult airway in post COVID-19 patients requiring invasive ventilation. **Methods:** This study comprised of 25 post COVID-19 patients of 18-60 years of age of either sex who were RT-PCR negative. Tracheal intubation was performed by 2 experienced anaesthesiologists who were having training for intubation for more than 2 years in several patients. Difficult intubation was defined as four or more attempts, or intubated through a supraglottic airway. **Study Design:** A retrospective observational cohort study. **Setting:** Non-Covid ICU, JN Medical college and hospital, AMU. The parameters which were studied included incidence of successful intubation by C-Mac video laryngoscope in 1st attempt, incidence of difficult intubation, glottic view (Cormack-Lehane grading) and complications if any while intubating these patients. **Results:** All patients could be successfully intubated. The first pass successful tracheal intubation was achieved in 80% patients. The incidence of difficult intubation was found in 20% patients and out of them in 4% patients, supraglottic airway device was used as they could not be intubated and later intubated through this by fiberoptic. 12% out of these 20% of the patients who had difficult intubation were having BMI of >30. The glottic view, CL I was found in 60% patients, CL II in 24%, CL III in 12% and CL IV in 4%. The incidence of soft tissue injury as complication was found to be 16%. **Conclusions:** We conclude that the incidence of difficult airway is high in COVID-19 patients. The first pass successful intubation is less as compared to normal patients as reported in other studies. However larger randomised controlled trial comparing covid and non-covid patients should be conducted to analyse the incidence of difficult airway.

Difficult Management of Paediatric Patient After Cardiac Surgery: Raised COVID antibody Titre a reason?

Dr. Deepak Gupta, Dr. Mukul Jain, Dr. Dheeraj Sharma, Dr. Poonam Mottiani, Dr. Mukesh Kumawat, Dr. Usha Kiran

Institute / organization name: Super Speciality Paediatric Hospital, Noida, Uttar Pradesh, India.

ABSTRACT

Background: Systemic inflammation state after cardio pulmonary bypass (CPB) is similar to inflammatory response seen with COVID infection, thereby increasing the risk of post operative complications in patients undergoing open heart surgery. **Methods:** 9 month baby, admitted with complaints of recurrent cough & cold, episodes of fever since few months of life. 2D-ECHO showed ventricular septal defect (VSD), severe pulmonary artery hypertension (PAH) with dilated LA/LV. VSD closure was done under GA and CPB. Postoperatively, patient was shifted to PICU with minimal inotropic support. Weaning was attempted but was not successful, therefore ventilatory support was continued. Postop Chest Xray showed ARDS like picture despite restricted fluid and ECHO showed Myocardial dysfunction. Inotropic support was increased but didn't improve. Patient was investigated further and COVID antibody titre was done: IgG for N antigen: value- 1.54. Patient was started on IVIg and steroids and patient started improving. Patient was extubated on 9th post-op day and was on HFNC support before being on nasal prong and finally off oxygen. On postop 20th day, while maintaining oxygen saturation on room air, patient was discharged successfully. **Discussion:** Cardiopulmonary bypass is associated with systemic inflammatory response. Also, COVID-19 can result in systemic inflammation, multiorgan dysfunction, and critical illness. Following cardiac surgery and COVID-19, the pathophysiological mechanisms of SIRS involve a cytokine-mediated general capillary leakage followed by intravascular volume depletion, generalized edema and altered microcirculation. Postoperative pulmonary complications occur in half of patients with perioperative COVID-19 infection and are associated with high mortality. Hence the incidence of post-operative complications and need for post-operative ventilation in patients undergoing open heart surgery is further accentuated in patients with antecedent history of COVID infection. **Conclusions:** Patients undergoing cardiac surgery must have COVID antibody titre prior to surgery to anticipate post-operative pulmonary complications and prolong ICU stay and in those with raised titres, IVIg and steroids must be started early.

Autologous Bone Marrow Stem Cell Therapy for Severe Covid-19 Pneumonia

Chandreshkumar Sudani, Ganshyam Jagathkar, Nandhakishore J

Institute / organization name: Medicover Hospitals, Hyderabad, India.

ABSTRACT

Background: To study the clinical effects of autologous bone marrow stem cell (ABMSC) therapy in the management of severe COVID-19 pneumonia. **Methods:** Since the beginning of COVID-19 pandemic, various treatment modalities have been introduced for COVID-19 pneumonia and stem cell therapy is one of them. Many studies have shown a role of allogeneic stem cell therapy for treatment of COVID-19 pneumonia. We present a case series looking at the clinical effects of autologous bone marrow stem cell therapy in the treatment of severe COVID-19 pneumonia in addition to the standard covid treatment between May and June 2020. Total 25 patients who required higher oxygen support were enrolled into this study. Under aseptic conditions about 50 ml of bone marrow aspirate was collected in CPDA bag and transfused to the patients. CRP, d-Dimer, LDH levels along with SpO₂ levels with required O₂ support were checked before and after stem cell therapy for all the patients. **Results:** Mean CRP levels showed significant reduction in the levels of CRP after stem cell therapy (P=0.04). Even though LDH levels decreased after treatment (P=0.35) and the levels of SpO₂ increased (P=0.48), the difference did not reach statistical significance. The levels of inflammatory markers before and after the treatment were evaluated between discharged patients and patients who died. The levels of LDH were very high in the patients who did not survive when compared with the discharged patients (P=0.001). Out of total 25 patients, 4 patients did not survive. The observed mortality in the ABMSC group was significantly less as compared to the standard therapy group (16% vs 34%) during this period in our ICU. **Conclusion:** Stem cell therapy can play an important role in treating severe COVID-19 pneumonia because of its immunomodulatory and anti-inflammatory effects. Autologous bone marrow stem cell therapy can be considered an alternative therapy to mesenchymal stem cell therapy because of lower cost and easy availability. More randomised clinical studies will be required to find out definite role of Autologous bone marrow stem cell therapy for treatment of severe COVID-19 pneumonia.

Outcome of Critically Ill Covid-19 Patients with Pregnancy Admitted in Intensive Care Unit- A Case Series

Dr. Devi Prasad Dash, Dr. Sujit Pradhan, Dr. Sasank Sekhar Mallick

Institute / organization name: Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha, India.

ABSTRACT

Background: Viral infections have shown to worsen the maternal and fetal outcome. There are few meta-analysis for patient of covid-19 with pregnancy, but the data on critically ill patients requiring ICU admission is still limited. Data for COVID-19 impact on pregnancy is still in evolution phase. In this case series we tried to find out outcome of critically ill pregnant patients getting admitted to ICU. **Methods:** **Results:** There were 6 cases in our hospital, who required ICU admission and ventilatory supports. Out of which 2 died in due course and 4 got discharged successfully. 5 patients presented with respiratory failure, while 1 case (case-6) presented as case of complete abortion and related complications. All patients had a qSOFA score of 1 except case-6 who had qSOFA score 2. In comorbidities Hypertension was seen in 1 case only while 1 case had CKD and 1 had Hypothyroidism. However out of 6 patient 3 developed AKI in due course. Three patients underwent cesarean due to respiratory failure, while one of the patient got discharged with continuation of pregnancy. Two patient had spontaneous abortion. **Discussion:** Covid-19 complicates pregnancy and also results in increase incidence of preterm birth. Studies have reported a higher incidence of Cesarean delivery, due to respiratory failure as a main cause. Out of 6, 5 cases had premature termination of pregnancy due to respiratory failure. However this increase risk of termination didn't compromise the outcome of newborns as in almost all cases it was done electively. All cases in whom caesarian was done, it was respiratory failure or other life threatening conditions which threatened continuation of pregnancy. There are no recommendations as which mode of termination of pregnancy is best, caesarian is still preferred as in most of the cases it is the respiratory failure for which termination of pregnancy is being planned. **Conclusions:** An early termination of pregnancy and aggressive management for covid-19 will improve maternal and fetal outcome.

Air Leak in Post Covid-19 Patients: Incidence, ICU Course and Outcomes

Dr Sahil Kataria, Dr Deven Juneja, Dr Amit Goel, Dr Omender Singh, Dr Anish Gupta

Institute / organization name: Max Super Specialty Hospital, Saket, New Delhi, India.

ABSTRACT

Background: Air leak is an under-recognized and under-reported complication of COVID-19 which may complicate the clinical course and lead to significant morbidity and mortality. There is a dearth of data regarding the true incidence, ICU course and outcomes of post-COVID-19 patients who develop air-leaks. **Methods:** Data from all post-COVID-19 patients admitted in medical ICUs from 1st May 2020 to 31st July 2021 were screened for any documented air leak, and those with positive findings were included in the study. **Results:** Out of 639 post-COVID patients admitted in medical ICUs, 78 (12.2%) had documented air leaks and were included in the analysis. Only a minority were smokers (3.8%) or had an underlying lung disease (6.4%). A significant proportion of patients (41%) were not on any positive pressure ventilation at the time they developed air leak. The mean time of developing air leak was 24.17 ± 13.1 days (range 10-60) after the diagnosis of COVID-19 (table). 50 (64.1%) patients required intervention in the form of ICD insertion and 49 (62.8%) required escalation of respiratory support. Mortality rate was high 65.4% and in the multivariate analysis need for invasive mechanical ventilation (OR: 52.6 95% CI: 2.1-1325.1, p=0.016) and vasopressors (OR: 48.8 95% CI: 2.9 – 815.5) was associated with increased mortality. **Conclusions:** A significant proportion of patients may develop air leak in the post COVID period leading to significant morbidity and mortality. Need for organ support, ventilator and vasopressors, was associated with increased mortality. **Keywords:** Air leak, barotraumas, COVID-19, pneumothorax, pneumomediastinum, subcutaneous emphysema.

4 DPRR Index for Mortality in Covid-19 ARDS

Dr. M. Ravi Krishna, Dr. P.L. Gautam, Dr. Gunchan Paul

ABSTRACT

Background: Mortality in ARDS has reduced significantly after the introduction of low tidal volume ventilation strategy. It has been recently shown that lung-protective ventilation strategies should primarily target driving pressure rather than Vt and that ventilator induced lung injury is not just dependent on tidal volume but also on other factors like respiratory rate, driving pressure. Ventilator induced lung injury is also thought to be dependent on the amount of energy transferred by the ventilator to the patient which in turn is dependent on tidal volume size (VT), plateau pressure (Pplat), respiratory rate (RR). Mechanical power can be calculated accurately through power equations which can increase their applicability in clinical practice. One simple composite equation (driving pressure multiplied by four plus respiratory rate [4DPRR]) has been recently suggested as a simple surrogate for the power equation. This equation also doesn't include PEEP as it has been theorized that it is only elastic dynamic component of driving energy which affects the outcome and not the elastic static component (i.e., PEEP) and the resistive power (related to flow and airway resistance). **Objectives:** To assess the mechanical power as measured by 4DPRR in mechanically ventilated patients who have moderate to severe COVID-19 ARDS. **Methods:** We obtained data on ventilatory variables and mechanical power from the patients who were admitted with moderate to severe COVID ARDS in our hospital. **Results:** We included 35 patients (23% women; mean age, 53.11 ± 16.1 yr). The average ΔP was 21.44 ± 3.98 cm H₂O, and the RR was 23.8 ± 3.84 breaths/min. The driving pressure ($p=0.042$), Pplat ($p=0.03$) were significant predictors of mortality in adjusted analyses. 4DPRR was a poor predictor of mortality ($p=0.79$). **Conclusions:** Driving power and plateau pressure were associated with mortality during controlled mechanical ventilation in COVID ARDS, but a simpler model of mechanical power using only the ΔP and RR was found to be a poor predictor of mortality.

Covid Antibody Cocktail: A Boon or Bane?

Dr. Smruthi V. T, Dr. Pradeep D'Costa

Institute / organization name: KEM Hospital, Sardar Moodaliar Road, Rasta Peth, Pune, India.

ABSTRACT

Background: Covid-19 pandemic has led to exploration of a variety of prophylactic and therapeutic treatments. One such novel intervention has been the use of "neutralizing monoclonal antibodies" in infected Covid-19 patients. Neutralizing monoclonal antibodies (mAbs) are used as passive immunotherapy. These are recombinant proteins derived from B cells of convalescent patients or humanized mice. The US FDA has authorized 3 mAbs for emergency use in the wake of Covid-19 pandemic, namely, Bamlanivimab as monotherapy, Bamlanivimab with Etesevimab and Casirivimab with Imdevimab as combination therapy. **Objective:** To evaluate the efficacy of Covid antibody cocktail on patient outcome **Methods:** Retrospective analysis of Covid patients who have received the antibody cocktail in the last 1 & 1/2 months in a tertiary care hospital. We hypothesized that Covid antibody cocktail can reduce oxygen requirements in Covid patients leading to better clinical outcomes and recovery. The aim of the study was to evaluate the efficacy of antibody cocktail in Covid-19 patients. Demographic details of patients and CT severity score (if available) are collected. Routine laboratory investigations are sent including inflammatory markers. After written informed consent, participants were enrolled for receiving antibody cocktail. The requirement for supplemental oxygen prior to and after administration of the antibody cocktail are noted. The primary end point was survival or death of patient and secondary end point was the number of days of hospital stay.

Early vs Late Mortality in Covid-19: A Retrospective Analysis

Dr Jeevan Kumar, Dr P L Gautam, Dr Gunchan Paul, Dr Shruti Sharma, Dr Tanvir Singh, Dr Akashdeep Singh Khaira, Dr Mukul Sharma, Dr Bishav Mohan

Institute / organization name: Dayanand Medical College and Hospital, Ludhiana, Punjab, India.

ABSTRACT

Background: Identifying and quantifying the predictors of mortality in COVID-19 is an ongoing process. Epidemiological, biochemical and clinical characteristics indicating high case fatality have been published but composite temporal patterns of coexisting diseases, treatment associated morbidity such as infections, barotraumas, turning point of disease worsening in terms of severity and their trajectories have been less recognized and investigated, and needs more insight from death analysis. **Objective:** To determine the chronology pattern of mortality in COVID-19 patients and its correlation with clinical and physiological parameters (respiratory rate, SpO₂, FiO₂, PF ratio, GCS, systolic blood pressure) in COVID-19 patients. **Methods:** Out of 1138 patients with COVID-19 infection admitted to tertiary care hospital from across the state of Punjab from May to July 2021 retrospective records of 348 expired patients were screened and analysed. Demographic, laboratory and clinical parameters at presentation, time of death and events leading to death were analysed using disease severity ordinal scale given by WHO. **Results:** Chronologically, mortality distribution had a trimodal peaking pattern among COVID-19 patients with 25% deaths occurring within <24 hours of admission, 50% deaths in 2-10 days and remaining 25% in > 10 days. On comparison of clinical characteristics with these three time periods respiratory rate > 30/min, and GCS <8 and were significantly associated with mortality within 10 days only ($p=0.003$ and $p=0.0001$ respectively). However, SpO₂ and SBP on arrival were not associated with the time of mortality ($p=0.193$ and $p=0.071$ respectively). Later deaths were more associated with coexisting diseases, sepsis and other adverse events. **Conclusions:** Early deaths in COVID-19 are more related to physiological derangements while late deaths (>10 days) were more likely to disease complications or treatment associated morbidity resulting in multiorgan failure. Aggressive physiological resuscitation in early period and prevention of sepsis and other complications may help improving overall survival of these patients.

Clinical Score for Risk Stratification of COVID-19

Dr. Rakesh Kumar. G, Dr. Manoj. A. G, Dr. B. N. Raghavendra Prasad, Dr. Raveesha. A, Dr. A. Dheeraj Kumar Reddy

ABSTRACT

Background: Early identification of patients with novel coronavirus disease 2019 (COVID-19) who may develop critical illness is of great importance and may aid in delivering proper treatment and optimizing use of resources. **Objective:** To Develop and validate clinical scoring system for assessing the severity of COVID-19 Patients. **Methods:** Design, Setting and Participants: We established a hospital based observational study of patients with COVID-19, with sample size of 201. Patients with fever, cough and breathlessness visiting the Emergency Department at RL Jalappa hospital, Kolar will be taken into the study. This score provides an estimate of the risk that a hospitalized patient with COVID-19 will develop critical illness. Accuracy of the score was measured by the area under the receiver operating characteristic curve (ROC). Data were analyzed between august 01, 2020 and October 01, 2020. **Main Outcomes and Measures:** Among patients with COVID-19 admitted to the hospital, critical illness was defined as the composite measure of admission to the intensive care unit, invasive ventilation, or death. **Results:** Between August – October 2020. 201 patients were taken into this study. Based on the clinical score, 62 patients (23%) were in mild risk group, 46 (31%) in moderate risk and 93 (46%) in severe risk group. All the patients in high risk group had extended hospital stay and required ICU support. In our study, 60 (30%) high-risk patients died and one patient with moderate also died, highlighting the significant association between high risk group and outcome (p -value <0.001). 140 patients recovered of which 61(44%) were of mild risk cases and (56%) were of moderate cases. **Conclusions:** In this study, a risk score based on characteristics of COVID-19 patients at the time of admission to the hospital was developed that may help predict a patient's risk of developing critical illness. The scoring system is easily reproducible and can be used at the time of presentation and can be used to plan its management, including the need for early ICU care and intervention. This score also helps to prognosticate patient's outcomes to optimize care and survival rate of the patients.

MIS-A in Post Covid-19 Era [An emerging entity]

Dr. Devi Prasad Dash, Dr Saurabh Gupta, Dr Prashant Behera

Institute / organization name: Kalinga Institute of Medical Sciences.

ABSTRACT

Background: Post COVID MIS-A diagnosis remains challenging due to its rarity and variable presenting patterns. All though outcome remains good in all published case reports and series, diagnosis remains still a challenge. **Case Report:** A 34 year female, post covid-19 came with fever x 5 days, abdominal pain, Low backache, body ache since 5 days. Pt developed severe hypotension, mild hypoxia and tachypnea on the same day. Significant lab values were TLC-18.1(103/uL), N-92%, Hb-8.3 gm/dl, CRP-385, D dimer-1.62 mcg/ml, Procalcitonin-21.50 ng/ml. Despite fluid resuscitation, appropriate antibiotic and oxygen support patient got intubated and kept on vasopressors support. Despite decreasing trend of procalcitonin and TLC patient clinical condition didn't improve. Other lab values were Serum ferritin-2000 ng/ml, S.lipase-168, Trop I-0.117, NT ProBNP-30,000. 2D echo showed severe LV Dysfunction and LVEF-38%. A possibility of MIS-A was suspected using CDC criteria. Patient was given IV Ig. Patient responded well and vasopressors tapered off. Later patient developed VAP for which antibiotics were upgraded as per sensitivity. Patient got extubated on 13th day. Repeat 2D echo showed improved systolic function [LVEF-52%]. Patient improved and discharged after 22 days of hospital stay. **Discussion:** MIS-A is a post covid sequelae, occurs due to dysregulated immune complex activation causing endothelium damage directly with associated thrombo-inflammation. MIS-A is defined by CDC by using criteria. In our case all 5 criteria were met i.e. Adult patient with post covid status, shock with severe LV dysfunction and raised inflammatory markers with a normal lung parenchyma. Although sepsis is a close differential in our case, deterioration of patient clinical status despite declining TLC with appropriate antibiotics forced us to look for other differentials. We started with intravenous steroid followed by IV Ig [1st choice for therapy 2mg/kg]. IV Ig increases the T cell number and its functional capacity. In our case dramatic improvement was observed after IV Ig infusion. **Conclusions:** MIS-A is still remained an under diagnosed condition due to its variety of presentation and lack of any strong case definition criteria. Deteriorating clinical conditions in a post covid case must warrant clinicians about the possibility of MIS-A.

Association of Co-Morbidities and Biomarkers with Mortality in Covid -19 Patients – A Tertiary Care Experience

Apoorva Gupta, PL Gautam, Shruti Sharma, Gunchan Paul, Vipin Kumar, Rajesh Mahajan, Akashdeep Singh, Bishav Mohan

Institute / organization name: Dayanand Medical College and Hospital, Ludhiana, Punjab, India.

ABSTRACT

Background: COVID-19 is a fast-spreading, worldwide infectious disease with high ICU mortality. The pre-sent study investigated the relationship between preexisting co-morbidities and biomarkers done at the time of hospital admission with mortality in COVID-19 patients, admitted to a tertiary care centre. **Methods:** In this retrospective, comparative cohort study of 1587 COVID-19 patients admitted during 3months (18th March-15th May,2021- the second wave), outcome analysis was done for association of mortality with co-morbidities and biomarkers done at the time of admission. All statistical calculations were done using SPSS21version statistical program for Microsoft Windows. **Results:** Out of 1587 COVID-19 patients admitted during this period, 21.6% (344) patients died. Mortality was found to be strongly related to age, maximum in the 61-70years group(p=0.0001), with no significant association of mortality with gender(p=0.299). Among the 344 expired patients, 77% had one or more co-morbidities; 54% were diabetic, 37% hypertensive, 12% had CKD(chronic kidney disease),11% had coronary artery disease, 10% obesity, 4% CLD(Chronic liver disease), 2% were drug addicts, 1% HCV positive, 1% each had asthma, COPD, ILD, heart failure and malignancy. There was a strong association of mortality with diabetes, CKD, obesity (p=0.0001for each), drug addiction(p=0.031). Among the biomarkers, done at admission, there was a strong association of S.CRP, D-Dimer, Ferritin, IL-6, LDH, Leukocytosis, Neutrophilia, Lymphopenia, Uremia, Creatinemia, Transaminitis (p=0.000 for each), higher BNP lev-els(p=0.001), hyperkalemia(p=0.001) with mortality. However, there was no significant association of haemoglobin levels, platelet count, PT/INR, S.Albumin, Sodium, Troponin T levels done at admission with mortality. **Conclusion:** The retrospective data analysis showed that Covid-19 outcome can be predicted by the presence of co-morbidities and levels of certain biomarkers at admission. It can help with judicious redistribution of health care resources in a developing country like ours. Moreover, these risk factors also serve as a prognostication tool.

A Multi-Centric Study of the Health, Psycho-Social and Academic Impact of the Covid-19 Pandemic on Frontline Doctors

Agarwal Anoushka, Nirala Pradeep, Mehta Yatin, Singh Lalit

Institute / organization name: Department of Respiratory Medicine, SRMS-IMS, Bareilly, Uttar Pradesh, India.

ABSTRACT

Background: To study the impact of the COVID-19 pandemic on the health and psychosocial status of health care workers and to determine its influence on medical education. **Methods:** Place of study: Department of Respiratory Medicine, SRMS - Institute of Medical Sciences, Bareilly. Research methodology: The study was an observational, cross-sectional study involving over 200 doctors from across various hospitals and medical colleges in India. Data was collected using an exhaustive questionnaire circulated via social media platforms while ensuring the anonymity of subjects' identities. The data collected was assessed using the DASS-21 Score. **Results:** Fever was the most frequently reported symptom. Of those infected, 27% required hospitalisation and 13% required supplementary oxygen. 45% of the subjects reported experiencing some level of stress while 60% subjects reported anxiety of which most were females. Travel restrictions, prolonged periods of isolation and fear of infecting family members resulted in the absence of traditional emotional support mechanisms. 47% subjects reported experiencing depression, with considerable incidence of substance abuse as a coping mechanism. Stigmatization due to potential infection and religious affiliation was reported by 29.5%. A majority reported economic hardship due to pay cuts contributing to strained household finances. Pre-medical as well as post-graduate medical education was also affected adversely with significant covidization of the academic curriculum. **Rationale:** COVID-19 has been greatly disruptive, with effects visible across the healthcare and education sectors. Faculty and medical students are grappling with its consequences and attempting to consolidate these with their plans of career development while tackling novel financial and social stresses. An understanding of the psycho-social issues experienced by both Covid-infected individuals and their care providers is critical for modification of healthcare protocols such that the wellbeing as well as socio-economic re-integration of community members is ensured.

Incidence of Pneumothorax in Covid-19 Patient After Prolonged Non-Invasive Ventilation

Mohd Shakir, Syed Moied Ahmed

Institute / organization name: Department of Anaesthesiology and Critical Care, J N Medical College, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: Covid-19 is an infectious disease that mainly affects the lungs. Pneumothorax has been noted to complicate Covid-19 cases requiring hospital admission, however the exact incidence and risk factors are still unknown. The aim of the present study was to evaluate whether long term NIV (>7 Days) was associated with pneumothorax and pneumomediastinum in COVID 19 patient during ICU stay. **Methods:** A retrospective study was done on 35 patients of COVID 19 on NIV for more than 7 days and 35 patients of COVID 19 on Hudson with partial rebreathing or non-rebreathing reservoir bag for the presence of either pneumothorax and pneumomediastinum. Patient included in the study presented between march and June 2021. Details obtained from the medical record included demographics, radiology, laboratory investigation, clinical management and survival. **Results:** We observed that 2 patients out of 35 COVID 19 patient on NIV for more than 7 days are associated with pneumothorax and pneumomediastinum (5.7 %) and none out of 35 COVID 19 patient on Hudson with partial rebreathing or non-rebreathing reservoir bag. **Conclusions:** Long duration of NIV in a COVID 19 patient was associated with pneumothorax and pneumomediastinum. Probable reason of pneumothorax is that patient requires high pressures on NIV to obtain a target of 90% oxygen saturation.

Spontaneous Pneumothorax with Bronchopleural Fistula in Covid-19 Pneumonia – A Nightmare

Arun Kumar Sahu, B.Ray, A.Raha, A.Mishra, A.Chaudhury, V.Rajanala, A.K.Panigrahi

Institute / organization name: Sum Ultimate Medicare.

ABSTRACT

Background: A 21 year old male, k/c/o Bronchial Asthma, presented with fever and shortness of breath for 7 days and was Covid-19 positive. He was put on HFNC initially and later intubated on Day 31 of hospitalization. HRCT thorax revealed extensive fibrotic changes and peribronchovascular consolidations. 4 days post intubation, he developed spontaneous pneumothorax on right side for which ICD was inserted and was removed after 2 days following lung expansion. On day 60 of hospitalization, tracheostomy was decannulated and he was put on HFNC. 2 days later, he developed spontaneous right pneumothorax for which ICD was inserted. After 48hrs, he developed spontaneous pneumothorax on the left side. The left ICD had continuous air leak suggestive of BronchoPleural Fistula and hence it was connected to continuous negative pressure of -20cm H₂O. After 48hrs, left pneumothorax was persisting, suggesting chest tube blockage; it was changed. There was persistent pneumothorax on left side, despite functional ICD. HRCT Thorax revealed patchy loculated pneumothorax with passive atelectasis of underlying lungs. Needle aspiration of 80ml of air under ultrasound guidance from left pleural cavity was done without any change in pneumo size. On day 74 of hospitalization, left ICD was changed due to suspicion of blockade. There was no continuous air leak, suggesting that BPF was closed. Patient was shifted to ward on day 80, with left loculated pneumothorax and ICD in-situ. Repeat HRCT Thorax, on Day88, revealed moderate left anterior hydropneumothorax. Ultrasound guided needle aspiration of air from left pleural cavity was done. ICD was blocked and hence it was removed on Day 101. A pigtail chest drain was placed above the old tube entry point and gush of air came out. His respiratory distress improved. Patient was discharged with pigtail catheter after 108 Days of hospitalization

Tension Pneumothorax with Bronchopleural Fistula in Covid-19 Pneumonia on Ventilator

Arun Kumar Sahu, B. Ray, A. Raha, A. Mishra, A. Chaudhury, V. Rajanala

Institute / organization name: Sum Ultimate Medicare.

ABSTRACT

Background: A 50 yr female presented with fever and cough for 10 days and Covid RT-PCR was positive. Her Covid-19 markers were elevated and she was started on Inj.Remdesvir, Clexane and Methylprednisolone. She was initially put on NIV with 100% oxygen and later intubated. She was prone 5 times and FiO₂ came down from 1.0 to 0.45. On day 10 of intubation, she was extubated but reintubated after 24 hrs. 5 days after 2nd intubation, patient developed new onset sepsis with septic shock with thick purulent ET secretion. Antimicrobials were escalated to Meropenem, Teicoplanin, Colistin and Caspofungin. Blood C/S grew Klebsiella pneumoniae sensitive to carbapenems. ET C/S grew Acinetobacter baumannii sensitive to Polymixins only. Patient gradually improved from sepsis. On Day 39 of hospitalisation, she had sudden desaturation, bradycardia and hypotension. There was subcutaneous emphysema extending to neck and chest. Chest X-Ray showed Right Tension Pneumothorax for which ICD was inserted which had continuous air leak even after lung expansion (BronchoPleural Fistula). She was ventilated with low tidal volume (100 ml) and high respiratory rate (90/min). She also developed Left Pneumothorax soon after for which ICD was inserted. Continuous negative pressure (-20 cm H₂O) was connected to the drainage of Right ICD. Subcutaneous emphysema and air collection in right chest came down next day. On Day 45 of hospitalisation, patient again deteriorated with Rt lung collapse with Pneumothorax. Right ICD was suspected to be blocked. So 2nd ICD was inserted in Right side and continuous negative pressure (-20 cm H₂O) was connected to its drainage. In the next 4-5 days, Rt lung expanded, surgical emphysema was grossly reduced, BPF leak was closed and T-piece trial given. Blocked ICD on right side was taken out after 5 days. On Day 57 of hospitalization,

Tracheostomy was decannulated and was shifted to ward on Day 60. Patient was discharged in a stable condition and is doing well on 2 months follow up.

Preventing Mortality in CAM: Is There A Way Out?

Dr Prajakta Pote, Dr Anand Tiwari, Dr Kapil Zirpe

Institute / organization name: Ruby Hall Clinic, Pune, India.

ABSTRACT

Background: To assess for the factors associated with the mortality in COVID 19 associated mucormycosis (CAM). **Methods:** CAM is defined as presence of mucormycosis infection diagnosed on the basis of clinical, radiological and/or histopathological tests in RT PCR positive COVID 19 patients. Patients referred to our hospital for the management of COVID associated mucormycosis (CAM) during the period of March 2021 to May 2021 were assessed for clinical, laboratory and radiological parameters, interventions done and inhospital outcome. Factors associated with mortality were analysed. **Results:** Total of 57 patients were included. 70.2% patients were diabetic with uncontrolled sugars with average HbA1c of 9.4%. Steroids were received by 80.7% patients during COVID illness. 93% patients underwent operative interventions and 93% patients received Amphotericin B. Overall mortality of 21.2% was observed and correlated significantly ($p < 0.05$) with CNS and orbital involvement by mucormycosis and presence of CKD as comorbidity. **Conclusions:** COVID illness itself along with uncontrolled blood glucose levels have a role in increased mucormycosis burden. This rapidly progressing aggressive infection needs urgent timely intervention. Thus urgent surgical intervention and antifungal therapy play a pivotal role in reducing the morbidity and mortality associated with CAM. Stringent blood sugar control is equally important in controlling the disease progression and can affect the outcome of the illness.

Darwinism in COVID 19- Reality or Fallacy?

Dr Aditya Kumar Bang, Dr Kapil Zirpe, Dr Sushma Gurav

Institute / organization name: Ruby Hall Clinic.

ABSTRACT

Background: To understand if concept of Darwinism (Survival of the fittest) i.e Absence of Comorbidity Along with an Active and Healthy Lifestyle Versus Underlying Comorbidity Related Dysregulated Response has an impact on mortality in critically ill patients of COVID 19 disease. **Methods:** Single-center, retrospective, observational study from a tertiary level intensive care unit. Data of critically ill patients with COVID-19 admitted between February 2020 and November 2020 was analyzed. The collected data was analysed for the presence of comorbidity and dysregulated host response associated with it to understand the impact of the same on the survival of the patients suffering from critically ill COVID 19 disease. **Results:** In total 563 patients, mean age was 55.9±14.0 years, and 72.8% were males. ICU mortality occurred in 24.7% of patients. Factors significantly associated with mortality outcome were age ($p < 0.0001$), presence of diabetes ($p = 0.008$) and hypertension ($p = 0.001$). In addition, non-survivors had significantly higher baseline levels of total leucocyte count ($p = 0.001$), C-reactive protein (CRP), D-dimer, serum ferritin, lactate dehydrogenase, interleukin-6 and serum creatinine ($p < 0.0001$ for all). **Conclusions:** In critically ill COVID-19 patients, absence of comorbidities, an active and healthy lifestyle (analogy to Darwin's small, inheritable variations that increase an individual's ability to compete, survive and reproduce aka SURVIVAL OF THE FITTEST) in comparison to presence of comorbidities and improve the chances of survival significantly.

Clinical Outcome in Patients with Covid-19 Infection Requiring Ventilatory Support: An Observational Study

Dr Cherian Roy, Dr Abhilash Dash

Institute / organization name: Department of Critical Care Medicine, I.M.S and SUM Hospital, Bhubaneswar, Odisha, India

ABSTRACT

Background: The objective of this study was to find the association of invasive mechanical ventilation, non-invasive mechanical ventilation (N.I.V) and high flow nasal cannula (HFNC) with mortality in COVID 19 pneumonia patients with ARDS. **Methods:** This was a single centred, observational cohort study. Patients who were admitted to a tertiary care I.C.U with COVID19 infection and received ventilatory support were included. Ventilatory support was defined as those patients who received either Invasive mechanical ventilation (I.M.V.) or Non-invasive mechanical ventilation (N.I.V), or High-flow Nasal cannula (HFNC). Demographic variables including Age, available disease severity score like Acute Physiology and Chronic Health Evaluation II (APACHE II) and Sequential Organ Failure Assessment (SOFA) score and other relevant laboratory parameters like Complete Blood Count Liver Function Test, Renal Function Test, C-reactive protein, Serum Ferritin and Serum Procalcitonin, Vital parameters (Heart rate, Mean arterial pressure, Respiratory rate, SpO₂) and ABG parameters were also collected for each individual using an android-based data collection platform. **Results:** 398 patients were found to be eligible for this study. Among them, only 24.47% patients received invasive mechanical ventilation and rest were on N.I.V (62.77%) and HFNC support (12.77%). 26 patients died among the 92 invasively ventilated patients, whereas the mortality rate among N.I.V group of patients (78.7%) was significantly higher. Increased TLC count, C-Reactive Protein, Urea, Creatinine, Heart rate, Respiratory rate were mostly associated with increased mortality among non-invasively ventilated patients. **Conclusions:** In a cohort of critically ill patients with COVID19 infection, although invasively ventilated patients were more severely infected, mortality rate was significantly lower than Non-invasively ventilated patients due to early intubation when indicated. So, it may be recommended for early intubation rather than wait for more time with N.I.V support.

Keywords: COVID19, N.I.V, Invasive mechanical ventilation, High Flow Nasal Cannula (HFNC) oxygen therapy

Prevention of Prone Position Pressure Sore

B Rathna Roger, Balaji Vijayan, Natesh Prabhu

Institute / organization name: St John's Medical College Hospital

ABSTRACT

Background: To determine the incidence of prone position pressure sores, common locations of occurrence, important factors leading to its development and the interventions to reduce its development. **Methods:** 20 patients who had severe COVID-19 infection with acute respiratory distress syndrome and prone were included in the first pilot study. The total number of proning sessions among them were 72. The incidence of developing pressure sores were calculated in the patients. The factors such as change of head position, pressure pad positioning, endo-tracheal tube positioning, neutral limb positioning, secretion clearance, appearance of pressure sore with respect to the number of proning sessions were monitored. With the results of the pilot study, we introduced interventions to reduce the incidence of the development of pressure sores. **Results:** The development of the sores were usually after the first two sessions of proning. The factors monitored revealed a lack of proper instruction for the change in head position, limb positioning, pressure padding and secretion clearance. The interventions aimed to increase the number of proning sessions for the first appearance of pressure sores. Measures like mandatory change of head position every 6 hours, proper pressure padding, regular secretion clearance, neutral limb positioning and proper eye care were introduced. The preliminary analysis of the second cycle, which included 20 patients and 70 proning sessions revealed that the appearance of the pressure sore was delayed by at least two proning sessions. The pilot study patients were noted to develop sores after two complete sessions of proning whereas after the introduction of the interventions it had been delayed to four complete sessions. The complete statistical analysis of the study is still ongoing. **Conclusions:** The prevalence of prone position pressure sore is quite high among prone patients with their development seeming more like an inevitability rather than being

completely preventable. Measures need to be taken to delay the appearance of sores by introduction of mandatory interventions. The above interventions can be used as a template to achieve the same.

Two Cases of Mucormycosis with Atypical Presentations: as Fournier's Gangrene and Pulmonary Mucormycosis with Gastropleural Fistula

B Rathna Roger, Christopher D'Souza, Carol D'Silva

Institute / organization name: St Johns Medical College Hospital, Bangalore, India.

ABSTRACT

Background: To be aware of uncommon presentations of mucormycosis during this pandemic and take steps to start specific management for the same as early as possible to prevent further deterioration. **Methods:** To describe the order of events that led up to the diagnosis of mucormycosis with detailed documentation of the investigations and procedures carried out for the management of the same. **Results:** We describe two cases of mucormycosis with uncommon presentations. The first one is a case of uncontrolled diabetes, recently recovered from a COVID-19 infection who developed Fournier's gangrene whose cause on further evaluation turned out to be mucormycosis. The second one is also a case of uncontrolled diabetes, with a recent history of COVID-19 infection, who was referred to our hospital with complaints of chest pain which turned out to be pulmonary mucormycosis complicated by a gastropleural fistula. Both diagnoses were biopsy-proven, taken from penectomy specimen and lung respectively. The patients significantly deteriorated during the course of their ICU stay despite starting them on liposomal amphotericin B early on. **Conclusions:** Mucormycosis presents in different ways, especially in immunocompromised and diabetic individuals. It is important to know the different presentations of the disease to start specific management for mucormycosis. The above cases describe rare and uncommon presentations which otherwise can be missed. There should be a high level of suspicion, especially among diabetics who have had a history of COVID-19 infection. The onus is on the treating physician to be able to identify and treat the infection.

Ivermectin for patients with coronavirus disease 2019 (COVID-19): a meta-analysis with trial sequential analysis of randomised controlled trials

Christopher Jer Wei Low, Ryan Ruiyang Ling, Gabriel Yiqin Tham, Bee Choo Tai, Kollengode Ramanathan

Institute / organization name: National University Heart Centre, National University Hospital (KR).

ABSTRACT

Background: The use of ivermectin for treatment of COVID-19 patients has been controversial, with equivocal results across studies. Having identified a need for objective information, we conducted a systematic review to determine if ivermectin was clinically beneficial in COVID-19. **Methods:** Six databases were searched for randomised controlled trials (RCTs), assessing ivermectin in adults hospitalised with COVID-19 up till July 1st, 2021. Studies and citation lists were then assessed for inclusion. Studies with fewer than 10 patients, or reporting on paediatric or non-human populations were excluded. The primary outcome analysed was composite time to recovery, while secondary outcomes included negative PCR, length of hospital stay, and mortality. The risk of bias was evaluated using the Cochrane Risk-of-Bias 2 tool. Trial sequential analysis (TSA) was conducted for time to recovery and mortality, both assuming alpha of 0.05 and power of 80%. **Results:** Twenty-two RCTs (1554 ivermectin, 1444 control) were included in the meta-analysis. Ivermectin significantly reduced the overall time to recovery (11 studies, Hedges' g: -0.65, 95%-CI: -1.04 to -0.27, p=0.0009), and mortality (11 studies, risk ratio [RR]: 0.62, 95%-CI: 0.39 to 0.99, p=0.046). There were no significant differences in hospital length of stay (5 studies, Hedges' g: -0.49, 95%-CI: -1.16 to 0.18, p=0.15), or in the final proportion of patients with negative SARS-CoV-2 PCR (10 studies, 1.03, 95%-CI: 0.98 to 1.09, p=0.31). TSA assuming a reduction in time to recovery of 1 day found that the cumulative Z-curve passed the TSA-adjusted boundary for benefit after the 9th study, while TSA assuming a RR reduction of 37.9% in mortality, and a baseline mortality rate of 7% found that the cumulative Z-curve did not cross the TSA-adjusted boundaries for benefit or futility. **Conclusions:** Our results suggest that, contrary to clinical sentiment, ivermectin is not futile in treating COVID-19, and it is worthwhile to further explore its use in COVID-19 patients. While

more well-designed randomised clinical trials should be conducted to better assess clinical benefit, critical appraisal of their methodologies must be conducted due to high risks of bias in the current literature. Trials directed at timing and dose would also be beneficial.

ABSTRACT

Background: As severe COVID-19 and mortality are uncommon in children, there is scarcity of data regarding cause of mortality in children infected with SARS-CoV-2. We aim to describe the 'all cause' and 'attributable' mortality in children with SARS-CoV-2 infection. **Methods:** Data with respect to clinical, epidemiological profile and causes of death in non-survivors of SARS-CoV-2 infection admitted to a dedicated tertiary care COVID hospital between April 2020 to June 2021 was retrieved and analyzed retrospectively. **Results:** A total of 475 SARS COV 2 positive children were admitted during the study period, of whom 47 died [18 neonates, 14 infants and 15 children (1-12 years of age)]. The all-cause and attributable mortality of the study cohort was 9.8% (47 out of 475) and 1.8% (9 out of 475) respectively. Underlying comorbidities were present in 35 (74.4%) children, commonest being prematurity and perinatal complications (n=11, 24%) followed by congenital heart disease (n=6, 13%), malignancy and hematological causes (n=4, 9%) and others (n=14, 30%). The common causes of death included septic shock 10 (21%), COVID pneumonia/severe ARDS 9(19%), raised intracranial pressure 8(17%), prematurity/hyaline membrane disease/ neonatal sepsis 7(15%), congenital heart disease with congestive cardiac failure 5(11%). **Conclusions:** Our study revealed a high prevalence of underlying comorbidities and a low attributable COVID-19 mortality. Our findings highlight that mortality due to COVID-19 can be overestimated if attributable and all-cause mortality in children infected with SARS-CoV-2 are not separated. Standardized recording of cause of death in children with SARS-CoV-2 infection is of utmost importance. Data thus generated will help measure the public health impact of COVID-19, plan interventions and allocate health resource.

Impact of Tocilizumab Treatment on the Outcome in Critically Ill Patients with Covid-19: A Retrospective Observational Study

Raghav Gupta, Nishkarsh Gupta, Hari Krishna Raju Sagiraju, Arunmozhimaran Elavarasi, Prashant Sirohiya, Saurabh Vig, Brajesh Kumar Ratre 5, Sushma Bhatnagar

Institute / organization name: Department of Onco-Anaesthesia and Palliative Medicine, AIIMS, New Delhi, India

ABSTRACT

Background: COVID-19 patients are prone to develop cytokine release syndrome (CRS) with elevated levels of proinflammatory cytokines (including IL-6). It leads to acute respiratory distress syndrome and multiorgan dysfunction. Tocilizumab (TCZ), an IL-6 antagonist is used to treat this dysregulated immune response. Our study objective was to analyze the treatment effect of TCZ with morbidity and mortality. **Methods:** This retrospective observational study included all consecutive adult patients with COVID-19 admitted to our institute between April 9, 2021 and June 30, 2021. Hospital outcomes of 37 patients who received TCZ out of 2,080 admissions are described. Average treatment effect (ATE) on mortality, for receiving TCZ therapy versus not, was obtained adjusting for inverse probability weights for receiving TCZ based on age, sex, symptoms, vaccination, comorbidity, baseline severity, oxygen requirement and mechanical ventilation. **Results:** Patients treated with TCZ were predominantly male (64.8%) with a mean (SD) age of 50.5(14.9) years. Median duration of illness prior to administration of TCZ was 19 days. Thirty-three (89.2%) patients received mechanical ventilation post TCZ administration and case fatality rate was 78.4 % among those who received TCZ. Median IL-6 levels at baseline were similar; however, post TCZ administration, the increase in IL-6 levels was significantly higher among those who died compared to those who survived after receiving TCZ therapy. Fifteen out of 29 (51.7%) who died developed renal dysfunction and/or hypotension after receiving TCZ and 10 (34.5%) developed hospital acquired infection while no complications except one with hospital acquired infection among eight who got discharged after receiving TCZ. Treatment effect analysis showed that had the entire cohort been treated with TCZ there would be no additional benefit in mortality [ATE coefficient (95% CI) for receiving TCZ vs not receiving is 0.004(-0.116 to 0.124)]. **Conclusions:** Overall, this study did not find any clinical benefit associated with use of tocilizumab. However, most of those who received TCZ, had received it during the 3rd week of illness. Future research on optimum time for TCZ administration during the course of illness for achieving maximum treatment benefit and predictors that identify those subgroups who benefit most with TCZ are needed.

Catastrophic Presentation of Venous Air Embolism

Sumit Kumar, Seema Singh

Institute / organization name: Department of Anaesthesiology & critical care, Pt BD Sharma, PGIMS, Rohtak, India.

ABSTRACT

Background: Venous air embolism (VAE) is a well known complication of neurosurgical procedures performed in sitting position. This present case report is catastrophic presentation of venous air embolism in posterior cranial fossa surgery. **Methods:** Study was conducted in a 60 year male patient weight 55kg belonging ASA II plan for right C-P angle tumor. Patient was non hypertensive, no diabetic and had no significant illness in the past. A standard protocol for induction of anaesthesia was followed. Anaesthesia monitoring included ECG, IBP, SPO2, ETCO2, FIO2, Airway pressure, CVP and Urine output. Surgery was commenced under sitting position. Initial 4.5 hour of surgery remain uneventful. Near the end of surgery as surgeon removed the retractor, there was sudden shooting of BP 220/110 mmhg with tachycardia. **Conclusions:** Air embolism remains a great hazard in sitting posture with incidence as high as 45-50% in posterior fossa surgery. While a large share of VAE occurs at the commencement of surgery - 78.7%, still 18% of embolic phenomena are reported at the end of surgery, probably associated with reopening of injured vein when retractors are removed. For the prevention of VAE various methods are being described as use of MAST suits, application of PEEP, inflatable cervical tourniquet and positive pressure at the end of procedure but none seems to be a full proof method. Despite early detection by a high pitched sound on doppler and with immediate intervention in the form of putting off the N2O, maintenance of PEEP, change of posture, air aspiration through CVP catheter we were unable to save the patient.

Tension Pneumothorax with Broncho-Pleural Fistula in Covid -19 Pneumonia

Vithal Rajanala, B Ray, A. Raha, A Mishra, Arun Sahu, A Chaudhury

ABSTRACT

Background: 44 year old male presented with fever, breathlessness and weakness for 8 days to another hospital and RAT Covid positive. He was shifted to our hospital in view of increasing breathlessness and oxygen requirement. He was started on HFNC, he improved clinically and symptomatically, Fio2 requirement reduced. On day 15th he had breathlessness and chest pain, chest X-ray showed left sided Pyo-Pneumothorax. Intercostal drainage (ICD) tube was inserted MDR-Pseudomonas was isolated from pleural fluid, Polymyxin B was started. Antibiotics was escalated as per sensitivity report. There was continuous air leak s/o bronchopleural fistula (BPF). On day 23 chest CT scan showed increase in size of Left Pneumothorax with persistent BPF, 2nd ICD was placed and attached to continuous wall suction (-)20 cm H2O and NIV trial was given in view of HFNC failure. On next day respiratory distress increased consciousness reduced and ABG s/o Respiratory acidosis, he was intubated and put on ventilator with low tidal volume (100-200ml), high respiratory rate (60-80), Fio2 targeting a Pao2 of 60-80mm Hg. Chest Xray showed expanded left lung. There was reduction in leak to approx 60ml per breath. He was gradually weaned off ventilator support and extubated on day 31, first ICD was removed and patient was put on HFNC. His oxygen requirement improved gradually and was started on oxygen through nasal prongs. On day 50, he had pain abdomen USG abdomen showed acute cholecholelithiasis. He underwent Open cholecystectomy. On day 53, ICD was removed and patient was discharged in stable condition. **Conclusions:** Air leaks such as Bronchopleural fistula is common complication of covid 19 infection. The management of BPF on mechanical ventilator is minimizing the air leak and maintaining acceptable gas exchange range. Strategy is reducing the airway pressure by using low TV ventilation, low PEEP, shortening inspiratory time and increasing respiratory rate. There are several reports of successful use of HFOV with high output BPF with poor lung compliance.

Tocilizumab in ARDS due to COVID-19 Pneumonia

Tatikonda Chandra Mouli, Shakti Bedata Mishra, Samir Samal

Institute / organization name: IMS & SUM Hospital, Bhubaneswar.

ABSTRACT

Background: SARS CoV-2 is associated with dysregulated immune response and elevation of interleukin-6 levels which has been termed as Cytokine storm. Poor outcomes in COVID 19 patients have been attributed to this storm. Tocilizumab is a monoclonal antibody with interleukin -6 receptor antagonist activity. It is thus hypothesized that administration of this drug would result in reduction of the cytokine storm and would help in

recovery of patients and reduce mortality. Recent trials conducted showed equivocal results in the efficacy of the drug with respect to mortality. We did an observational study to assess the effect of Tocilizumab on mortality in patients with ARDS having COVID-19 pneumonia. **Methods:** This is a retrospective observational study designed to study the effect of Tocilizumab in patients having ARDS due to COVID 19 pneumonia. The data was collected from hospital records from May 2021 to August 2021. Demographic data, SAPS II (Simplified Acute Physiology Score) score, duration (days) of steroid received before tocilizumab administration and FiO₂ requirement and mode of oxygen delivery (Non rebreathing mask, High Flow nasal cannula, Non Invasive ventilation, Invasive mechanical ventilation) were noted at day7, day14 and day 28. **Results:** Seventy-eight patients were included and were analyzed. All variables were measured by median value (interquartile range). 37 of the 78 patients recovered and were discharged. All baseline demographic data were comparable between both the group except SAPS II score which was significantly lower (P value of 0.00) among survivors [38 (IQR 38-53)] when compared to non survivors [46 (IQR 40-69)]. Median duration of steroids received prior to receiving Tocilizumab among survivors and non survivors was 3 days (3-3) and 3(2.5-5.5) respectively. Day 7 and D 14 FiO₂ levels was found to be better among survivors with P values of 0.01 and 0.00 respectively and Kigali ratio (spo₂/Fio₂₀) was 131 (102-160) and 115 (102-134) respectively. **Conclusions:** Tocilizumab did not significantly improve mortality. However, the oxygen requirement drastically reduced after receiving Tocilizumab in patients who survived.

Covid-19 Complicating Post-Partum Care

Alisha Chaudhury, Abhijeet Raha, Arun Sahu, Vithal Rajanala, Anand Mishra, Banambar Ray

Institute / organization name: Department of Critical Care Medicine, SUM Ultimate Medicare Hospital

ABSTRACT

Background: COVID 19 has become an unprecedented threat globally. The course of the disease and its outcomes in the pregnancy and postpartum period is still unclear with reports of maternal mortality despite adequate treatment. We hereby present a case of survival and full neurological recovery after maternal cardiac arrest associated with COVID-19 in a postpartum female. **Case Report:** 35-year-old female patient, with history of contact, tested COVID 19 positive was admitted in the local hospital where initial treatment was initiated. She had undergone LSCS and had delivered a healthy baby. Post-partum developed increase in oxygen requirement and subsequently she was intubated and put on mechanical ventilation. During intubation there was a history of cardiac arrest and she was successfully revived. She was then shifted to our ICU under our care where treatment was initiated as per ARDS protocol. Preliminary cardiac and neuro evaluation was normal. Meanwhile, her newborn had also tested positive and was being managed in our NICU. Tracheostomy was done due to failure of weaning trials. Her course in ICU was complicated by repeated episodes of sepsis with secondary infections. She developed proximal weakness of both upper and lower limbs (power 2/5) for which she underwent detailed evaluation and rigorous physiotherapy sessions. She gradually tolerated T piece trials and was successfully decannulated. Oxygen supplementation was gradually tapered off. One and half months later both mother and baby were successfully discharged in a healthy condition. **Conclusions:** With this case report we try to emphasize the difficulty of treating a severe COVID in a post-partum patient and its outcome. A number of case reports from the literature in the past one year have shown almost 100% mortality rates in COVID 19 post cardiac arrest. Even though return of spontaneous circulation was seen in 29%, the final outcome was poor. Therefore, prospective studies with a large cohort of patients are required to understand the nature of disease in this group.

Comparison of the Maternal Outcome of Caesarean Section and Factors Affecting it in Covid Positive Parturients During First Wave and Second Wave of Covid-19 Pandemic-A Single Center Study

Ansika Yadav, Anjuri Goyal, Udiata Naithani

Institute / organization name: Rabindranath Tagore Medical College, Udaipur, Rajasthan, India.

ABSTRACT

Background: To Compare the Maternal Outcome of Caesarean section and factors affecting it in Covid positive parturients during First and Second wave of Covid Pandemic. **Methods:** A Retrospective study was done by reviewing the records of Covid positive parturients who underwent caesarean section during the First wave (April 2020-December 2020) and Second wave (March 2021-May 2021) of Coronavirus Pandemic in dedicated Covid care hospital. Analysis of clinical profile,

blood investigations, severity of illness and oxygen requirement was done to determine the factors affecting the maternal and neonatal outcome. Categorical data was represented as number (Proportion) and compared using chi-square test and continuous data was represented as Mean \pm SD and compared using t-test; $p < 0.05$ considered significant. **Results:** During the First wave, 46 caesarean sections (all in spinal anaesthesia) were done over a period of 6 months with no neonatal and maternal death while 87 caesarean section (83 in Spinal, 4 in General anaesthesia) were done over a period of 3 months in second wave; out of which 9(10%) maternal deaths occurred in 3.44 \pm 1.66(1-6 days) post caesarean all attributed to ARDS due to covid and neonatal deaths occurred in 7(8%) due to IUD and prematurity. Incidence of maternal and neonatal mortality was significantly higher in second wave; $p = 0.027$. Severity of illness and need of oxygen support was significantly higher in second wave (severe in 17(14 on NIV, 3 on HFNO treated in ICU); moderate in 9(O₂ mask treated in HDU)) as compared to the first wave (severe in 1(NIV treated in ICU); moderate in 5(O₂ mask treated in HDU)); $p = 0.048$. The mean value of various inflammatory markers were also significantly higher in second wave as compared to first wave as Total leucocyte count (8817.24 \pm 3987 vs 6969.57 \pm 2481.20; $p = .005$), CRP (28.84 \pm 30.98 vs 9.50 \pm 1.09 vs; $p = .000$), IL6 (26.479 \pm 38.46 vs 4.130 \pm 1.857; $p = .000$), S.Ferritin (85.28 \pm 59.64 vs 58.07 \pm 18.10; $p = .004$), D-dimer (1345 \pm 2020.24 vs 394.59 \pm 113.13 vs; $p = .002$). In the second wave, nine patients in which mortality occurred were all of severe illness category, on Noninvasive ventilation and had higher inflammatory markers. **Conclusion:** In the second wave maternal and neonatal mortality was significantly higher as compared to the first wave. The severity of illness, need of oxygen support and inflammatory markers were significantly higher in the second wave and found as risk factors for adverse maternal outcome.

A Comparative Study of the Post-Vaccination Symptom Profile of Post-Covid versus Non Covid Health Care Workers

Kumar Prabhat, Mehta Yatin, Nirala Pradeep, Singh Lalit

Institute / organization name: Department of Respiratory Medicine, SRMS-IMS, Bareilly, Uttar Pradesh, India.

ABSTRACT

Background: To assess and compare the post vaccination symptom profile in subjects who had history of COVID 19 infection against those who did not, and to determine how history of previous infection and time lag between positivity and vaccination affect the symptom profile. **Methods:** This was an observational, cross-sectional study involving 200 health care workers who had been vaccinated with either one or both doses of the Covishield Vaccine. These subjects were divided into 2 groups on the basis of their COVID history and post vaccination symptom profile was compared in both groups. **Results:** 20.5% had tested covid positive on a previous occasion while 79.5% had never tested covid positive before. 98.7% post-covid subjects reported symptoms post vaccination while 92% non-covid subjects reported these symptoms. The most statistically significant post vaccination symptoms included fever, pain at injection site and myalgia. The severity of symptoms was greater in post-Covid subjects as compared to non-covid subjects. However, the duration of post vaccination symptoms lasted beyond 2 days in 48.65% of non covid subjects as opposed to 36.31% in post-covid subjects. Severe post vaccination symptoms were reported mostly in subjects who got vaccinated 3-6 months after their initial positive status. **Rationale:** While vaccines are an indispensable tool in our battle against covid, we still remain unaware of the spectrum of adverse effects they can cause and whether these effects have anything to do with our previous infection history. This study aims to assess the symptom profile post vaccination and to determine whether previous positivity affects the onset, severity, and duration of these symptoms.

Out of sight contributions of multifaceted Covid warriors

Dr. Shweta, Dr. Johar S, Dr. Kiranpreet, Dr Singhal S, Dr. Kumar M, Kumar P

Institute / organization name: Department of Anesthesiology, Pt. BD Sharma PGIMS, Rohtak, Haryana, India.

ABSTRACT

Background: As Covid -19 infection started as respiratory infection, within no time it became pandemic throughout the world, intensive care unit (ICU) practitioners, hospital administrators, governments, policy makers, and researchers everyone prepared for a surge in critically ill patients. **Results:** COVID-19 pandemic has caused substantial increase in hospitalizations for ARDS with multi-organ disease. Starting as lung infection, soon it acquired the form of multi-organ disorder. Putting tremendous pressure on healthcare system, it has turned out to be a humanitarian crisis. **Discussion:** Sudden surge of Covid 19 patients requiring critical care in ICU led frontline healthcare workers to unprecedented situation where they had to manage ARDS in Covid 19 patients with manpower crisis under limited resources. Those were times, when health system was struggling with an unknown and un-imaginary disease, while it was hard to look after for own safety and own family's safety to not to get them infected. At same time patient's emotional

aspects and their inability to perform their daily routine, created a situation where a health care worker in ICU had to go extra miles and adopt different roles. Right from providing food to patient up to helping them gulp it, from changing their clothes to using washrooms, supporting in mobilization etc. ICU clinicians were direct comfort providers, advocates for patient's wishes, and informants for significant others who cannot be present. Families benefit from witnessing us care for their loved one, and their bonding with ICU staff helps them feel like indirect members of health care team. Decision making was more complicated. Healthcare workers had to educate the families to distill extremely complex disease processes and treatment options into lay concepts, to make them understand about code status changes, goals of care, and possible withdrawal of care. These goals-of-care conversations now had to be made remotely. **Conclusions:** During Covid 19 pandemic, ICU doctors have responded with fullest of their capacity to bring about best possible outcome for their patients. Both from ethical and pragmatic perspective, doctors have played multiple roles touching every aspect of Covid 19 patient, be it Physical, Psychological, emotional or humanitarian. Most of which is not known to society accounting for Out of sight contributions of multifaceted Covid warriors.

Comparative Evaluation of Time for Orotracheal Intubation Using Non-Handle Mounted Video Laryngoscope versus Handle Mounted Video Laryngoscope in Patients Undergoing Elective Surgeries

Dr. Rafia Khan, Dr. Anil Kumar Thakur

Institute / organization name: ESI-PGIMSR & Hospital, Basaidarapur, New Delhi-110015, India.

ABSTRACT

Background: Comparative evaluation of time for orotracheal intubation using a Non-Handle Mounted Video Laryngoscope (C-MAC® video laryngoscope) versus a Handle Mounted Video Laryngoscope (McGRATH® MAC video laryngoscope) in patients planned for elective surgeries. **Methods:** The study was commenced with the primary objective of evaluation of time for orotracheal intubation using both, the C-MAC® and the McGRATH® MAC video laryngoscope. A total of 60 patients of either sex, aged between 18-60 years, ASA-I & II and having Mallampati grade of 1 and 2, requiring orotracheal intubation where enrolled for the study. They were randomly distributed to either having intubation with the C-MAC® video laryngoscope or the McGRATH® MAC video laryngoscope. The Cormack-Lehane grading with both the types of video laryngoscopes, the proportion of intubation success, the hemodynamic responses to intubation and complications if any, with the two video laryngoscopes, comprised of the secondary objectives of the study. **Results:** Orotracheal intubation was faster and easier to perform with the C-MAC® video laryngoscope when compared with the McGRATH® MAC video laryngoscope (p-value being less than 0.001). The C-MAC® video laryngoscope also provided more grade I laryngoscopic views and more successful orotracheal intubations when compared with the McGRATH® MAC video laryngoscope. Though no statistically significant differences were recorded in the grade I laryngoscopic view, proportion of intubation success, changes in hemodynamic responses and the number of complications between the two video laryngoscopes. **Conclusions:** In the era of evidence-based medicine, the efficacy and safety of each video laryngoscope should be compared with a conventional direct laryngoscope, with the other video laryngoscopes, and with the other types of intubation devices. Hence, this study was probably the first one to be conducted in India which made a comparison between the Non-Handle Mounted video laryngoscope (C-MAC® video laryngoscope) versus Handle Mounted video laryngoscope (McGRATH® MAC video laryngoscope).

Antibody responses in vaccines with 1st/2nd dose of SARS-COV-2 viral vector vaccine

Talib S H, Naik M, Paithankar A, Petkar S

Institute / organization name: MGM Hospital, Aurangabad, India.

ABSTRACT

Background: To understand correlation of antibody titers, covid vaccination, reinfection and possible role of mutant strain. **Methods:** Inclusion criteria: 1. Individuals with pre-existing infection received 1st/2nd dose of COVID-19 vaccine and developing SARS COV-19 seropositivity (RTPCR) beyond 6 weeks, within 72 hours of onset of symptoms with suspected COVID infection. GROUP A, 2. Individuals without pre-existing infection received 1st/2nd dose of COVID-19 vaccine and developing SARS COV-19 seropositivity (RTPCR) beyond 6 weeks, within 72 hours of onset of symptoms with suspected COVID infection. GROUP B, 3. Participants with no pre-existing disease and asymptomatic in 3-6 weeks post-vaccination are categorized as GROUP C. Exclusion criteria: Asymptomatic RTPCR + carrier class in either group of pre-existing and non pre-existing COVID 19 were excluded from the study, Symptomatic RTPCR –ve are

also to be excluded from the study from either groups of pre-existing and non pre-existing COVID 19 groups. Procedure: Study is conducted under three groups. 1. GROUP A: Participants already had pre-existing infection, post vaccination developing re-infection within 3-6 weeks and 72 hours of symptoms with RTPCR positivity. n=21. 2. GROUP B: Participants with post-vaccine developing infection with no pre-existing illness within 3-6 weeks and within 72 hours of symptoms with RTPCR positivity. n=21. 3. GROUP C: participants with post-vaccination having no symptoms and RTPCR Negativity during 3-6 weeks of vaccination with RTPCR positivity. n=21. Sample Size: Number of cases for study (n) = 63 (21 in each group). Method for serum IgG COVID 19 titer: Chemiluminescence Immunoassay **Results:** Group A has more antibody response than the group B and Group C. **Conclusion:** It is evident that antibody titers levels does not correlate with reinfection, mutant variant, immune response of patients. Low titers and reinfection may suggest poor humoral immunity also because of mutation and T cell immunity and local nasal immunity may be intact or low. While when patient has high titers and reinfection suggests mutant variant.

Clinical Profile of Covid Positive Patients Admitted in a Tertiary Care Centre

Yasmoon Akhtar Siddiqui, Yatin Mehta, Lalit Singh, Rajeev Tandon, Pradeep Nirala

Institute / organization name: Department of Respiratory Medicine, SRMS IMS, Bareilly, Uttar Pradesh, India.

ABSTRACT

Background: The aim of this report is to describe the clinical profiles of 500 Covid-19 infected patients admitted in Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, ranging from their age, sex, travel history, clinical symptoms, laboratory evaluation, radiological characteristics, treatment provided along with common side effects and the final outcome. **Methods:** Epidemiological, clinical, laboratory, and treatment and outcomes data were obtained with data collection forms from electronic medical records and history given by 500 Covid-19 infected patients admitted in S.R.M.S. Bareilly. Patients were tested for Covid-19 by real-time reverse transcription polymerase chain reaction (RT-PCR) assay and Rapid Antigen Test of 2019-nCoV RNA. **Results:** Sociodemographic characteristics: A total of 500 COVID-19 patients were included in the final analysis of the study. The median age of the patients was 38 years and majority of the patients (82.90%) were below 60 years of age. Out of 500, male patients constituted 68.6% of total patients and women constituted remaining 31.4%. Clinical characteristics: Approximately 30.3% patients were completely asymptomatic and of those who were symptomatic, cough was the most common symptom (87.50%) followed by fever (79.61%), myalgia (62.50%), headache (29.57%) and dyspnea (26.97%). 71 patients (14.20 %) had underlying comorbidity in the form of hypertension, diabetes mellitus, hypothyroidism, chronic kidney disease or coronary artery disease. 260 patients (52.38%) had lymphopenia in their hemogram during the course of admission. 73 patients (14.3%) had leucocytosis and 95 patients (19.04%) presented with thrombocytopenia. The patients in the severe category had raised FDP, D-Dimer levels and they needed oxygen support. These patients had deranged liver functions and had elevated pro-calcitonin levels, serum ferritin levels and LDH levels. 23 out of these 95 cases went into ARDS during the course of treatment. The mean duration from admission to getting 1st Covid-19 sample negative was 8.3 days. **Conclusions:** Most of the Covid-19 patients were asymptomatic and among those who were symptomatic, cough followed by fever was the most common symptom with over two third of the patients experiencing both. Covid-19 was more prevalent among men which might be because in Indian household men are more exposed for the outside world and hence are more susceptible for the illness. Since more than 20% of Covid-19 patients did not experience fever, it might be misleading to treat this as an entry point for diagnosing Covid-19. We stress here the importance of considering Covid-19 even in the absence of recorded fever and other compatible symptoms.

A Retrospective Review to Study the Epidemiology, Presentation and Outcome of Covid-19 Positive Surgical Patients at a Level 3 Covid Hospital

Dr. Ankita Tripathi, Dr. Geeta Karki, Dr. Pradeep Sahi

Institute / organization name: Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, Uttar Pradesh, India.

ABSTRACT

Background: The objective is to study the epidemiology, clinical features and outcome of COVID-19 positive patients who underwent surgery. **Methods:** A retrospective review of the medical records of COVID-19

positive patients who underwent surgery. Data collection included the age and gender of the patients admitted, presenting clinical symptoms and the average duration of the symptoms until admission, the diagnosis and surgical treatment performed and the outcome of the patients. **Results:** During the COVID-19 pandemic, a total of 46 COVID-19 positive patients underwent surgery from 1st April 2020 to 30th June 2021. Out of the 46% patients, 60% underwent emergency cesarean section, 35% had emergency laparotomy, 4% had orthopedic procedures and 1% underwent neurosurgery. 17% patients presented with the clinical features of COVID-19 disease. 8% of the patients required ICU admission and the mortality rate among this group of patients was 4%. All deceased patients had postoperative complications associated with operation or COVID-19, including respiratory failure, acute respiratory distress syndrome, dyspnea, shock and infection. **Conclusions:** In conclusion, we found that operative patients who had clinical features of COVID-19 have a higher rate of ICU admission, and that postoperative COVID-19 symptoms and respiratory complications were significantly associated with the death of operative patients.

An Unusual Case of SLE with Covid Viral Pneumonia

Dr. R. J. Karthiga, Dr. Prem Kumar, Dr. R. Lakshmi

Institute / organization name: Department of Anaesthesiology, Saveetha Medical College Hospital, Thandalam, Chennai.

ABSTRACT

Background: Systemic Lupus Erythematosus (SLE) is a multisystem inflammatory autoimmune disease that is caused by tissue damage resulting from antibody and complement fixing immune complex deposition. It is characterized by exacerbations and remission. We are presenting a patient of SLE who was admitted in our ICU with viral pneumonia. Patients with SLE are more susceptible to infections due to the chronic use of immunosuppressive drugs and autoimmune disorders. The patient was diagnosed with SLE/Macrophage Activation Syndrome/Lupus Nephritis- Grade III 3 years back and was on pulse therapy with Injection Cyclophosphamide and maintenance therapy with Mycophenolate Mofetil (MMF), Hydroxychloroquine (HCQ) and Prednisolone. She stopped her medications for the past 1 year. She had a history of fever for 3 days and cough with expectoration and breathlessness for 1 day. She was brought to Intensive Care Unit with an oxygen saturation of 80% with 15 litres of oxygen via Non Rebreathing Mask (NRBM). Her renal parameters were elevated with Urea -79 and Creatinine 4.0. Her COVID- RT PCR turned to be negative. Her CT Thorax revealed multifocal areas of ground glass opacities in bilateral lung fields with CORADS-5 and CT Severity Score -16/25 which showed a strong clinical suspicion of COVID pneumonia. However, after the administration of steroids she made an uneventful recovery and was discharged. In conclusion, the administration of steroids may have a beneficial effect on mitigating both the flare of SLE and the associated COVID 19 hyperinflammation.

Keywords: SARS -COV-2, SLE, Steroids.

Spontaneous Pneumomediastinum in a Covid-19 Positive Patient

Dr Bhanupreet Kaur; Dr Nimish Singh, Dr Navneh Samagh, Dr Harmeet Kaur

Institute / organization name: All India Institute of Medical Sciences, Bathinda, Punjab, India.

ABSTRACT

Background: Spontaneous pneumomediastinum (SPM) is uncommon in viral pneumonias which can go undetected because of its rare occurrence and non-specific complaints. **Case Report:** A thirty-five-year-old female who was admitted to our hospital with fever, cough and breathlessness and positive RT-PCR for COVID-19 was diagnosed with spontaneous pneumomediastinum and pneumothorax. She was managed with symptomatic approach and oxygen therapy. **Discussion:** Pneumomediastinum or mediastinal emphysema can be spontaneous or secondary to various factors, pathophysiology of which is based on the Macklin effect. It is more common in young patients in age group of 5-34 years. Presenting

symptoms are mostly non specific. Xray is usually a primary diagnostic tool. CT is used if Xray is inconclusive. Management usually remains symptomatic treatment and close monitoring. **Conclusion:** Small pneumomediastinum usually requires close monitoring and follows an uneventful course.

Successful Anaesthetic Management of a Covid – 19 Positive Elderly Primigravidae with Multiple Comorbidities for Emergency Caesarian Section

Dr Bhanupreet Kaur, Dr Inderpreet Singh, Dr Shivani Garg

Institute / organization name: Guru Gobind Singh Medical College And Hospital, Faridkot, India.

ABSTRACT

Background: Management of COVID- 19 positive patients is very challenging in pregnant patients. They are at increased risk of obstetrical complications (preterm labour, preeclampsia, premature rupture of membranes) and have worse clinical outcomes as compared to non-pregnant patients. **Case Report:** A 67 year old, elderly primigravidae, 33 weeks 6 days gestation who conceived in vitro fertilization and having multiple comorbidities (hypothyroidism, type 2 diabetes, intrahepatic cholestasis of pregnancy) and positive RT-PCR for COVID-19 posted for emergency caesarian section. Special precautions (personal protective equipment) were taken from entry of patient till exit from operating room. Spinal anaesthesia was given in left lateral position and alive male child, weighing 2.2 kg was delivered. **Discussion:** Pregnant female with positive Covid-19 tests are managed according to severity of illness. Physiological changes in pregnancy in both immune and cardiopulmonary systems make them intolerant to hypoxia. So neuraxial blockade is technique of choice in normal as well as in covid – 19 positive patients as it decreases the cardiopulmonary compromise which is caused by stress of labour. It also decreases aerosol generation , chances of respiratory depression and oxygen supplementation. **Conclusions:** Regional anaesthesia should be preferred over general anaesthesia in pregnant female undergoing caesarian section. Routine practices from entry to exit of operating room should be modified in Covid – 19 pandemic to ensure safety of mother, baby and healthcare workers.

Are covid19 lungs recruitable- yes!!! If done the right way

Dr. Sanjith Saseedharan, Dr. Vaijaynti Kadam

Institute / organization name: S.L. Raheja Hospital

ABSTRACT

Background: To find out whether the covid-19 affected ARDS lungs are recruitable with the combined use of transpulmonary pressure monitoring (to limit the stress) measurement of End expiratory lung volume (to measure the actual volume gain and be within limits of strain), a combination of electrical impedance tomography and compliance (to diagnose overdistension) and the increase in the spo2 as a marker of clinical recruitment. **Methods:** Retrospective data from charts and progress sheets were collected from 27 patients admitted to the ICU (between February 2021 and June 2021) with pao2 /fio2 ratio less than 150 with a diagnosis of acute respiratory distress syndrome. As a protocol the esophageal pressure was monitored using the polyfunctional nasogastric tube (NutriventTM). The end expiratory volume was measured using a the carescape R860(Carescape R860; GE Healthcare) by the nitrogen multiple breath wash-out/wash-in (EELV)at a peep of 5. Electrical impedance tomography measurements were performed using the PulmoVista 500. We performed a recruitment maneuver using the "staircase maneuver". **Results:** As per the results of our study we found that almost 2/3rd (66.7%) of the covid ARDS lungs were recruitable safely. The average plateau pressure (cm of H2O), mean compliance, FRC, Spo2 noticed prior to the attempt at recruitment and after recruitment. After conducting the staircase manoeuvre the plateau pressure remained at 25.56 with a standard deviation of 3.641. However, the mean compliance rose to 31.926 with a standard deviation of 10.099. Post recruitment there was a marked rise of FRC to 1581.778 with a standard deviation of 311.049 ml. Pre recruitment the means spo2 was 83.6% with a standard deviation of 3.9 %. Post recruitment at 2 hours the spo2 had reached 91.1% with a standard deviation of 5.4% and remained the same at 91.9% with a standard deviation of 7.5%. Among the 27 patients' clinical recruitment was seen in 18 patients (66.7%). **Conclusions:** As per the results of our study almost 2/3rd of covid -19 patients were recruitable. This result is rather contrasting to what earlier results of other studies have shown. The results of our study again make us believe that majority of covid-19 lungs

may be recruitable in the earlier stage of the illness (within the first week of ARDS), and thus warrant a trial of a safe monitored recruitment strategy to improve oxygenation rather than directly proning the patient which in itself is fought with its own set of complications.

Are we feeding our critically ill covid patients right?

Dr. Sanjith Saseedharan, Dr. Vaijayanti Kadam, Dr. Shalaka, Dr. Annapurna
Institute / organization name: S.L. Raheja Hospital

ABSTRACT

Background: To compare resting energy expenditure measured by the gold standard indirect calorimetry versus that predicted by simple predictive equations as per covid-19 ESPEN guidelines. **Methods:** The resting Energy expenditure (REE) of 60 patients was measured with the help of the ESCOVYX- module for indirect calorimetry using the GE CARESCAPE R860 ventilator. The steady state was validated by ensuring a respiratory quotient of 0.7-0.8 and variation of 5% for VCO₂ and VO₂ for at least 30 minutes. It was ensured that for 60 minutes patient was not disturbed by endotracheal tube suction, no ventilatory changes were performed, and no vasopressors alteration was done. Absence of leak was ascertained on the ventilator. The calculation was done from day 2 onwards after mechanical ventilation and subsequently every 2nd day till the patient was on ventilator. The resting energy expenditure was also calculated by the simple predictive equations as per ESPEN covid -19 guidelines i.e., 25-30 kcal/kg of which the mean of 27 kcal/kg was chosen. Bodyweight was estimated by height equation 50KG for 5ft plus 2.3kg for each inch >5ft. The quantitative measures were studied by Bland and Altman plot to describe agreement between the two by constructing line of agreement. The limits were calculated by using the mean and standard deviation of the difference between the two measurements. **Results:** The limit of agreement appear to be very wide. The statistics of Bland and Altman plot was constructed to verify limit of agreement between energy expenditure by predictive equation calorimetry vs body weight. Discrepancy between the methods were large as per the analysis. Line of agreement were wide and variability consistent across all energy levels. As energy expenditure goes higher the scatter seemed to increase. When the Energy expenditure level was around 2000 – 2300 the two methods seem to be within line of agreement. However, less than 2000 and more than 2300 the scatter increases widely indicated a very poor agreement between both the methods. **Conclusions:** The ESPEN guidelines for energy estimation may not be right in covid 19 patients and the study calls for more personalisation of energy estimation by the correct use of indirect calorimetry.

Assessment of Impact of Different Factors as a Risk for Mucormycosis Pathogenesis in Covid Times: A Case Series Analysis

Dr. Shefali Gautam, Dr. Vinod Srivastava, Dr. Shashank Kumar, Dr. G.P. Singh

Institute / organization name: Department of Anesthesia and critical care, King George's Medical University

ABSTRACT

Background: A retrospective study was done to correlate developing mucormycosis with multifactorial causes like covid status, use of zinc, steroid, oxygen therapy and associated comorbidities. **Methods:** In this study 30 patients of stage 3 & 4 mucormycosis admitted in critical care unit were included. Retrospective retrieval and review of medical records (clinical, radiological and histopathological) of admitted patients conducted to know different risk factors for causation of mucormycosis. **Results:** In 30 patients (14 male and 16 females) mean age of the patients was 53.6 years. Rhino-orbito-cerebral mucormycosis was seen in 29 whereas pulmonary mucormycosis was seen only in one patient. The number of diabetic patients were 25 (6 recently diagnosed and 19 were for more than 10 years). 15 patients were tested confirmed covid RTPCR prior to mucormycosis others had unknown [not tested] status. All patients in our study at time of study had negative covid status. Only 10 patients received dexamethasone, twenty patients received zinc supplementation [100mg/day] for more than 20 days, 10 patients were on high flow oxygen therapy. 7 patients stayed in the hospital for more than 20 days whereas 3 patients stayed for less than 20 days. Rest 20 patients remained at the home. Nasal swabs were sent for KOH mount, only 50% samples turned out positive, for the rest diagnosis was made with the help of imaging like CT and MRI. **Conclusion:** We can speculate that a newer variant of covid 19, Zinc supplementation and immunocompromised state like diabetes mellitus during second wave of covid 19 and changes at the immunological level like neutropenia and dysfunctional phagocytosis could be a probable cause in pathogenesis of mucormycosis. It is required to perform a study on a larger scale with testing

at the molecular level to come to a definite conclusion.

Critical Care Pain Observation Tool (CPOT): Assessing the Validity and Reliability of among Critically Ill Patients.

Rajan, Ramandeep Kaur, Anoopjit Kaur, Prabhjot Saini

ABSTRACT

Background: Critically ill patients have impaired ability to communicate pain, making pain assessment and pain treatment challenging. Many of ICU do not evaluate the pain with an appropriate tool. CPOT (Critical Care Pain Observation Tool) could effectively be utilized as one of the pain assessment tool used for ICU patients among ventilated/ non-ventilated patients who could not communicate actively. **Objective:** The study was conducted to test validity and reliability of CPOT among critically ill patients and evaluating its usability. **Methods:** An observational study was conducted in the selected ICUs of a tertiary care hospital on 70 patients and 20 staff nurses selected by convenience sampling technique. It included: Validation phase, reliability, testing usability phase. Criterion validity was assessed by comparing CPOT with FLACC and NRS at pre-positioning (t1), during positioning (t2) and post positioning (t3). Discriminant validity was assessed by differentiating pain conditions at t1, t2, t3. Reliability of CPOT was assessed by Interrater reliability. Usability of CPOT was assessed from staff nurses. **Results:** Significant correlations have been found between CPOT and FLACC (p=0.00, r= 0.6, 0.6, 0.61) and CPOT and NRS; indicating good criterion validity. Both the criterion and discriminant validity indicates that CPOT provides an accurate criterion for measuring pain. Correlation were statistically significant (p= 0.000) and moderate-high at 3 testing times (r=0.724), Thus establishing the reliability. Staff reported it as beneficial, reducing communication error. **Conclusions:** CPOT is reliable and valid tool to assess pain in critically ill adults. As for usability, it was found to be quite beneficial for pain assessment.

Endotracheal suctioning among mechanically ventilated patients: Does music intervention impact pain, sedation and vital parameters?

Inderpreet Kaur, Dr. Monika Sharma, Anoopjit Kaur, Dr. Gunchan Paul

ABSTRACT

Background: Patients on mechanical ventilator have to undergo ET suctioning to clear the airway, which is quiet painful and cause alteration in the vital parameters. Non pharmacological interventions such as music therapy may help to improve pain tolerance, sedation level and vital parameters in these patients undergoing suctioning. **Objective:** To assess the effect of music intervention on pain, sedation and vital parameters during endotracheal suctioning among mechanically ventilated patients and formulating guidelines for using music intervention. **Methods:** An experimental design (crossover design) was used assess the effect of music intervention on pain intensity, sedation level and vital parameters during ET suctioning among mechanically ventilated patients of a tertiary care hospital. Patients on mechanical ventilation were selected by using convenience sampling and then were randomly allocated in experimental and control group by lottery method. In experimental group, music intervention was implemented for 40 mins for single session. Observations i.e. O1 (before 20min of ET suctioning), O2 (during) & O3 (after 20min) were done for pain intensity, sedation level & vital parameters using CPOT, Ramsay Sedation Score and Vital Parameters Scale respectively. Data was collected by Observation, Bio-physiological measures, Records/Reports, and Interview. **Results:** Significant difference was found in pain intensity within experimental (p=0.00) and control group (p=0.00); between the two groups p=0.00. Significant difference was found in sedation level within experimental group (p=0.00*) and between the two groups at O2 and O3 (p=0.00*). In vital parameters, significant difference was also found in Heart Rate (p=0.001*), SpO₂ (p=0.040*) and Mean Arterial Pressure (p=0.014*) within experimental group. And heart rate within control group (p=0.008*). **Conclusions:** Significant improvement is observed in pain intensity, sedation level, vital parameters (HR, MAP, SpO₂) among the patients who have received music intervention during ET suctioning.

A Retrospective Analysis of Cumulative Fluid Balance: Postoperative Complications after Living Donor Liver Transplantation

Mehrotra, Megha Kohli, Garg, Neha

Institute / organization name: Institute of Liver and Biliary Sciences, New Delhi, India.

ABSTRACT

Background: Fluid administration during liver transplant (LT) surgery is a controversial subject. Although adverse outcomes following positive intraoperative fluid balance have been reported, studies presenting the influence of cumulative postoperative fluid balance (CFB) on complications following LT are few and far apart. Patients with chronic liver disease tend to receive more fluid during and after surgery due to their unique physiological disease state. The aim of this study was to evaluate the influence of 48-hour CFB on the development of acute kidney injury (AKI) and pulmonary complications on day 4 after live donor LT. **Methods:** This retrospective study conducted at Institute of liver and Biliary Sciences included 230 patients undergoing live donor LT. The effect of CFB on day 2 on AKI and pulmonary complications was analysed. Chi-square test, Fisher's exact test, samples t-test, Mann-Whitney U-test were used. **Results:** Increased chances of AKI were seen to be associated with a lower graft vs recipient weight ratio (GRWR), sepsis ($P < 0.001$) and a higher 48-hour CFB after. Bivariate analysis showed that higher Model for End-stage Liver Disease-Na (MELD-Na) score, higher peak arterial lactate, higher 48-hour CFB ($P = 0.016$) and sepsis ($P = 0.003$) were found to be statistically significant in the incidence of pulmonary complications. Upon multivariate analysis, CFB at 48 hours was significantly higher in patients suffering from pulmonary complications, and GRWR and sepsis were significant for AKI. For every one litre increase in CFB on day 2, the odds of pulmonary complications increased by 37%. **Conclusions:** A more positive CFB on day 2 increased the development of pulmonary complications and lower GRWR and sepsis increased the development of AKI.

Comparison of Haematological Markers between Normal Control and Sepsis Patients-A Randomized Double Blind Prospective Observational Study

Balasubramaniyam C, Syed Moeid Ahmed

Institute / organization name: Department of Anaesthesiology and Critical Care, JNMCH, AMU, Aligarh, U.P. India.

ABSTRACT

Background: In the most specialized ICU, mortality rate associated with sepsis is approximately 30% reaching 50%. Numerous markers have been identified to diagnose sepsis and intervene early to limit the progress of the disease probably instead of single sepsis marker, multiple haematological markers would be more predictive and sensitive. Keeping this in view, in this study we have studied haematological markers such as Hb gm%, WBC count (cells/cumm), Platelet count (lacs/cumm) between Normal control and sepsis patients. **Methods:** After obtaining approval from Dept of Anaesthesiology, JNMCH, AMU, 15 adult normal subjects ((GROUP A) and 15 patients with sepsis, (GROUP B) were enrolled. Blood samples of GROUP A& B patients were obtained on admission and analysed for evaluation of haematological markers (Hb gm%, WBC count, platelet count). The values were then compared between GROUP A & B patients using students 't' test (unpaired t-test). Setting: ICU, J N Medical College. Design: Randomised double blind prospective observational study **Results:** The WBC count (mean \pm SD) in GROUP B on admission was significantly increased ($p < 0.001$) as compared to GROUP A, whereas the platelet count significantly decreased ($p, 0.001$) in GROUP B when compared with GROUP A. Although Hb gm% decreased in GROUP B compared to GROUP A, it did not achieve statistical significance ($p > 0.05$). **Conclusion:** We concluded that among haematological markers studied above WBC count and platelet count found to be significant to identify sepsis patients in ICU. This study can also be implied in patients suffering from COVID-19 disease requiring critical care in ICU.

Anaesthetic considerations in post covid rhino-orbital mucormycosis patients posted for surgical debridement: Impact on post op ICU requirement

Dr Shilpi Misra, Dr Shivani Rastogi, Prof Deepak Malviya

Institute / organization name: Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow, U.P. India.

ABSTRACT

Background: COVID 19 pandemic (SARS-CoV 2) has proven to be the deadliest pandemic till date. The second wave in INDIA turned out to be highly infectious and virulent. Post COVID, there had been a sudden surge in cases of Mucormycosis. Being a rapidly progressive and fulminant fungal infection, it required surgical debridement of necrotic tissue on emergency basis. The lethal combination of immunocompromised status, multi systemic involvement and difficult airway in these patients pose numerous challenges regarding Anaesthetic management. The present study outlines major concerns and the Anaesthetic management of patients undergoing surgical resection for rhino-orbital mucormycosis (ROM). **Methods:** The study was conducted for a duration of two months (June and July). Total 70 patients presented in our institute with mucormycosis, out of which 25 patients were posted for surgical resection under general anesthesia or monitored anesthesia care (MAC). Demographic characteristics, co morbidities, Duration of COVID illness, treatment taken during COVID (oxygen therapy/ steroid intake), hemodynamic parameters, monitoring methods and surgical procedures were recorded for each patient. **Results:** Demographic data were comparable with respect to age, gender distribution and ASA status. Mean duration of Covid illness was (12.18 ± 3.68) days. The mean HbA1c measured was (10.8 ± 1.42). There was strong correlation found between steroid intake and raised HbA1c in all patients ($r = 0.77$). 24 (96%) patients had associated type 2 diabetes mellitus, 16 patients (64 %) had pneumonitis 1 patient had pulmonary TB and hepatitis. 14 patients required oxygen inhalation postoperatively while 11 maintained $spO_2 > 94\%$ at room air. **Conclusions:** Prolonged steroid intake and high HbA1c were common finding in all mucor patients. Patients with pneumonitis had better outcome under MAC. Strict hemodynamic monitoring, perioperative glucose control, necessary difficult airway cart, metabolic and electrolyte balance reduces the postoperative ICU requirement and had better outcome.

Comparison of the Effectiveness of Microcurrent Therapy with Core Stability Exercises or Superficial Heat in Non-Specific Low Back Pain Post Covid -19 Disease

Dr. Jyoti Bhatia, Dr. Gupta

Institute / organization name: Sumitra Hospital, Noida, Uttar Pradesh, India.

ABSTRACT

Background: To evaluate the effectiveness of microcurrent therapy with core stability exercises in Non-Specific low back pain (LBP) post covid-19 in terms of duration of effectiveness and symptom relief and to compare these results with superficial heat taken at home. **Methods:** The study was designed as a prospective, randomized, single blind and parallel group study. A total of 40 patients (20 patients in group A who received microcurrent therapy with core stability exercises and 20 patients in group B of Superficial heat, aged between 25 years and 64 years participated in this study, with complain of Acute non-specific low back pain post Covid-19 disease. Primary outcome measures were changes in the pain scores in Numerical Pain Rating Scale (NPRS) and Functional Rating Index on the measurement's days 0, 14 and 28. Secondary outcome measures were the changes in Oswestry Low Back Disability Questionnaire. Patients received treatment for 2 weeks, 10 treatment sessions 5 times per week. **Results:** The Numerical Pain Score and Functional Rating Index showed a significant decrease in Group A who received Microcurrent Therapy along with core stability exercises on day 14 in comparison to Group B who took Superficial Heat at home. Long-term benefits were observed in Group A in terms of Oswestry Low Back pain Disability Questionnaire on Day 28. **Conclusions:** The Covid-19 disease resulted in a significant increase in low back pain post infection. Microcurrent Therapy and Core Stability exercises plays a vital role in reducing low back pain, this physiotherapy treatment has the potential of being an additional or alternative therapy for non-surgical management and for providing quick and sustained long term relief without any known side effects. The low back pain point prevalence before Covid-19 disease was 38.8%, and 43.8% after the Covid-19 disease especially in those who did not practice physical exercises. No significant differences were found in recovery between genders.

A Comparative Study of Efficacy and Safety of Indigenous 'Goggles with Fan' Versus Standard Goggles in Health Care Workers in Covid ICU

Dr Navdeep Sokhal, Dr Suman Sokhal, Dr Ashish Bindra, Dr Keshav Goyal
Institute / organization name: Department of Neuroanaesthesiology and Critical Care, AIIMS, New Delhi, India.

ABSTRACT

Background: The Center for Disease Control recommends personal protection equipment along with eye protection (goggles or eye shield) as necessary tool for health care workers (HCWs) managing COVID-19 patients. But fogging of goggles and spectacles is very disabling and hampers vision and effective patient care. We developed our indigenous 'goggles with fan' to solve the problem of fogging inside the goggles. This study was designed to compare efficacy in terms of vision and safety of the indigenous 'goggles with fan' versus standard goggles in HCWs in COVID ICU. **Methods:** In this pilot, randomized clinical trial (CTRI/2020/12/029805), 30 HCWs were enrolled and divided into either Group A: standard goggles or Group B: goggles with fan. In group A, participants used antifogging agents of their choice on goggles before wearing it. In group B, the fan was started immediately after donning goggles via connection with provided battery. Inside COVID ICU, HCWs from both the groups assessed their visibility for far and near fields, categorized as unacceptable or acceptable according to a given scale. HCWs were followed up for symptomatic and RTPCR-positive COVID infection till 15 days of duty within designated COVID area. **Results:** There were no demographic differences between the groups. HCWs in group A applied soap solution or antifogging marker on goggles (40% and 60% respectively), while Group B participants used nothing on the goggles. While none of the HCW in group B had unacceptable vision while reading or writing patient notes (near field) and looking at patient monitors (far field), significantly more HCWs had unacceptable vision while performing similar activities, (40% while reading patient file, p value 0.017 and 47 % while looking at patient monitors, p value 0.006). HCWs were able to see clearly for statistically longer durations (p=0.005) in group B than workers in group A. None of the HCW in any group developed symptoms suggestive of COVID within 15 days of follow up after participation into the study. **Conclusions:** Goggles with fan had highly significant better visibility and less fogging for longer duration and equal safety compared to standard goggles in HCWs in COVID area.

A retrospective study of outcome of remdesivir on survival & hospital stay in RTPCR positive COVID-19 patients

Vivek Gautam, Eema Chaudhary, Manish Arora

Institute / organization name: Subharti medical college & hospital

ABSTRACT

Background: To study the effect of remdesivir in mild to severe covid patients. **Methods:** Our study was carried out over a period of 3months in a total number of 80 confirmed covid-19 cases of various age groups with almost all of Indian origin. Remdesivir was given in a comprehensive way to patients hospitalized with Covid-19 who had an oxygen saturation of 95% or less while they were breathing ambient air or who were receiving oxygen support and even those on invasive ventilation. Patients were grouped according to their CT Severity scores, initiation of remdesivir from the day of onset of first symptoms & SPO2 at room air and the effect was studied. Patients received a mostly 5-day course of remdesivir, consisting of 200 mg administered intravenously on day 1, followed by 100 mg daily for the remaining 4days of treatment. **Results:** Patients receiving remdesivir within 5 or less days from their onset of first symptoms had a survival rate of 90.6%. Patients with CT Severity score of less than 8 had a survival percentage of 100%, followed by 96.3% in patients with CT Severity score between 9-15. Patients in the 91-95% saturation at room air range showed the most significant improvement with remdesivir with a survival percentage of 94.7% followed by 91.9% in the ones in the 81-90% spo2 range. **Conclusion:** Remdesivir decreased the overall hospital stay of patients if started earliest from their onset of symptoms, with patients with a low CT severity score and with a saturation ranging between 81-95% on arrival at room air.

Recurrent Deep Venous Thrombosis as the Initial Clinical Presentation of Lung Cancer - A Case Report

Dr. Aniket Bhattacharjee, Dr. Siddharth Soumyadarsan Pattnaik, Dr. Niranjan Mohapatra

Institute / organization name: S.C.B. Medical College & Hospital, Cuttack.

ABSTRACT

Background: To describe a case of recurrent deep venous thrombosis (DVT) in left leg in a young girl which was the initial presenting feature of underlying carcinoma lung. **Methods:** A 22 Years old female presented with complains of fever, weight loss, low back ache and fatigue for last 1 month. Recently she had developed pain and swelling on her left leg for last 6 days. There was no history of trauma, prolonged bed rest, any recent surgery etc. The patient had similar complains of swelling of leg and pain 1 year back and again 6 months back for which she was hospitalized and received anticoagulation treatment. On examination her vitals were stable. Local examination showed redness, swelling and tenderness over the left leg extending up-to the thigh. Homans sign was positive. Peripheral pulses were palpable. A clinical diagnosis of left leg DVT (Deep Venous Thrombosis) was made. USG doppler was done. Further evaluation was done to find out the cause of DVT. **Results:** Routine investigations were normal. USG doppler revealed acute thrombosis of the left external iliac, common, superficial and the deep femoral, proximal portion of great saphenous vein. Coagulation profile was normal. HRCT thorax revealed multiple nodules in the right lung in all lobes and few small nodules in the left lung with multiple lymph nodes. USG W/A suggestive of multiple deposits in the liver. X ray Spine revealed D12 lytic lesion which was confirmed by MRI LS spine and Isotope scan. TB was ruled out by negative sputum AFB, CBNAAT, IFN Gamma assay. Other pertinent tests like ANA profile, APLA Profile, ANCA were negative. Patient was finally diagnosed as Carcinoma lung with metastasis in the liver and vertebrae and presenting as recurrent DVT. The patient was started with anticoagulation with heparin. **Conclusions:** Unexplained recurrent VTE particularly in young patients, possibility of malignancy to be rule out.

Neurological Manifestations in Critically Ill Covid-19 Patients

Sandeep Kantor, Juhi Chandwani, Antara Gokhale, Fady Samir Saeed Abdelmasseh, Aliya Hamood Al Hajri

Institute / organization name: Royal Hospital, Ministry of Health, Muscat, Oman.

ABSTRACT

Background: The complications of coronavirus disease 2019 (COVID-19) involved multiple organs or systems, especially in critically ill patients. Here we aim to present a case series on critically ill COVID-19 patients who presented with neurological complications. We looked at their clinical course, management, and their outcomes. **Methods:** This retrospective single-center case series analyzed critically ill patients with COVID-19 and neurological complications at the intensive care unit of Royal Hospital during the peak of pandemic with both first and second wave included. Patient's clinical data, laboratory findings, comorbidities, and their clinical management were analyzed. Although data available is insufficient to imply cause and effect relationship between COVID-19 and cerebral hemorrhagic complications, especially so since anticoagulation therapy is being used in severe COVID-19 is one of the mainstays of severe COVID-19 patients, very careful anticoagulation strategy was used in these complicated cases in consultation with neurologists. The evidence of hemorrhagic complications—spontaneous or not—should warn clinicians that full anticoagulation should be indicated with utmost care. **Results:** The most common neuroimaging manifestations were acute infarcts with large clot burden and intracranial hemorrhage, including microhemorrhages. These CNS abnormalities largely represent secondary involvement from immune activation that leads to a prothrombotic state and cytokine storm; evidence for direct neuro-invasion is scarce. Comorbidities such as hypertension, complications of prolonged illness and hospitalization, and associated supportive treatments also contribute to the CNS involvement in COVID-19. **Conclusions:** This case series highlights the importance of a careful use of full intense anticoagulation keeping in mind the neurological involvement of Covid 19 patients which can be worsened by anticoagulation therapy. However, we believe that the benefits of therapeutic anticoagulation outweigh the risk of severe intracerebral hemorrhage. Morbidity and mortality of COVID-19 patients with neurological sequelae remain very high still and routine long-term neurologic follow-up may be warranted in survivors, given evidence of long-term microstructural and functional changes on brain imaging after COVID-19 recovery.

Correlation of Anemia with Covid-19- A Retrospective Data Analysis

Dr Manish Jha, Dr. M.L. Tak, Dr Vikas Rajpurohit, Dr Rashmi Gupta, Dr Priyamvada Sharma, Dr Prachi Mathur

Institute / organization name: Department of Anesthesia, Dr. S. N. Medical College and Associated Hospitals, Jodhpur, India.

ABSTRACT

Background: With the second wave of Covid-19, India lost close to three lakh people within a span of a few months. With the aim to find a commonly available and cheap test such as hemoglobin estimation, as a prognosis indicator for future covid-19 waves, we investigated the impact of anemia on the severity of covid-19 based on the hemoglobin (Hb) concentration of the patients noted at the time of admission to Intensive care unit (ICU). **Methods:** Single-center, retrospective data was collected from 777 patients admitted in Covid adult ICU between March – June 2021. Patients were identified as anemic and non-anemic and classified anemia based on the World Health Organization (WHO) Guidelines. We observed the trends of the disease progression in the patients without any comorbidity except anemia. **Results:** Among 777 patients included in the analysis, 511 patients were without comorbidities, out of which 316 succumbed to Covid-19. Of these 46.5% had anemia. Only 29.6% patients who survived covid-19 after being admitted to covid-19 ICU facility were found anemic. Significant relationship between anemia and death due to covid-19 was found in the males. While in females, up to 10% level of significance was noted (P-value 0.052). Morbidity in terms of duration of symptoms and ICU stay was calculated. Significant correlation was found with anemia. **Conclusions:** As we observe significant correlation between anemia and the severity of covid-19, it can be stated that anemia should be considered as an independent prognostic risk factor for covid-19 and that hemoglobin testing can be used for risk-stratification in Covid-19 patients under home or hospital care in the future covid-19 waves.

Abdominal Wall Fungal Co-Infection- Mucormycosis Associated With Covid-19- A Case Report

Dr Sanjith Saseedharan, Dr Ashok Bhurke

Institute / organization name: S L Raheja Hospital, Mumbai, India.

ABSTRACT

Background: To present a rare case of abdominal wall fungal coinfection with Mucormycosis in a patient of Covid 19. **Methods:** A 33 years old female operated case of laparoscopic ectopic pregnancy removal with salpingectomy and tubectomy, at post-operative Day 5 had redness and pus discharge from the operative site and was diagnosed with abdominal wall cellulitis. She underwent local exploration and wound wash. At post-operative day 21, the patient came to emergency room with cellulitis, and pain at the port insertion site. On examination, we highlight BP 90/50mmg and blood test analysis with HB-8.3, leucocyte count $29.91 \times 10^9/L$, CRP 333mg/L. **Results:** CT scan revealed necrotizing fasciitis. She underwent wide local excision and debridement. Post debridement the next day during dressing, the wound showed a cotton fluffy appearance at the edges and part of the base with black necrotic areas. Wound swab was sent for fungal culture, KOH mount, pus culture, and tissue for histopathology. In the meantime, she was started on empirical antifungal amphotericin B, meropenem and minocycline antibiotics. On history, the patient remarked that she did have fever, sore throat and cough for five days, 4 weeks prior to laparoscopic ectopic pregnancy removal. Also one of her family members had tested positive for covid-19. Covid antibodies test was done which were reactive: 1.96. Tissue histopathology revealed mucormycosis. MRI abdomen findings showed a 15cm large defect involving the entire thickness of subcutaneous fat. A high degree of suspicion and promptness in starting antifungal treatment prevented fatal outcome. **Conclusion:** Covid 19 is associated with immune dysregulation and consequently life-threatening infections. The prolonged and indiscriminate use of steroids for the treatment of covid 19 could contribute to this problem of fungal superinfection of mucormycosis. It seems prudent to have a very high suspicion supplemented with thorough clinical examination and low threshold for imaging in order to diagnose secondary fungal infections, such as mucormycosis. Early so that the treatment can be instituted as soon as possible.

Observational Study of Muscle Mass Loss in Critically Ill Patients in IC

Dr Sanjith Saseedharan, Dr Ashok Bhurke

Institute / organization name: SL Raheja Hospital, Mumbai, India.

ABSTRACT

Background: to study muscle mass loss in critically ill patients in ICU. **Methods:** Inclusion criteria: 1. 18-80 year old critically ill patient with sepsis and septic shock. 2. Apache scores >15, 3. None ventilated patients. Exclusion criteria: 1. Patient with below amputated leg, 2. Primary neuromuscular disease, 3. Long term critically ill patients for more than 3 months. Ultrasonography method was used to assess the size of major muscle like rectus femoris with aid of linear probe (5-10 Hz). Patient placed in supine position with leg straight, toes facing the ceiling, using permanent marker pen a straight line drawn from anterior inferior iliac spine to superior border of patella, midpoint of this line is marked and a linear probe is placed gently absolutely perpendicular to the skin. Epileptical muscle is observed in between skin and subcutaneous tissue and femur bone which indicates rectus femoris muscle. A smaller muscle placed just above the bone and below the rectus femoris is vastus intermedius. Measurements taken were as below: 1. Vertical distance of rectus femoris muscle, 2. Vertical distance of the vastus intermedius, 3. Distance between the upper border of the rectus femoris muscle and the upper border of the femur bone (quadriceps femoris muscle thickness). Measurements were taken at the interval of day 3, day 6, day 10. **Results:** There was a significant muscle loss after critical illness where in the rectus femoris muscle showed increased loss after day 7 which was approximately 15% whereas vastus intermedius showed a loss of approximately 10%. It was observed that the muscle wasting was maximum at day 10. **Conclusions:** Muscle wasting occurs as a result of extreme stress due to critical illness and increased catabolism and may reflect on the overall prognosis of the patient. This bedside method of USG which is readily available and easy to perform is very helpful in understanding the muscle mass and therefore aid in optimizing the nutritional requirements and thereby reducing the morbidity in critically ill patients.

A Comparative Study of High Flow Nasal Cannula Oxygen Therapy and Noninvasive Ventilation in Acute Respiratory Failure Patients: A Prospective Study

Sreenivas Reddy Madhurantakam, Padmakumar V Arayamparambil, Garud Suresh Chandan, Pooja Prathapan Sarada

Institute / organization name: Department of Critical Care Medicine, Fortis Hospital, Bannerghatta Road, 154/9, Opp. IIM-B, Bangalore, Karnataka, India.

ABSTRACT

Background: To assess and compare the role of high-flow oxygen through nasal cannula with non-invasive positive-pressure ventilation in prevention of intubation. **Methods:** We performed a single-center, prospective study in which we randomly assigned patients who had acute hypoxemic respiratory failure (AHRF) and a ratio of the partial pressure of arterial oxygen to the fraction of inspired oxygen (PaO_2/FiO_2) of 300 mm Hg or less and partial pressure of carbon dioxide ($PaCO_2$) < 45 mmHg to high-flow nasal cannula (HFNC) oxygen therapy or noninvasive positive-pressure ventilation (NIV). The primary outcome was the proportion of patients intubated within 28 days; secondary outcomes included all-cause mortality in the intensive care unit (ICU) and at 28 days, the number of ventilator-free days at day 28 and the duration of ICU stay. **Results:** A total of 86 patients were included in the analyses. COVID-19 pneumonia was the cause of AHRF in 39 (90.70%) patients in the HFNC group and 43 (100%) in NIV group. The intubation rate (primary outcome) was 27.91% (12 of 43 patients) in the HFNC group and 27.91% (12 of 43) in the NIV group ($P = 1$). The all-cause mortality in the intensive care unit and at 28 days was 7 (16.3%) in HFNC group and 9 (20.9%) in NIV group ($P = 0.579$). The number of ventilator-free days at day 28 was 22.93 ± 10 days in the HFNC group and 20.84 ± 12 in the NIV group ($P = 0.390$) which was not significant. The duration of ICU stay was significantly higher ($P = 0.016$) in the NIV group (15 ± 10.94 days) compared to HFNC group (10.77 ± 6 days). **Conclusions:** In patients with nonhypercapnic AHRF, treatment with either HFNC or NIV did not significantly affect the intubation rates. There was no significant difference between the two groups with respect to all-cause mortality and ventilatory free days at day 28. However, high flow oxygen therapy showed significant decrease in the duration of ICU stay.

Acute Pancreatitis in Covid-19 Patients: A Case Series

Sreenivas Reddy Madhurantakam, Padmakumar V Arayampambal, Garud Suresh Chandan, Pooja Prathapan Sarada

Institute / organization name: Department of Critical Care Medicine, Fortis Hospital, Bannerghatta Road, 154/9, Opp. IIM-B, Bangalore-560076, Karnataka, India.

ABSTRACT

Background: Severe Acute Respiratory Syndrome Coronavirus-2 (SARS CoV-2) is primarily a respiratory tract disease but involves other organ systems too, especially gastrointestinal (GI) system. Acute pancreatitis is one of the manifestations of Coronavirus disease 2019 (COVID-19). As pancreatic gland also expresses angiotensin-converting enzyme 2 (ACE2), the proven receptor for SARS-CoV-2 cell binding. **Case series:** We present four cases, where none of them presented with symptoms of pancreatitis on admission. Our first patient presented with severe acute respiratory distress syndrome secondary to COVID-19 and during her stay necrotizing pancreatitis was incidentally detected on CT scan. Our second patient presented as acute fatty liver of pregnancy and was incidentally found to be COVID-19 positive and later developed symptoms of acute pancreatitis. Our third and fourth patients presented with respiratory symptoms secondary to COVID-19 and were later found to have elevated pancreatic enzymes along with abdominal pain. **Conclusions:** Our case reports, highlights the importance of considering SARS-CoV-2 as a new aetiological agent of acute viral pancreatitis. This article not only serves to exemplify the association between SARS CoV-2 and acute pancreatitis but also highlights the need for a high index of clinical suspicion for acute pancreatitis in patients with significant inflammatory response and abdominal pain with a COVID positive status.

Keywords: COVID-19, Acute Pancreatitis, lipase, Necrotizing pancreatitis, SARS-CoV-2.

Modified Prone Position for Awake Self-Prone Ventilation in Covid-19 Pneumonia: A Randomized Control Trial

Vaibhav Chawla, Gopal Chawla, Jayant Chawla, Nellutla Srujan, Neelu Chawla, Arushi Dhawan

Institute / organization name: Guru Nanak Dev Hospital, Amritsar, Punjab, India.

ABSTRACT

Background: Self-awake prone ventilation in the last two years has changed the management of hypoxic respiratory failure and has been endorsed by ICMR as one of the managements for moderate to severe COVID pneumonia. But it too has its own set of problems; multiple pillows are required in already crumbling setup, requires 2 to 3 health care workers for assisting, additive ventilation like NIV and HFNC are difficult to apply. Patients in fully prone position often feel uncomfortable and anxious followed by increase in cardiorespiratory work, leading to further worsening. **Objective:** To analyze modified prone position as a viable method for awake prone ventilation and evaluate its effect on patient's comfort. **Methods:** We conducted a RCT after pilot study of 20 patients in tertiary care private hospital in Northern India from 1st March 2021 to 31st May 2021. Patients who were COVID-19 positive and required ≥ 5 liters of oxygen to maintain a saturation of $\geq 92\%$ were recruited in this study. They were randomized in 2 groups via computer generated random sequence generator, MOHFW prone position (Group 1) and Modified Prone position (Group 2). We evaluated various physiological parameters and comfort of the patient by Modified Gloucester comfort scale (MGCS). **Results:** Both groups were evenly matched and received medication according to the hospital protocol. There was no significant difference in the length of stay, additional medications used or mortality between the groups. Group 1 tolerated prone position for lesser time as compared to Group 2. Modified prone position tolerated HFNC and NIV better leading to lesser intubations. Patients were more comfortable in Group 2 as average MGCS score was lower. Anxiety, back pain and shoulder pain were more common in Group 1. **Conclusion:** Modified Prone position appears to be a viable alternative to standard awake prone ventilation. It is more comfortable and thus better tolerated.

A comparative study of the protection rate and recovery characteristics between COVISHIELD & COVAXIN recipients following vaccination for SARS-CoV-2

Bhuvna Ahuja, Maninder Kaur, Anirban H Chowdhuri

Institute / organization name: Department of Anaesthesiology & Critical Care, GIPMER, New Delhi, India.

ABSTRACT

Background: The prospective questionnaire based survey was undertaken amongst the healthcare workers vaccinated with either COVISHIELD or COVAXIN against SARS-CoV-2 infection to compare the protection rates and recovery characteristics of the two vaccines. The questionnaire consisting of 15 questions were independently designed by the two investigators and moderated by the third. It was thereafter prospectively validated in their institution in ten volunteers. Thereafter, the list of eligible healthcare workers for vaccination was procured from the hospital database by the investigators. The healthcare workers who had been vaccinated were invited to participate in the survey on voluntary basis via email (when available) or phone numbers via social media. The questionnaire contained information about the type and doses of vaccine received, any occurrence of SARS-CoV-2 infection after vaccination and their time of onset, and in such cases their clinical features, any need for hospitalization, duration and clinical course of the illness. The occurrence of vaccine associated side effects was also noted. The responses were obtained in the Google chart and then entered in the software for analysis using SPSS version 24.0. A total of 144 out of 769 patients (18.7%) developed SARS-CoV-2 after one or both dose of the vaccine. There was significant difference in the protection rates of the two vaccines ($p=0.012$, $[(X^2=8.9)$, degree of freedom 2] with more recipients of COVISHIELD developing SARS-CoV-2. When observed across the time interval of less than 2 weeks, 2 to 6 weeks and more than 6 weeks after vaccination, 10.7%, 28.9% and 50.9% vs. 3.8%, 2.5% and 3.1% of COVISHIELD vs COVAXIN respectively developed SARS-CoV-2. There was no difference in need for hospitalization, duration of illness, recovery characteristics and the incidence of vaccine associated side effects between the recipients. Our study found greater SARS-CoV-2 infection following vaccination with COVISHIELD than COVAXIN without finding any difference in their severity, clinical course and recovery characteristics.

HFNC: A Retrospective study of the High-flow Nasal Cannula for Adult Patients in COVID-19

Shubham Tiwari, Eema Chaudhary, Tannishtha Arora

Institute / organization name: Subharti Medical College & Hospital

ABSTRACT

Background: High flow nasal cannula (HFNC) is a respiratory support system that has become prominent in the treatment of respiratory failure. HFNC provides higher concentration and flow of oxygen, resulting in decreasing anatomic dead space by preventing re-breathing and ensure positive end-expiratory. However, in COVID-19, the usage of HFNC is much controversial due to concerns about the benefits and risk of aerosol-dispersion. HFNC can reduce the requiring of intubation in patients with COVID-19, and it can decrease the length of intensive care unit stay and complications related to mechanical ventilation. **Objective:** To demonstrate use of HFNC in preventing invasive Ventilation in covid patients. **Methods:** Our study was carried out over a period of 2months in a total number of 39 confirmed covid-19 cases of various age groups with almost all residing in north india. Our study mainly illustrated how many of those cases we were able to prevent from going on a mechanical ventilator simply by putting them on a HFNC support. Patients were grouped according to oxygen saturation on room air at the time of admission in hospital, HFNC flow at the time Admission required to maintain $spo_2 > 94$. **Conclusions:** HFNC provides high concentrations of oxygen to the patients, which cannot reach with conventional devices. HFNC can reduce the requiring of intubation in patients with COVID-19, and complications related to mechanical ventilation. Out of total 39 patients only 8 patients went on for invasive ventilation, rest 31 patients had better outcome on HFNC. Out of which patients with oxygen saturation more than 70% at the time of admission had 87.5% success rate with HFNC in avoiding invasive ventilation? And patient with oxygen saturation less than 70% at the time of admission has 66.6% success rate in avoiding invasive ventilation. Patients on HFNC with flow > 50 liters had 33% chances to getting invasive ventilation. And patients with flow < 50 litres of flow at the time of admission had 12.5% chances to get invasively ventilated.

Methemoglobinemia after Sodium Nitrate Ingestion- A Case Report

Dr. Vandna Arora, Dr S K Singhal, DrAkanksha

Institute / organization name: Pt B D Sharma, PGIMS, Rohtak, India.

ABSTRACT

Background: Sodium nitrate is a widespread substance in the environment and is used in food, fertilizer and explosive industries. Most clinically significant exposures are accidental. We describe a case of methemoglobinemia associated with intentional sodium nitrate ingestion. **Case report:** An 18 year old female presented to the emergency department with alleged history of intentional ingestion of sodium nitrate with complaints of breathlessness and vomiting. On arrival, oxygen saturation was 78% on pulse oximetry and cyanosis unresponsive to 100% oxygen. Blood gas analysis demonstrated a methemoglobin (MetHb) level of 65.7%. The patient received 4 doses of 1 mg/kg methylene blue over 48 hours and improved subsequently leading to uneventful discharge. **Discussion:** Fatal incidents after poisoning with sodium nitrate have been described, mainly due to severe methaemoglobinaemia. Levels of MetHb as low as 10%–20% can produce cyanosis, and MetHb levels greater than 30% can result in tachycardia, muscle weakness, nausea, and vomiting. Clinically, MetHb levels greater than 55% can lead to coma, and at levels greater than 70%, there is a high risk of death. Sodium nitrate acts as an oxidizing agent causing methemoglobinemia. Reduction of MetHb to hemoglobin occurs via the protective enzymes cytochrome-b5 reductase and nicotinamide adenine dinucleotide phosphate (NADPH) MetHb reductase. Treatment includes methylene blue, which acts as a cofactor for NADPH MetHb reductase. **Conclusions:** Though this poisoning is rare, it is important to diagnose methemoglobinemia and provide prompt treatment.

Our Experience with Bevacizumab in Critically Ill Covid Patients

Dr Sabarish P, Dr Padmakumar AV, Dr Garud Chandan, Dr Pooja PS, Dr Ganesh KM

ABSTRACT

Background: Bevacizumab (BVCZ), a monoclonal antibody against the vascular endothelial growth factor (VEGF) is being considered as therapeutic option for COVID-19 infections. The present study was undertaken to assess the therapeutic response of BVCZ therapy in severely or critically ill COVID-19 patients and its role as an effective modality of management. **Methods:** This retrospective observational study included 33 severely ill COVID-19 patients. They were treated with BVCZ on worsening respiratory distress with PaO₂/FiO₂ (P/F) ratio < 150, increasing levels of CRP and D-dimer along with the absence of any absolute contraindications. Patient's data including comorbidities, trends in P/F ratio, oxygen requirements, and outcomes (morbidity and mortality) were compared before and after BVCZ administration. **Results:** All patients in the study group were symptomatic at presentation with a mean PaO₂/FiO₂ (P/F) ratio of 100.24 before the Bevacizumab administration with a mean duration of onset of 7 days. All patients had a raised CRP (mean value 117.78 pg/mL) and D dimer (mean value 2.47 ng/ml) values. BVCZ significantly reduced CRP from 117.78 ± 103.20 to 54.13 ± 49.05 and P/F ratios improved from 100.24 ± 36.06 to 119.15 ± 31.71 within 72 hours. A reduction in D dimer was noted from 2.47 ± 4.84 to 2.28 ± 1.67 but, it was not statistically significant. Mortality was 54.5% which included 81.8% of intubated and mechanically ventilated patients. **Conclusion:** Although, the administration of BVCZ led to improvement in hypoxia and reduction in CRP and D-dimer levels. However, in mechanically ventilated patients, and those with secondary infections, we had a higher mortality. Further studies are required to see if BVCZ provides any outcome benefits in severe COVID-19 pneumonia.

Depression as Meningitis Mimic in a Patient with COVID -19 Infection

Tanvi M Meshram, Akshay Kumar Das, Darshana Rathod, Kamlesh Kumari

Institute / organization name: All India Institute of Medical Sciences, Jodhpur, India.

ABSTRACT

Background: COVID -19 Infection in a patient with depression can mask the presentation of meningitis due to overlapping symptoms. We present one such case where diagnosis was delayed and lead to delay in treatment. **Case:** 65-year-old female, a known case of depression and hypertension presented with complaints of fever and sore throat for 2days. Rt-PCR was found to be positive and patient was admitted to covid ICU. Over the course of stay, fluctuating level of mood and consciousness was observed which was initially thought to be a component of depression and psychiatry evaluation was sought and medications were altered. A CT head was done when the symptoms persisted even after change of medications. It showed obstruction hydrocephalus and features of meningitis. **Results:** External ventricular drain was inserted and antibiotics were started. Patient finally succumbed to the illness. **Conclusions:** Depression can mimic meningitis and vice versa more so in patients with covid19 where symptoms of fever and headache were thought to be due to COVID 19.

Assessment of Carotid Doppler Indices and Cardiac Output as a Surrogate of Fluid Responsiveness Following Passive Leg Raise Manoeuvre

Farhat Fatima, Syed Moied Ahmed

Institute / organization name: JNMCH, AMU, Aligarh, Uttar Pradesh, India.

ABSTRACT

Background: To find correlation between changes in CO (Cardiac Output) and ccFT (corrected carotid Flow Time) with PLR (Passive Leg Raise). It was hypothesized that ΔCO (changes in CO) of fluid responders (>10%) will reflect as ΔccFT (changes in ccFT). **Methods:** Following approval by IEC and BOS, this study was conducted on fifty mechanically ventilated patients meeting the inclusion criteria. Initially, with patient in supine position, non-invasive CO was obtained using NIHON KOHDEN estimated continuous cardiac output (esCCO) monitoring device and concurrently doppler measures [carotid flow time (CFT) and cardiac cycle time (CCT)] of the common carotid artery was taken in long axis proximal to carotid bulb using 10-5MHz linear transducer on a SONO-Site M-Turbo. ccFT was calculated using Bazett's formula (CFT/√CCT) and also Wodey's formula [ccFT= CFT + 1.29(HR-60)]. Patient's legs were then passively raised to 45 degrees. Repeat measurements were obtained one minute after PLR. The continuous variables were evaluated by mean or range value. The dichotomous variables were presented in number/frequency and analysed using Chi-square or Fisher Exact test. Means between responders and non-responders, was compared using Student t-test or Mann-Whitney U test with 95% confidence interval. A p-value of < 0.05 was regarded as significant. ROC curve analysis and likelihood ratios were used. Correlation between ΔCO and ΔccFT was made using Spearman's rho. All analyses were performed using SPSS Version 25. **Results:** 36 patients (72%) were classified as fluid responders. ΔccFT using Wodey's formula was 49.38± 46.43ms for responders versus 12± 18.8ms for non-responders (p=0.0009). ΔccFT using Bazett's formula was 0.8931± 3.171ms for responders versus 0.229± 0.8946ms for non-responders (p=0.0385). **Conclusions:** Greater than 10% increase in CO following PLR is reproducible non-invasive method to predict volume responsiveness. PLR induced ΔccFT can determine fluid responsiveness in selected population as evident by the correlation between ΔCO and ΔccFT. While deriving ccFT from other parameters, Wodey's formula was found to better correct for heart rate than Bazett's formula.

Success of NIV use in hypoxic respiratory failure in Covid patients- How different and similar was it to H1N1 pneumonia? - A retrospective study

Dr. Vivekananthan P, Dr. Lakshminanthcharan Saravanabavan, Dr. M N Sivakumar, Dr. Ram G Arun

Institute / organization name: Institute of Critical Care Medicine, Royal Care Super Specialty Hospital, Coimbatore.

ABSTRACT

Background: Although NIV is a common mode of respiratory support in hypoxic respiratory failure, its use is not adequately supported by literature and guidelines. But in recent times NIV is used extensively in COVID pneumonia patients. Earlier, H1N1 pneumonia group of patients were identified to benefit from use of NIV. But their success in preventing intubation or reducing mortality were not validated by studies. Hence our aim was to retrospectively look into the COVID patients admitted to our ICU, observe the outcome benefits of NIV use and compare the difference in outcome benefits of NIV use in the H1N1 patients during the previous year. **Methods:** Retrospective analysis of the COVID pneumonia patients admitted to ICU over one year period in our multi-speciality tertiary care hospital in south India was undertaken. Details were collected from the electronic charting and patient files retrospectively. The data on the usage of non-invasive ventilation as the initial mode of ventilation for hypoxic respiratory failure in these patient groups were analysed. The findings were compared with the data from the H1N1 pandemic patients in 2018 collected from our ICU. The outcome benefit in terms of subsequent invasive ventilation need, mortality and duration of ICU stay were measured. **Results & Conclusions:** Usage of non-invasive ventilation as the initial mode for hypoxic respiratory failure has increased in this COVID pandemic scenario compared to H1N1 pandemic times. The P/F ratio at which escalation of respiratory support was considered in H1N1 group was higher when compared to COVID patients. The duration of NIV usage was found to be longer in COVID patients by accepting lower P/F ratios. We found that NIV usage was beneficial in preventing invasive ventilation to a larger extent in COVID patients as against H1N1 cohort of patients. However, a cut off value of P/F ratio below which persevering with NIV use in COVID patients might be harmful remains elusive.

Clinical Spectrum of Covid-19 Patients Requiring Hemodialysis during Two Covid Waves- A Tertiary Centre Experience

Asheesh Kumar, Ashish Chauhan, Ram Singh, Rajeev Sandal, Balbir Verma, Sunil Sharma, Dheeraj Sharma, Shivangi Negi, Naresh Chauhan, Ajay Jaryal, Sanjay Vikrant

Institute / organization name: Department of Nephrology and Medicine, IGMC Shimla.

ABSTRACT

Background: We aimed to describe the clinical characteristics and outcomes of COVID 19 in patients of CKD who received hemodialysis during hospital stay. **Methods:** This was a single centre retrospective study from May, 2020 to May, 2021. The study population comprised of patients of CKD who developed COVID-19 infection and received hemodialysis (HD) during their hospital admission. For comparison we included another group of patients with acute kidney injury (AKI) as an organ failure and required dialysis during hospital stay. **Results:** During the study period, 117 patients required hemodialysis and amongst them, CKD-5D, CKD not on dialysis previously, and patients having acute kidney injury (AKI) were 59.8%, 29.9%, and 12.8% respectively. The study population comprised of 70% males with a mean age of 52.35±13.79 years. Hypertension and diabetes were seen in 86(81.4%) and 43(40.2%) of the patients. Overall, severe disease and mortality was seen in 68 (56%) and 54(46%) of patients, respectively and mortality in CKD with severe COVID was 43 (63.2%). There was no difference in mortality of patients of CKD-5D, CKD patients who were dialysed for acute on CKD and patients dialysed for AKI without preceding CKD (53.1% vs. 42.8% vs. 46.6%, P=0.257). **Conclusion:** Patients with CKD on HD contracting COVID 19 infection had similar mortality to the patients who developed AKI as an organ failure in severe COVID 19 infection.

Covid-19 Complication: Pulmonary Embolism

ABSTRACT

Background: Covid 19 coronavirus isRNA virus it's a worldwide pandemic affecting large population worldwide .there complication affect the individual.Cause of covid 19 are multifactorial, but respiratory failure from pneumonia and subsequent acute respiratory distress syndrome is a principal contributor. Additionally, many infected individuals were found to have coagulation markers abnormalities. This is especially true among those progressing to severe pneumonia and multi-organ failure. While the incidence of venous thromboembolic (VTE) disease has been recently noted to be elevated among critically ill patients, the incidence among ambulatory and non-critically ill patients is not yet clearly defined. Herein, we present in 50 year female patient who didn't have any hypercoagulable risk factors yet presented with pulmonary embolism in association with COVID 19 infection. In addition, we emphasize on v/q mismatch with the role of extended thromboprophylaxis in patient. **Aim:** to determine the effect of pulmonary embolism in covid 19 patient in association with clinical and laboratory parameter. **Methods:** Prospective study done in cssh hospital associated with clinical and laboratory data that correlate prognosis in patient. Pulmonary embolism on perfusion scintigraphy mismatch was correlated with clinical and laboratory parameter.D dimer and v/q used to predict pulmonary embolism and threshold was obtained.

Clinical Course and Outcome of ARDS Related to Covid 19 in a Tertiary Care Hospital in North East India

Dr. Chandana Sarma, Dr. Brajendra Lahkar

Institute / organization name: Health city Hospital, Khanapara, Guwahati, Assam, India.

ABSTRACT

Background: Mortality attributable to COVID 19 infection occurs mainly through the development of viral pneumonia-induced acute respiratory distress syndrome (ARDS).Limited data are available regarding efficacy of antivirals, steroids and other anti-inflammatory agents and ventilatory strategies in most patients under mechanical ventilation for Covid-19-related (ARDS). **Objectives:** The objective of the study is to delineate the clinical profile, predictors of poor outcome, Clinical outcome and 28 day mortality with standard of care treatment modality in patients suffering from COVID 19 related ARDS. **Methods:** We reviewed the clinical data of 300 patients admitted with COVID 19 related ARDS to Health city hospital, Guwahati, a tertiary care Hospital of North East India. SARS-CoV-2 infection was confirmed by positive detection of viral RNA in nasopharyngeal secretions using RT-PCR test. COVID-19 ARDS is diagnosed when someone with confirmed COVID-19 infection meets the Berlin 2012 ARDS diagnostic criteria of (i) acute hypoxaemic respiratory failure; (ii) presentation within 1 week of worsening respiratory symptoms; (iii) bilateral airspace disease on chest x-ray, computed tomography (CT) or ultrasound that is not fully explained by effusions, lobar or lung collapse, or nodules; and (iv) cardiac failure not being the primary cause of acute hypoxaemic respiratory failure. Primary outcome was day 28 ventilator free days .Secondary outcomes were mortality on day 28, Acute Kidney injury, Acute cardiac injury, Pulmonary thromboembolism and Septic shock. **Results:** 30% of patients presenting with COVID-19 pneumonia developed ARDS and 60-80 % of those requiring intensive care. COVID-19 ARDS follows a predictable time course over days, with median time to intubation of 5 -8 days after symptom onset. Patients with co morbidities like CKD and uncontrolled diabetes had worse outcomes .The lung compliance in these patients was lower with higher plateau and driving pressure .High ferritin levels and lymphopenia were early predictors of poor outcome .Associated complications that resulted in poor outcome were AKI requiring Hemodialysis, Myocarditis and high D-dimer levels with or without proven thromboembolism. **Conclusions:** In COVID-19 patients with ARDS, we identified some predictors of poor outcome. Early identification of these predictors will help us in risk stratification and timely management. Patients with comorbidities like CKD and uncontrolled diabetes had a fulminant course of disease with poor prognosis. Requirement of different treatments and ventilatory strategies for these high risk patients' needs further investigation. The effects of corticosteroids and other anti-inflammatory agents in COVID-19-related ARDS patients are still uncertain.However timely mechanical ventilation and lung protective strageies proved beneficial in most of the critically ill patients.

Effect of Early vs Late Mobilization on the Length of ICU Stay among Critically Ill Patients

Ashadeep Kaur, Monika Sharma, Kapil Sharma, Pramod Sood

Institute / organization name: Department of Medical Surgical Nursing, CON, DMCH, Ludhiana, Punjab, India

ABSTRACT

Background: Intensive care unit (ICU) acquired weakness is characterized by fatigue and profound neuromuscular weakness. Early Mobilization is an effective intervention in improving ICU acquired weakness and reducing length of ICU and hospital stay. **Objectives:** To assess the effect of the early vs late mobilization on the length of ICU stay among critically ill patients in a view to formulate mobility protocol in critically ill patients. **Methods:** A pre-experimental design was used for the study. 30 critically ill patients were selected by using purposive sampling technique and then allocation of subjects was done into experimental group1 (n1= 15) and experimental group2 (n2= 15). In experimental group1, early mobilization was done within the 5 days of admission in ICU. In experimental group2, late mobilization was done after the 5th day of admission in ICU. Data was collected by using patients profile and tool related to ICU stay with the help of interview method, observation, records and reports and bio- physiological measures and was analyzed with the use of descriptive and inferential statistics. **Results:** Statistical significant results were found between experimental group1 and experimental group2 in patient's total no. of ICU days till discharge (p= 0.000), total no. of ICU days post enrolment till discharge (p=0.011), first day when out of bed (p= 0.000) and first day of weaning from ventilator (p=0.000). **Conclusions:** Early mobilization is effective in reducing the length of ICU stay in critically ill patients.

Keywords: Early mobilization, late mobilization, critically ill patients, length of ICU stay.

From Frying Pan into the Fire

Dr Prajakta Pote, Dr Sushma Gurav, Dr Kapil Zirpe

Institute / organization name: Ruby Hall Clinic, Pune, India.

ABSTRACT

Background: To assess incidence and reasons behind occurrence of barotrauma in COVID patients. **Methods:** Severe COVID 19 patients admitted in our ICU during June 2020 to November 2020 were assessed for events of barotrauma. Barotrauma is considered as presence of pneumothorax, pneumomediastinum or subcutaneous emphysema on radiological diagnosis. Data of the Patients who developed barotrauma was further assessed for severity of disease, illness duration, laboratory investigations and ventilator parameters and mortality. For patients who were mechanically ventilated, ventilator parameters 4 hours prior to detection of barotrauma were assessed. **Results:** Incidence of barotrauma was 2.5 % (14/549) in patients admitted to ICU and it was maximum (4.9%) among patients on invasive mechanical ventilation. Most of the barotrauma events occurred in 3rd week (average 20.36 days) of the severe (average HRCT score 16.86) COVID 19 pneumonia. Barotrauma events that occurred in invasively ventilated patients were either spaced after intubation and proning (3/8) or during weaning phase (5/8) and prior events like coughing or suctioning were noted. While patients on noninvasive ventilation who had barotrauma had higher minute ventilation (average 12.5 Lit/min). 3 of 14 patients (0.96%) were not on any mode of mechanical ventilation representing spontaneous occurrence of barotrauma in severe COVID 19 pneumonia. Mortality in mechanically ventilated patients was 100% while overall mortality being 64.28%. **Conclusion:** Occurrence of barotrauma pushes the patients of COVID 19 pneumonia to poor outcome by increasing the mortality risk. While different mechanisms can explain the occurrence of barotrauma in ventilated and nonventilated patients of COVID 19 pneumonia, being vigilant is the most important factor in managing these patients with fragile lungs and preventing them from this dreaded complication.

SARS-Cov-2 Vaccine Induced Immune Thrombotic Thrombocytopenia (VITT) - A Dilemma for Organ Donation.

Dr Anand Tiwari, Dr Kapil Zirpe, Dr Upendra Kapse

Institute / organization name: Ruby Hall Clinic, Grant Medical Foundation, Pune, India.

ABSTRACT

Background: Vaccine induced immune thrombotic thrombocytopenia may is a rare complication following immunization with SARS Cov-2 adenovector vaccine. We highlight hurdles of organ retrieval from a brain-dead patient with suspected SARS cov-2 vaccine induced immune thrombotic thrombocytopenia, causing catastrophic cerebral venous sinus thrombosis. **Methods:** Vaccination against COVID -19 is critical for minimizing disease spread and mortality. Despite the safety of adenovector (AstraZeneca) COVID 19 vaccine, there have been reports of atypical thrombotic events (CVST- cerebral venous sinus thrombosis) and thrombocytopenia (VITT). We report a case 24 year old young female, admitted with severe headache, vomiting and seizure episodes. Brain imaging revealed cerebral venous sinus thrombosis, laboratory parameters showed high d- dimer, thrombocytopenia and low fibrinogen. There was significant history of vaccination with adenovector (AstraZeneca) COVID 19 vaccine 18 days prior to onset of symptoms. After liaising with hematologist and suspicion of VITT, she was treated with intravenous immunoglobulins (IVIG) and antibodies against platelet factor 4 (PF4) were sent. Despite Intensive care management and multidisciplinary care patient's clinical condition deteriorated with drop in neurological status requiring tracheal intubation and ventilatory support. Emergency digital subtraction angiography (DSA) and subsequent mechanical thrombectomy was attempted, however patient progressed to catastrophic hemorrhagic transformation of the thrombus with absent brainstem reflexes and positive apnea test. **Results:** Patient was considered as a potential organ donor. However as the patient was a suspected case of VITT with potential hematological and immunological after effects to the recipient, we could not proceed for organ retrieval. **Conclusions:** In view of lack of substantial data with SARS Cov-2 vaccine induced immune thrombotic thrombocytopenia; we suggest that new local and national clear guidelines should be set for transplantation of organs from brain-dead patients with suspected VITT. However organ transplantation can be considered only in urgent cases after thorough review with multidisciplinary team. Potential risks and benefits to the recipient should be thoroughly explained and documented.