

Safety and Quality Issues in NORA (Non-Operating Room Anaesthesia)

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Off-site anaesthesia (non-operating room anaesthesia) encompasses all sedation/anaesthesia provided by anaesthesiology services outside of the operating room environment. Anaesthesia providers are now asked more frequently to provide complete, integrated anesthetic care outside the traditional OR setting. Over the past few decades, requests for these services in remote locations have been steadily increasing. The sites at which services are needed include- radiology suites, interventional neuroradiology labs, oocyte retrieval, cardiac cath labs, electro convulsive therapy, oncology wards, endoscopy suites and the list is increasing day by day.

Problems faced by the Anaesthesiologists are-

Lack of adequate space, Unfamiliar surroundings and equipments, Central pipeline will be missing and cylinders will have to be used, Unphysiological postures needed for some procedures, Out patients for investigations are inadequately prepared/investigated/have associated medical illness, Adverse reactions to contrast media and lack of post anaesthetic care.

The incidence of adverse cardiac and respiratory events are more at remote location especially for procedures done under MAC- monitored anaesthesia care and deep sedation. The analysis have shown that delayed recognition of respiratory obstruction and drift to deeper levels of sedation are prime reasons. Aspiration is more common as regular preprocedural assessments are not done with no uniform guidelines. The provision of substandard care along with procedure related concerns and patient related comorbidities further add to the mishaps at these sites.

American Society of Anaesthesiologist (ASA) Standards, Guidelines¹ and Policies should be adhered to in all non-operating room settings except where they are not applicable to the individual patient or care setting.

1. There should be in each location a reliable source of oxygen adequate for the length of the procedure. There should also be a backup supply. Prior to administering any anaesthetic, the anaesthesiologist should consider the capabilities, limitations and accessibility of both the primary and backup oxygen sources. Oxygen piped from a central source, meeting applicable codes, is strongly encouraged. The backup system should include the equivalent of at least a full E cylinder.

2. There should be in each location an adequate and reliable source of suction. Suction apparatus that

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meets operating room standards is strongly encouraged.

3. In any location in which inhalation anaesthetics are administered, there should be an adequate and reliable system for scavenging waste anaesthetic gases.

4. There should be in each location: (a) a self-inflating hand resuscitator bag capable of administering at least 90 percent oxygen as a means to deliver positive pressure ventilation; (b) adequate anaesthesia drugs, supplies and equipment for the intended anaesthesia care; and (c) adequate monitoring equipment to allow adherence to the "Standards for Basic Anaesthetic Monitoring." In any location in which inhalation anaesthesia is to be administered, there should be an anaesthesia machine equivalent in function to that employed in operating rooms and maintained to current operating room standards.

5. There should be in each location, sufficient electrical outlets to satisfy anaesthesia machine and monitoring equipment requirements, including clearly labelled outlets connected to an emergency power supply. In any anesthetizing location determined by the health care facility to be a "wet location" (e.g., for cystoscopy or arthroscopy or a birthing room in labour and delivery), either isolated electric power or electric circuits with ground fault circuit interrupters should be provided.

6. There should be in each location, provision for adequate illumination of the patient, anaesthesia machine (when present) and monitoring equipment. In addition, a form of battery-powered illumination other than a laryngoscope should be immediately available.

7. There should be in each location, sufficient space to accommodate necessary equipment and personnel and to allow expeditious access to the patient, anaesthesia machine (when present) and monitoring equipment.

8. There should be immediately available in each location, an emergency cart with a defibrillator, emergency drugs and other equipment adequate to provide cardiopulmonary resuscitation.

9. There should be in each location adequate staff trained to support the anaesthesiologist. There should be immediately available in each location, a reliable means of two-way communication to request assistance.

10. For each location, all applicable building and safety codes and facility standards, where they exist, should be observed.

11. Appropriate post-anaesthesia management should be provided. In addition to the anaesthesiologist, adequate numbers of trained staff and appropriate equipment should be available to safely transport the patient to a post-anaesthesia care unit.

Basic principles for non-operating room anaesthesia can be broadly classified into three categories: patient factors, environmental issues, and procedure-related aspects. Patient factors include co-morbidity, airway assessment, fasting status, and monitoring. Environmental issues include anaesthesia equipment, emergency equipment, and magnetic and radiation hazards. Procedure-related aspects include duration, level of discomfort, patient position and surgical support.

To conclude, anaesthesia at remote location is a sub speciality that has shifted the face of anaesthesiologist as perioperative physician to procedural area specialist who takes the primary role in providing anaesthesia services, educate the staff and other consultants to provide safe sedation without compromising safety.

References

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