Hellenic Society of Anaesthesiology

Guidelines for the perioperative pediatric anesthesia environment

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A. INTRODUCTION

The perioperative care of infants and children demands special knowledge upon this age group. The anesthesiologists as well as the surgeons should not undertake pediatric procedures unless they are continuously educated because the quality of care in anesthesia and surgery in children has proved to be analogue to the education and the experience of the medical personnel.

B. PATIENT CARE UNITS

- The safe pediatric anesthesia care requires properly educated and experienced medical, nursing and supportive personnel.
- The clinical laboratory and radiology services equipment should be appropriate for neonatal and pediatric needs.
- The pharmacy services should provide age and size appropriate drug administration and dosing.
- A separate area or unit with age- and size-appropriate equipment should be available and designated to accommodate pediatric patients. The children should not come in touch with adults in any hospital department.
- Hospitals where operative procedures involving postoperative intensive care are performed should be equipped with intermediate and intensive pediatric care units.
- The children's parents or care givers should take part to the physical and psychological preparation concerning the anesthesia and surgical procedure of their children. They should be properly informed about the anesthetic plan and the risks and sign a written consent. The child may participate to this procedure depending on its maturity.
- Parents' overnight stay should be facilitated when required.
- **All areas of anesthetic care should be appropriately equipped with:.**

1. A resuscitation cart with equipment appropriate for pediatric patients of all ages including pediatric defibrillator paddles.
2. Airway equipment for all ages of pediatric patients including oral and nasopharyngeal airways, ventilation masks, laryngeal mask airways, laryngoscopes with all sizes of pediatric blades, endotracheal tubes, fiberoptic and rigid bronchoscope.
3. A separate and fully stocked "difficult airway cart" for the management of the difficult pediatric airway including emergency cricothyrotomy.
4. Anesthesia machines equipped with positive pressure airway systems appropriate for infants and children. Volume and pressure ventilators capable of accurately delivering a range of small tidal volumes and high ventilator rates and PEEP.
5. Devices for the maintenance of normothermia as airway humidifiers, circulating warm air devices, warming lamps and fluid warming devices. The area temperature should be electronically regulated.

6. Intravenous fluid administration equipment including pediatric volumetric fluid administration devices, intravascular catheters in all sizes and intraosseous fluid administration devices.
7. Noninvasive monitoring equipment for the measurement of electrocardiography, pulse oximetry, blood pressure, capnography and temperature.
8. Oxygen and anesthetic gases concentration measurement devices. \
9. Arterial and central venous pressure measurement equipment appropriate for infants and children.
10. Loco-regional anesthesia equipment.

- **The Postanesthesia Care Unit** should be fully equipped just as the operating room and requires:
    - Nursing staff educated and experienced in pediatric airway management and basic resuscitation techniques capable to recognize a child in distress and provide immediate assistance while calling for medical support.
    - An immediately available anesthesiologist trained and experienced in pediatric perioperative care, in the management of postoperative complications and the provision of cardiopulmonary resuscitation.
- **The Acute Pain Service**. The medical and nursing personnel of the Acute Pain Service should be trained and experienced in pain evaluation and management in all pediatric ages. Extensive use of protocols and charts is indispensable for safe use of drugs and analgesic techniques.

C. TRAINING IN PAEDIATRIC ANAESTHESIA

- Anaesthesiologists delivering anesthesia to children of all ages must have had a proper training in the management of paediatric anesthesia and cardiopulmonary resuscitation and also have sufficient ongoing experience and training to maintain skills.
- The residents in Anaesthesiology are under strict supervision when administering anesthesia in children
- The nursing and supporting personnel taking part to the perioperative care of the child is well trained in the everyday and urgent care of this age.
  They should:
    - Recognize and use the proper drugs, prepare the solutions and infusions in proper dosing, concentrations and volumes according to the age.
    - Prepare the necessary equipment.
    - Know how to manage respiratory complications
    - Be educated in cardiopulmonary resuscitation
- Interesting cases, anaesthesia plans according to the procedure and the patient, complications and perioperative morbidity should be discussed during the regular meetings of the anaesthesia team. \in tese meeting should take part the nursing personnel as well as doctors of the relative specialties.
  Children's and parents' opinions should be discussed during these meetings.

D. ORGANIZATION IN NON SPECIALIZED HOSPITALS

- The complications during anesthesia are more frequent in neonates and children under three years of age. There are no 'small' procedures in this age group if the involved personnel is not familiar to the management of children. In case of lack

of experience, special wards, training, experience and proper equipment the child should be transported to specialized centers.

- Neonates, former premature neonates with postconceptional age till 50 weeks, babies up to 12 months and children up to three years should be transported to specialized centers.
- Children with serious coexisting diseases undergoing difficult surgical procedures should be transported to specialized centers in lack of experienced anesthesiologists and nurses, pediatricians and specialized intensive care unit.
  The final decision of transport should be based upon the experience of the personnel and the number of pediatric procedures taking place during one year in the hospital. The transport plan to a specialized intensive care unit should be well organized.
- The anesthesiology department should have a member responsible for the organization of the care of the pediatric patients, the supervision and the education of the other doctors.
- The anesthesiologists delivering anesthesia to children in non specialized hospitals should regularly take part to programs of continuing education and visit specialized centers.

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