GUIDELINES FOR THE PROVISION OF ANAESTHESIA FOR PAEDIATRIC PATIENTS

Children who undergo anaesthesia and surgery have special requirements. They are not small adults nor are they a homogenous group of patients. The different age spectrum i.e., premature baby, infant, toddler, preschooler, pre-adolescent and adolescent differ physiologically. An understanding of age appropriate pharmacokinetics of drugs and fluid requirement is required.
Children also have different emotional and psychological needs. Anaesthesia equipment for smaller children differs from that used in older children and adults.

1. General Principles
Wherever and whenever children undergo anaesthesia and surgery, they should be managed by staff with appropriate experience and training.
Health care organisations should have:

1.1.1 Guidelines on credentialing and privileging of anaesthetists who care for children in their hospitals.
1.1.2 Policy and Protocols for sedation in children
1.1.3 Medical staff with the skills to resuscitate and stabilise seriously ill children of all ages.

1.2 Children with the following problems are best managed in Paediatric hospitals with a full complement of specialists and intensive care units.
1.2.1 Neonates
1.2.2 Infants born at less than 37 weeks gestation with a post-conceptual age of less than 52 weeks.
1.2.3 Children with airway problems
1.2.4 Children with significant acute or chronic Medical problems (ASA 3 or greater)
1.2.5 Children with complex surgical problems

2. Special considerations

2.1 For the anaesthetised child, pulse oximetry is a suitable alternative to the electrocardiograph for heart rate monitoring.

2.2 The use of routine pre-operative blood testing should be kept to a minimum, unless there are specific clinical indications.

2.3 Access to paediatric resuscitation & life support resources should be ensured at all times

2.4 There should be a paediatric pain service to manage acute post-operative pain, pain in oncology patients and children with chronic pain.

2.5 There should be a workflow; either a pre-anaesthetic clinic or specialist for surgeons to consult regarding the fitness or suitability of patients for surgery

3. Staffing requirements

3.1 Children should be anaesthetised by specialists with relevant paediatric experience.

3.2 The anaesthetist must be assisted by nurses with adequate skills and training.

3.3 There should also be staff to take care of the parent/guardian who may be present during induction.

3.4 In the recovery area or post-anaesthesia care unit, the child should be nursed on a one-to-one basis, by a designated staff who is experienced in the care of paediatric patients.

4. Equipment

4.1 Appropriate equipment and disposable items for general and regional anaesthesia should be available in theatres and all other areas where children are anaesthetised.

4.2 Appropriate temperature monitoring and patient warming devices should be available in both the operating room and recovery areas.

5. Support services

5.1 Paediatric High Dependency and Intensive Care services should be available as appropriate for the needs of the patient.

5.2 On-site haematology, biochemistry, pathology and blood transfusion services should meet the requirements of infants and children with particular reference to the removal and analysis of small blood volumes.

5.3 Pharmacists should be able to provide advice for safe and effective management of drugs in children.

6. Ambulatory surgery

6.1 Selection for day surgery should be made according to surgical, anaesthetic, medical and social criteria.

6.2 The parent or guardian of a patient should be provided with clear instructions, which includes fasting guidelines and what to do if the child becomes unwell before or after the operation.

6.3 There should be clear discharge criteria that must include drugs for pain relief and clear instructions for their use.

Guidelines for listing of day surgery patients

The suitability of patients for day surgery procedures would depend upon the type of procedure, the medical condition and the social situation of the child. The department of paediatric anaesthesia should be consulted regarding suitability of the child for day surgery if the following requirements are not met.

Procedures that are to be done as day surgery should fulfill the following requirements:

1. minimal blood loss
2. minimal risk of post procedural airway compromise
3. pain that requires minimal use of opioids and can be controlled well with oral/ rectal analgesia
4. any care post procedure can be met by the caregiver at home
5. expected rapid return to normal food and fluid intake

Suitability of the child:

1. ex premature infant should be at least 60 weeks post-conceptual age and free from episodes of apnoea
   (The Royal College of Anaesthetists: Guidelines for the Provision of Anaesthetic Services 2016)
2. full term infant > one month old
   (Anaesthesia _ 2011 The Association of Anaesthetists of Great Britain and Ireland)
3. not severely overweight (refer to BMI for age percentile chart)
4. child should have no or mild and well- controlled systemic illness i.e. ASA 1 or 2 patients
5. no pre-existing airway compromise or potential airway compromise. This includes patients with obstructive sleep apnoea.

Social criteria

1. responsible caregiver must be with patient for 24-48 hours post procedure
2. the child should be transported home via private vehicle or taxi. The child should not be left unattended if placed in a car seat
3. clear instructions on what to do if the child becomes unwell after the operation

4. the caregiver must be able to carry out pre and post procedural instructions
5. the caregiver must be given written advice on when the child can resume normal activity
6. the child should be able to travel to the hospital within an hour should complications arise

Guidelines for Air Travel after surgery/ anaesthesia
Advice for KKH Health Professionals

This applies to the post-surgical/ anaesthesia patient who elects to take a commercial flight soon after the procedure, with no ready access to medical attention during the flight.
This does not refer to patients on professional medically escorted air travel.

Potential problems to consider:

- Dehydration from dry cabin air (humidity 20-30%). May add to risk in patients with poor intake post-surgery or PONV.
- Pressurised aircraft cabins have lower O_2. This increases the risks of hypoxia from residual effects of GA especially in young infants or children with OSA or following chest surgery
- Effects on surgical wound e.g. gas expansion post GI surgery. Middle ear surgery during ascent and descent of flights
- Post-operative pain. No access to potent analgesics

Commercial Airlines:

- Have the right to prevent boarding if the patient is not 'medically cleared' according to their company policy.
- Onus on patient to declare status to airline.
- Medical staff can only advise the patient on best practice and recommendations.
- Mortality within 24 hours may be coroner's case.

Our department recommends waiting a minimum 24 hours after a general anaesthetic, before flying.

Please refer to the Aerospace Medical Association/AsMA guidelines for specific surgery or conditions.
http://www.asma.org/publications/medical-publications-for-airline-travel

AsMA guidelines recommended 'no fly timing' time:

- Colonoscopy with polypectomy – 24 hours
- Laparotomy – 1-2 weeks
- Laparoscopic abdominal surgery – the next day if no bloating symptoms
- Tonsillectomy and Adenoidectomy, palatoplasty– 2 weeks
- Casted fracture- if applied within 24-48 hour to be bivalved

SUMMARY CHECKLIST

Issues to Consider for Air Travel after Surgery / Anaesthesia:

- Type of surgery
- Type of anaesthetic (eg. Post spinal headache)
- Patient's background medical history and conditions
- Individual airline regulations: medical clearance
- Insurance policy cover– travel and medical
- Potential complications e.g. DVT, infections, air pressure changes, decreased oxygen partial pressure by 25%, dehydration, lack of access to emergency medical attention
- Urgency of travel plans
- Alternatives to air travel