**CHAPTER 32**

Anesthesia for Pediatric Ophthalmologic Surgery

RONALD S. LITMAN, D.O.

**General Considerations**

Preoperative Considerations

Procedural Considerations

Anesthetic Plan

Postoperative Considerations

**Anesthetic Management of Common Ophthalmologic Procedures**

Lacrimal Duct Probing and Irrigation

Open Globe Injuries

Strabismus Repair

Cryotherapy for Retinopathy of Prematurity

**Unique Complications during Anesthesia for Pediatric Ophthalmologic Procedures**

Oculocardiac Reflex

Postoperative Nausea and Vomiting

This chapter covers general considerations for ophthalmologic procedures in children, specific anesthetic considerations for the more commonly performed ophthalmologic procedures, and several unique anesthetic complications that occur frequently in pediatric ophthalmologic procedures.

**GENERAL CONSIDERATIONS**

The vast majority of children presenting for surgery on the eye are healthy. However, there are a number of ophthalmologic conditions that are often accompanied by coexisting morbidities. The majority of infants presenting for cataract surgery in the newborn period do not have coexisting diseases, but a variety of pediatric syndromes include cataracts in the constellation of derangements. Some examples include intrauterine viral infection (e.g., rubella or toxoplasmosis) and metabolic disorders such as Lowe syndrome (mental retardation, hypotonia, and renal dysfunction) and hypocalcemic tetany. Infants with congenital glaucoma are far less likely than those with cataracts to have coexisting abnormalities. Infants with retinopathy of prematurity (ROP) who present for cryotherapy will often have multisystem abnormalities associated with extreme prematurity, and they should be thoroughly evaluated preoperatively. Finally, some children with strabismus may also have a myopathic disease (see Chapter 6).

**Preoperative Considerations**

For children without traumatic disorders of the eye, age-appropriate anxiolytic premedication is indicated. With ocular trauma, anxiety, pain, and crying must be controlled to prevent an increase in intraocular pressure (IOP) that may cause extrusion of the intraocular contents. If the child has had intravenous (IV) access established, a combination of midazolam and fentanyl should be titrated to the child's comfort while avoiding respiratory depression. In the absence of IV access, oral midazolam 0.5 mg/kg will provide anxiolysis and sedation prior to IV catheter placement.

**Procedural Considerations**

The major anesthetic implication for ophthalmologic procedures in children is the avoidance of factors that acutely increase intraocular pressure, especially in cases of ocular trauma where the integrity of the eye contents are at risk (Box 32-1). Normal IOP in children ranges from 10 to 21 mmHg. Acute increases of IOP during intraocular surgery can cause extrusion of the vitreous humor, lens prolapse, and/or hemorrhage into the eye.

Anesthesiologists should be familiar with the types of topical ophthalmic medications used in the perioperative period and the possible related systemic effects (Table 32-1).

**Anesthetic Plan**

Unless the child has significant comorbidities, routine monitors are sufficient for virtually all eye surgeries.
Fluid and blood losses are minimal. Hypothermia is usually not a problem, except in the smallest infants. In fact, in most cases, since most of the child’s body is covered with drapes, the child’s body temperature tends to rise by the end of the procedure. Most intravenous and inhalational agents will tend to lower IOP (in a dose-dependent manner), so they can safely be used for induction and maintenance of general anesthesia. There are, however, some notable exceptions. Intravenous ketamine has been shown to acutely increase IOP in children. Administration of intramuscular (IM) ketamine is associated with both increased and decreased IOP, depending on the study one reads. Nevertheless, other associated effects of ketamine such as blepharospasm and nystagmus render it undesirable during eye procedures. If IM ketamine is required for an older uncooperative child who requires emergency eye surgery, then its advantages probably outweigh the risks; this decision should be made on a case-by-case basis. Administration of etomidate has been shown to reduce IOP, but in one case it was associated with loss of eye contents from a ruptured globe as a result of myoclonic movements that occurred after its administration. Lastly, N₂O should be avoided if the ophthalmologist plans to inject sulfur hexafluoride gas, since N₂O can then diffuse into the eye and increase IOP. This also applies if sulfur hexafluoride gas was injected into the eye in the previous 2 weeks.

Succinylcholine causes a 7- to 12-mmHg increase in IOP that lasts 5–6 minutes. The mechanism of this phenomenon is controversial: originally it was thought that succinylcholine uniquely caused contraction of the extraocular muscles, but a relatively recent study demonstrated an increase in IOP in an in vitro isolated eye model without extraocular muscles attached. Different induction regimens have been reported to attenuate the effects of succinylcholine prior to tracheal intubation, but none consistently decreases IOP. Therefore, most pediatric anesthesiologists prefer to avoid succinylcholine in open globe procedures, unless its beneficial effects (i.e., rapid paralysis) clearly outweigh its disadvantages. In other words, one would have to believe that the risk of pulmonary aspiration is sufficiently high so as to risk the loss of sight that would occur if succinylcholine caused extrusion of eye contents. On the other hand, proponents of succinylcholine cite the fact that there are no reported cases of succinylcholine-induced loss of sight, and an often-cited article described the use of succinylcholine in 71 patients with an open globe without a single instance of eye content extrusion. Fortunately, reasonable alternatives to succinylcholine exist, such as high-dose rocuronium or vecuronium (see Chapter 19). If a clinical situation arises whereby the anesthesiologist believes that succinylcholine is the

---

**Box 32-1 Perioperative Factors that Potentially affect IOP**

**Factors Increasing IOP**
- Coughing, straining, bucking, crying, vomiting, head flexion, Valsalva maneuver
- Succinylcholine administration
- Ketamine (possibly)
- Laryngoscopy and endotracheal intubation
- Hypoxia, hypercarbia
- External pressure on the eye
- Acute hypertension
- Contraction of the extraocular muscles or orbicularis oculi
- Eyelid closure

**Factors Decreasing IOP**
- IV lidocaine
- Most sedative or general anesthetic agents
- Hypothermia
- Retrobulbar block
- Head-up position
- Diuretics
- Systolic blood pressure <85 mmHg
- Hypocarbia
- Deep inspiration

---

**Table 32-1 Commonly Used Topical Ophthalmologic Medications**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Concentration and Dose</th>
<th>Ocular Effects</th>
<th>Possible Systemic Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenylephrine HCl</td>
<td>2.5%; 1-2 drops in each eye</td>
<td>Preoperative mydriatic: dilates the pupil and constricts the blood vessels of the eye</td>
<td>Hypertension and reflex bradycardia</td>
</tr>
<tr>
<td>Cyclopentolate HCl</td>
<td>0.5% or 1%; 1 drop in each eye every 5 minutes (2 doses)</td>
<td>Preoperative cycloplegic: dilates the pupil and prevents lens accommodation</td>
<td>Usually none</td>
</tr>
<tr>
<td>Tropicamide</td>
<td>0.5% or 1%; 1 drop in each eye every 5 minutes (2 doses)</td>
<td>Preoperative cycloplegic: dilates the pupil and prevents lens accommodation</td>
<td>Usually none</td>
</tr>
<tr>
<td>Propracaine, tetracaine</td>
<td>0.5%; 1 drop in each eye</td>
<td>Topical anesthetic</td>
<td>Usually none</td>
</tr>
</tbody>
</table>
most prudent method for relieving acute life-threatening airway obstruction, then it should be immediately used.

Lidocaine, in doses of 1 to 2 mg/kg, has been evaluated with regard to its ability to attenuate the increase in IOP seen after laryngoscopy and intubation during halothane/N₂O anesthesia, or after administration of succinylcholine. All doses of lidocaine were effective in decreasing, but not ameliorating, the increase in IOP. Although there are no data evaluating the optimal timing of lidocaine administration, it is logical to administer it 1–3 minutes prior to intubation.

Unless specifically contraindicated, nondepolarizing neuromuscular blockers should be used during the maintenance phase of the anesthetic to ensure lack of movement that could endanger the contents of the eye. In the ASA closed claims analysis, lack of neuromuscular blockade and subsequent patient movement was commonly cited as the primary reason for vision loss. An additional safety procedure is the use of a skin-tight barrier across the bridge of the nose to prevent nasal secretions from entering the eye during an open procedure and introducing potential infectious organisms.

In many cases a deep extubation may be warranted to avoid acute increases in IOP during emergence, assuming there are no contraindications (e.g., full stomach, difficult airway). Lidocaine may attenuate the acute increase in IOP that may occur during emergence when the child reacts to the endotracheal tube, but no studies have specifically examined this issue.

**Postoperative Considerations**

Except for lacrimal duct probing, most children who undergo eye surgery either have their operative eye patched, or have some impairment of vision in the immediate postoperative period. This can cause a great deal of confusion and annoyance for the child. Parents should be allowed to comfort their children as soon as possible in the postoperative care unit. For hospitalized patients, mild sedatives and anxiolytics can be titrated to effect. Postoperative pain is often disabling. Eye surgery patients describe this feeling as having a foreign object stuck in their eye. Therefore, the child should be comforted and ongoing pain treated with oral or intravenous opioids and nonsteroidal anti-inflammatory drugs (NSAIDs) such as ketorolac.

**ANESTHETIC PEDIATRIC MANAGEMENT OF COMMON OPHTHALMOLOGIC PROCEDURES**

**Lacrimal Duct Probing and Irrigation**

Many infants are born with a blocked nasolacrimal (tear) duct, but more than 90% of cases resolve with conservative management (external massaging of the duct) by 1 year of age. Some families may choose to undergo this procedure earlier than 1 year of age in the event of constant eye irritation or recurrent infections. The procedure, which usually takes less than ten minutes to complete, involves the placement of a fine metal probe from the opening of the duct through to its exit in the nasal cavity, followed by irrigation to confirm that it is patent (Fig. 32-1). Occasionally, the probing includes moving a portion of the inferior turbinate, which can result in minor bleeding. In refractory cases, a silicone stent is placed into the duct, or balloon dilatation is performed.

The only anesthetic consideration for this procedure is the choice of airway management. (The oculocardiac reflex is possible but unlikely – see below.) Many anesthesiologists will be comfortable using a mask anesthetic throughout the procedure, with intermittent removal during the probing. However, it is possible that irrigation fluid or blood may enter the back of the pharynx and precipitate laryngospasm. A small suction probe is placed into the nasal canal to evacuate fluid and blood during the irrigation. It seems that a laryngeal mask would be ideal for this procedure, but some pediatric anesthesiologists may choose endotracheal tube placement instead. Postoperative pain from this procedure is usually not severe, and is easily treated with acetaminophen or ibuprofen.

**Open Globe Injuries**

A ruptured globe occurs from a blunt or penetrating injury into the eye and includes the potential loss of vitreous humor, which entails permanent blindness if severe. Therefore, it is usually a surgical emergency.

**Figure 32-1** The technique of nasolacrimal duct probing and irrigation involves placement of a needle into the tear duct and through to the opening in the nasal cavity. The canal is then irrigated to ensure patency. In this picture a suction catheter is placed into the nasal canal to evacuate the irrigating solution.
Increases in IOP will potentially cause or exacerbate loss of the vitreous. The anesthesiologist should do everything possible to avoid acute increases in IOP (see Box 32-1). Preoperatively, the child’s eye should be protected from further injury, and the child should be sedated to avoid crying or defiant behaviors. A full stomach should be assumed if the injury occurred within 6–8 hours following food ingestion. Preoperative sedation should not be so heavy as to compromise the child’s airway reflexes that protect against pulmonary aspiration. Topical anesthetic cream placed over the dorsum of the hands may facilitate eventual placement of the intravenous catheter. No specific preoperative lab investigations are necessary unless clinically indicated. Intravenous metoclopramide 0.1 mg/kg may be administered to facilitate gastric emptying if time permits.

If the child is asleep on arrival in the OR suite, avoid awakening! Anesthetic induction is accomplished using cricoid pressure and a rapid sequence induction that is modified by avoiding succinylcholine and using a non-depolarizing muscle relaxant. An acceptable recipe is thiopental 4–6 mg/kg (thus avoiding propofol-induced pain) and rocuronium 1.2 mg/kg. Intravenous fentanyl 1–3 µg/kg (or other opioid of choice) and IV lidocaine 1.5 mg/kg will help prevent acute increases in IOP during laryngoscopy and tracheal intubation. Once the endotracheal tube is inserted, an orogastric tube should be placed to evacuate remaining gastric contents. Anesthetic maintenance can be accomplished with any technique that sufficiently controls hemodynamic responses to surgical stimulation. Mild hypocarbia may help keep IOP low. At the completion of the surgical procedure, arm restraints are often utilized to prevent the child from reaching up and disrupting the surgical repair.

During emergence, it will be important to avoid increases in IOP that may be caused by acute hypertension or coughing on the endotracheal tube. Strategies to avoid this include administration of IV lidocaine 1.5 mg/kg, or deep extubation. If deep extubation is preferred, endoscopic confirmation that the stomach is empty is strongly encouraged. Antiemetic prophylaxis is indicated ondansetron 0.05 mg/kg to avoid emesis-induced increases in IOP postoperatively.

**Strabismus Repair**

The indications for strabismus repair include congenital esotropia or intermittent exotropia. The surgery, which is primarily performed for cosmetic reasons, consists of measuring and shortening the affected extraocular muscles (Fig. 32-2). There are various anesthetic considerations for strabismus repair. Its occurrence is associated with a variety of different pediatric medical disorders, the most important of which are myopathies (see Chapter 6). Other common coexisting disorders include cerebral palsy, hydrocephalus, meningomyelocele, and a variety of congenital syndromes and chromosomal aberrations. There is also a possibility that children with strabismus may be at a higher risk than average for development of masseter muscle rigidity and malignant hyperthermia. Although there is no definitive data on the subject, it seems that if one examines the world’s literature on cases of masseter muscle rigidity and malignant hyperthermia, children with strabismus seem to be overrepresented. This is probably merely an aberration, since strabismus is often associated with myopathies.

Aside from investigation of comorbidities, children presenting for strabismus repair require only routine preoperative assessment. Oral midazolam is the most common anxiolytic premedication used. Acetaminophen or ibuprofen syrup can be added to the premedication for their contribution to postoperative analgesia. Intraoperatively, fluid and blood losses are minimal, and active warming measures are usually unnecessary, as children tend to develop hyperthermia, not hypothermia. The unique aspects of the intraoperative anesthetic management for strabismus repair include occurrence of the oculocardiac reflex and postoperative nausea and vomiting (see section below). The oculocardiac reflex usually occurs during the initial stages of the repair (during pressure on the globe or traction on the extraocular muscles), and is easily treated with administration of intravenous atropine. Some pediatric anesthesiologists will choose to administer prophylactic atropine as part of the induction regimen. Postoperative nausea and vomiting is more difficult to prevent. Induction and maintenance of general anesthesia with propofol may result in less postoperative nausea and vomiting than if an inhalational

![Figure 32-2 While the eyelids are retracted, the extraocular muscles are measured and shortened during strabismus repair.](4206 Litman-32.qxd 1/19/04 2:40 PM Page 4)
agent is used. Most pediatric anesthesiologists will attempt to prevent postoperative nausea and vomiting by administering a serotonin antagonist such as ondansetron (0.05 mg/kg, maximum 2 mg), plus dexamethasone (0.5 mg/kg, maximum 10 mg). The optimal timing and dose of administration of these antiemetics varies, depending on the study one reads.

Airway management for strabismus repair usually consists of a laryngeal mask airway (LMA), but some anesthesiologists prefer the security of an oral (RAE) endotracheal tube since access to the airway is limited during the procedure. Muscle relaxants should not be used if the surgeon plans to perform a forced duction test.

Postoperative pain can be significant. One should never withhold opioids in fear of precipitating nausea or vomiting. Administration of intraoperative IV ketorolac has been associated with postoperative pain relief for up to 5 hours following strabismus surgery. Intense pain that is unresponsive to opioids should prompt a reexamination by the ophthalmologist.

Cryotherapy for Retinopathy of Prematurity

Cryotherapy for retinopathy of prematurity (ROP) is a vasoproliferative disorder of the retina that occurs in premature infants and is the leading cause of blindness in the United States. The disorder is primarily related to the immaturity of the retina and is exacerbated by oxygen therapy. These infants should be thoroughly screened for comorbidities associated with prematurity (see Chapter 10). The procedure is commonly performed in the first few months of life to the avascular part of the retina, and usually takes 30–60 minutes to perform. There are no other unique aspects to the anesthetic management. As with strabismus, an LMA is an acceptable alternative to an endotracheal tube. Anesthesiologists should never withhold oxygen for fear of causing or exacerbating ROP. On the other hand, in an otherwise healthy infant, there is no reason to maintain the oxyhemoglobin saturation greater than 97%. Postoperatively, residual pain

### Article To Know


This article is a portion of history for pediatric anesthesiologists. It represents one of the important links between strabismus repair, masseter muscle rigidity, and malignant hyperthermia (MH). Dr Carroll published a retrospective review of children who received mask induction with halothane and neuromuscular blockade for intubation with succinylcholine over an 18-month period at The Children’s Hospital of Pittsburgh between 1983 and 1985. The incidence of masseter muscle rigidity was compared between children undergoing strabismus repair and all others. Masseter muscle spasm was defined as jaw tightness interfering with intubation that occurred despite adequate doses of succinylcholine. Dr Carroll found an overall incidence of 2.8% masseter muscle rigidity in children with strabismus, compared with 0.72% in children without strabismus, a fourfold difference. The overall results are presented in the Table 32-2.

<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>Number of Cases</th>
<th>Cases with Masseter Muscle Rigidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strabismus</td>
<td>211</td>
<td>6*</td>
</tr>
<tr>
<td>Other</td>
<td>1257</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>1468</td>
<td>15</td>
</tr>
</tbody>
</table>

* Fisher’s exact test, \( p < 0.05 \)

Why are children with strabismus at higher risk of developing masseter muscle rigidity or malignant hyperthermia than the general population? The answer to this intriguing question remains speculative. In some children with strabismus, the muscular imbalance of the eye muscles may represent a manifestation of a subclinical muscle disorder, thereby causing an abnormal contracture response to administration of succinylcholine, and possibly causing susceptibility to malignant hyperthermia. The truth, however, remains unknown. Currently, succinylcholine is no longer used electively in most pediatric institutions, so masseter muscle rigidity rarely occurs.

This article was accompanied by an editorial entitled “Trismus is Not Trivial,” written by Henry Rosenberg, a well-known malignant hyperthermia expert. In his editorial, Dr Rosenberg became one of the earliest advocates for abandoning elective use of succinylcholine in children.
is often not significant, but because of underlying pre-
maturity, these infants are at risk of developing central
apnea and should be monitored for at least 12 hours
before discharge home (see Chapter 22).

**UNIQUE COMPLICATIONS DURING ANESTHESIA FOR PEDIATRIC
OPHTHALMOLOGIC PROCEDURES**

**Oculocardiac Reflex**

The oculocardiac reflex (OCR) is defined as a
decrease in pulse rate associated with traction on the
extraocular muscles or compression of the eyeball. The
bradycardia that ensues may be severe; asystole and ven-
tricular dysrhythmias have been reported. The afferent
arc of the reflex consists of the ophthalmic division of
the trigeminal (V1) nerve, whose constituents include
the short and long ciliary nerves from the eye. The effer-
ent arc consists of the vagus (X) nerve, which originates
in the brainstem and terminates in the sinus node of the
heart (Fig. 32-3).

The OCR can be prevented by prophylactic adminis-
tration of IV atropine 0.02 mg/kg, or IV glycopyrrolate
0.01 mg/kg shortly before eye manipulation. Once the
reflex occurs, and bradycardia results, immediate treat-
ment consists of IV atropine 0.02 mg/kg. Other treat-
ments that have been advocated include cessation of the
offending stimulus and instillation of local anesthetic into
the eye muscles. However, it is this author's opinion that
the most practical treatment is administration of atropine,
which reliably and rapidly increases the heart rate.

Studies have shown that OCR occurs less often when
sevoflurane is used rather than halothane, and when
pancuronium is used in comparison with other non-
depolarizing neuromuscular blockers.

**Postoperative Nausea and Vomiting**

Postoperative nausea and vomiting (PONV) is a com-
mon complication after ophthalmic procedures, espe-
cially strabismus, with an incidence as high as 75% in
some reported studies. A variety of regimens have been
studied in an attempt to decrease its occurrence. In
general, the incidence of PONV is decreased by using
propofol instead of inhalational anesthetics for mainte-
nance of general anesthesia, and decreasing the amount
of opioids used intraoperatively. Prophylactic antiemetics

![Figure 32-3](image-url)
A 3-year-old boy fell off a chair while eating dinner and now presents for emergency eye exploration and possible open globe repair. He is uncooperative with any physical exam and does not have an intravenous catheter placed. He is otherwise healthy, takes no medications, and has no allergies.

Is there anything else you need to know before going ahead with general anesthesia?

At this point, there’s not a lot more to know. The most important things (e.g., last meal, general health, allergies) are known, and I would also make sure that no other injuries exist, especially to the head. I will make sure the child didn’t lose consciousness from the fall. If he did, he probably needs a CT scan of the head prior to surgery to rule out an occult subdural or epidural hematoma. I’ll also ask if anyone actually tried to get intravenous access in the emergency department. If not, I might look at potential sites and take an educated guess at whether or not I can easily procure access without too much of a fight.

What are the important anesthetic considerations for this case?

Assuming the physical exam indicates no difficulty with intubation or ventilation, the two most important considerations are avoidance of losing the eye contents (vitreous humor) by an acute increase in IOP, and avoidance of pulmonary aspiration of gastric contents during induction of anesthesia. I wouldn’t worry too much about the child crying because he must have been crying after the injury. On the other hand, I wouldn’t persist trying to get an IV line.

Is premedication necessary? If so, what will you use?

Premedication is definitely indicated here. There are several options. If the child will agree to take oral midazolam, it is a good way to allay his anxiety and allow for easy separation from his parents. (If I managed to procure IV access, then I would merely titrate midazolam by that route.) Another option is rectal methohexital, if the child is amenable. This is a nice way to induce unconsciousness smoothly but is probably riskier than midazolam in that it might compromise airway protective reflexes should the child vomit preoperatively. Intramuscular ketamine is an alternative but is not preferred because of crying associated with its administration, and some evidence that it may increase IOP.

How will you induce general anesthesia?

Assuming I didn’t get intravenous access, I would bring the premedicated child into the OR, and again assess the child’s veins for potential access. If I thought I could get an IV line quickly, I would administer a small amount of N₂O (perhaps 20–30%) and attempt IV insertion. I would also keep in mind that even low concentrations of N₂O can cause obtundation of airway protective reflexes, and if the child vomits from it, as many children do, I run the risk of pulmonary aspiration. Assuming I don’t see any eligible veins, I would proceed with an inhalational anesthetic with sevoflurane. As soon as the child loses consciousness, an assistant would apply cricoid pressure, and other assistants would descend upon the child to procure IV access as soon as possible. Once access is assured, I would administer rocuronium 1.2 mg/kg, lidocaine 1.5 mg/kg, propofol 2 mg/kg, and fentanyl 2 µg/kg. This combination of medications will almost always allow easy intubation in 45–60 seconds. This is comparable to the intubating conditions attained after administration of succinylcholine but at the expense of the patient being paralyzed for at least 30–45 minutes.

One of the great debates of pediatric anesthesia is whether or not to administer succinylcholine to a patient with an open globe injury and full stomach. Proponents of succinylcholine cite its rapid onset and offset, and no good evidence that anyone’s visual outcome ever worsened because of its administration. I prefer the route described above because it avoids the possible side-effects of succinylcholine, and I’ve never encountered an ophthalmologist who finished this type of surgery before the child’s neuromuscular blockade was reversible. I would also make sure to empty the stomach with a large-bore orogastric tube once the endotracheal tube is placed.

How will you maintain general anesthesia?

Any agent (or combination) can be used for maintenance. I would talk to the surgeon to see whether he/she has a preference as to whether the child should undergo a deep extubation. I would want to know whether the surgeon felt that the integrity of the surgical repair would be compromised if the child awoke coughing on the endotracheal tube. If not, then I would probably administer desflurane for maintenance and extubate the child’s trachea as awake as possible (without extremes of coughing). On the other hand, if the surgeon is worried about the integrity of the repair, then a classic deep extubation is in order, the details of which can be found in Chapter 19.

Would you do anything differently if the child had an aunt with malignant hyperthermia? How about a parent?

This is the classic examination question – with no right answer! I need to decide whether the child could be susceptible to malignant hyperthermia. Unless the child suffers from a disease that is associated with MH (i.e., myopathy), we only consider a child to be MH-susceptible if he or she had a proven or suspected episode of malignant hyperthermia, or if one of the
are routinely administered. This includes a combination of a serotonin antagonist and dexamethasone. Optimal doses and the time to administer the antiemetics have not been precisely determined, but differences in these factors probably do not alter the incidence significantly. Postoperative nausea and vomiting may also be decreased by intraoperative administration of intravenous lidocaine. Acupressure at the P6 point of the wrist appears to be effective in preventing or treating PONV after strabismus surgery, but it is not widely utilized in most institutions.

ADDITIONAL ARTICLES TO KNOW


