Should a child with an upper respiratory tract infection have elective surgery?

Upper respiratory tract infections are common in children. On average, a 'healthy' child will suffer three to six upper respiratory tract infections in a year, each lasting a mean of 7–10 days. Deciding whether to postpone or to proceed when a child presents for elective surgery with an upper respiratory tract infection is a common dilemma in paediatric anaesthesia.

Sometimes it is obvious – a child with a high fever (>38.5°C), copious secretions and crackles on auscultation of the lungs should not proceed to elective surgery. However, there is a large grey area and this article puts forward the arguments for and against postponing surgery until the upper respiratory tract infection has resolved.

The case for postponing surgery

Giving an anaesthetic to a child with an upper respiratory tract infection will increase the likelihood of respiratory complications (Malviya et al, 2003). These complications include laryngospasm, breath-holding, desaturation, bronchospasm and post-extubation croup. Because of this, many studies have suggested that children with an upper respiratory tract infection should have their surgery postponed until they are asymptomatic (Parnis et al, 2001).

A review by Becke (2012) concluded that surgery in children with symptomatic infections and reduced general condition should be postponed for at least 2 weeks; however, there is no consensus in the literature on exactly how long surgery should be postponed for. Various studies suggest between 2 and 6 weeks (Tait and Malviya, 2005).

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The case for proceeding with surgery

The respiratory complications of anaesthesia in a child with an upper respiratory tract infection are usually minor and are easily treated (Tait and Malviya, 2005). Schreiner et al (1996) estimated that 133 children with mild upper respiratory tract infection would need to have their operation postponed to prevent one episode of laryngospasm.

For major surgery (e.g. cardiac), a 4–6-week delay may be detrimental to the child. A study by Malviya et al (2003) that looked at 713 children undergoing cardiac surgery found that the presence of preoperative upper respiratory tract infection made no difference to long-term outcome or length of hospital stay.

Rearranging surgery is usually inconvenient for the family of the child in terms of travelling to hospital, taking time off work and arranging child care for siblings. This is especially the case if the child's surgery has been cancelled previously. Postponing surgery also has adverse economic effects for the hospital. Payments for service delivery from clinical commissioning groups mean that hospitals want to increase theatre efficiency and reduce wasted hours.

There are some anaesthetic techniques that can ameliorate the risk of complications in a child with an upper respiratory tract infection. Avoiding intubating the trachea will reduce the incidence of respiratory complications, especially in children younger than 5 years old (Parnis et al, 2001; Tait and Malviya, 2005).

A large study by Parnis et al (2001) identified three areas of anaesthetic technique that predicted complications. These were: airway management (endotracheal tube > laryngeal mask airway > facemask), induction agent (thiopental > halothane > sevoflurane > propofol) and not using an anticholinesterase (muscle relaxant not reversed > reversed). During emergence, positive end-expiratory pressure is useful and the complication rate is not altered by extubating deep or awake.

'...some anaesthetic techniques can ameliorate the risk of complications in a child with an upper respiratory tract infection.'

Conclusions

There are some predictable, but easily treated sequelae of upper respiratory tract infection in children undergoing anaesthesia. Careful anaesthetic management, with prompt recognition and treatment of any arising complications, means that the vast majority of children with upper respiratory tract infections can be safely anaesthetized without any adverse sequelae.

The decision about whether to proceed with or to postpone elective surgery lies with the individual anaesthetist who should take into account his or her confidence and experience in managing these complications. **BJHM**

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