HOT TOPIC

IN A WELL CHILD HAVING ELECTIVE SURGERY USING A SUPRAGLOTTIC AIRWAY DEVICE, IS YOUR STANDARD PRACTICE TO REMOVE THE DEVICE AWAKE OR DEEP?

SUMMARY OF KEY POINTS:

- A recent Cochrane Review found few differences in outcomes for awake versus deep removal of Supraglottic Airway Devices in children
- Our survey found that approximately two thirds of anaesthetists prefer deep removal in younger children, with many preferring awake removal in older children
- There does not appear to be consensus as to what age to transition to awake removal
- Preference for awake or deep removal is often guided by skill-mix and familiarity of recovery staff with each technique

REVIEW OF EVIDENCE

When supraglottic airway devices (SAD) are used for maintenance of anaesthesia, they can be removed 'awake' or in a deep plane of anaesthesia. Adult practice tends to favour the former, while paediatric practice is varied, with some anaesthetists preferring deep removal of SADs.

A prospective study of respiratory complications in children suggested a lower incidence of some complications with deep removal[1].

More recently a Cochrane Review compared early versus late removal of the SAD[2]. It defined "early" removal as occurring before cessation of general anaesthesia without return of airway reflexes, and "late" removal as after cessation of general anaesthesia when the patient was awake. We use the terms "deep" and "awake" to remain consistent with the wording of our survey.

The Cochrane Review included 11 studies looking at paediatric outcomes. Deep removal was associated with a significantly lower incidence of coughing and biting on the device, and a higher incidence of airway obstruction. However, "airway obstruction" was not well defined. There was no significant difference in incidence of laryngospasm, desaturation, nausea, vomiting, or retching. The quality of evidence for all outcomes was graded as 'low' or 'very low'.

Only one study within the Cochrane review included dental surgery[3], and none specifically studied Ear Nose and Throat surgery (a situation more frequently associated with airway complications). A more recent study comparing awake versus deep removal of SAD after adenotonsillectomy found no significant difference in incidence of laryngospasm, but noted a greater incidence of desaturations in recovery following awake removal[4].

A SURVEY OF PRACTICE

We sent a survey to APA members regarding the use of supraglottic airway devices, including a question asking whether the default practice was to remove SADs awake or deep. We also asked whether they worked in a tertiary paediatric centre or otherwise. For those who remove the SAD deep in younger children, we asked at what age/weight they tended to move to awake removal by recovery staff. We also asked for comments on the reasons for their practice.

Deep versus Awake

138 people replied to the survey. Approximately two thirds were paediatric anaesthetists in a children's hospital, while most of the others were paediatric anaesthetists working in a mixed adult and children's facility.

Approximately one third of all replies said that they would always perform awake removal. Most other replies stated that they would remove deep in younger children, but awake in older children.

What is your Age Cut-off for Awake Removal?

Those who use deep removal in younger children were asked at what age they would transition to awake "adult" removal. There was a wide range of ages given. One third of replies were in a range between five and eight years, but some stated teenage years while others stated an age cut-off of between 12 and 18 months.

It is worth noting that the studies in the Cochrane review each had different maximum ages for inclusion[2]. Four studies had a maximum age of between six and eight years, while the others had maximum ages in the teens. 25 responders did not state an age at which they would start managing children as "adults" for SAD removal, perhaps suggesting no strong views.

Justifications for Awake or Deep Removal

A variety of justifications were given. The most common justifications for awake removal were the familiarity of recovery staff with this technique, and the maintenance of a patent airway. The latter justification is backed up by the Cochrane Review, which noted a higher incidence of airway obstruction in children with deep removal.

The main justification cited for deep removal was a lower incidence of complications, specifically laryngospasm. Interestingly the Cochrane Review did not show a difference in incidence of laryngospasm, although it showed a lower incidence of coughing with deep removal. It is possible that coughing on emergence, like laryngospasm, could be due to vocal cord irritation. It must be remembered that the evidence is of "low" quality in the review, raising the question that a difference might exist which the studies have failed to demonstrate.

Other justifications for deep removal included familiarity of recovery staff with this technique, and the belief that deep removal is more pleasant for the child.

In justifying either technique, many discussed the need to do what recovery staff were familiar with, due to concerns regarding ability to manage complications during removal, while some mentioned they did what they were most familiar with. This appears sensible considering the lack of a firm conclusion from the Cochrane Review.

Does Type of Anaesthetist and Hospital setting matter?

We tried to group anaesthetists into those with primarily paediatric practice versus those with primarily adult practice. We also tried to group replies into anaesthetists working in primarily paediatric centres versus those working in mixed adult/paediatric centres.

Most replies were from paediatric anaesthetists. There was a slight trend towards awake removal in non-paediatric anaesthetists. This might reflect the unfamiliarity of their recovery staff in dealing with young children without an airway in situ. It may also reflect the anaesthetist's familiarity with the technique (as indicated in some of the comments) or the fact that much of their paediatric practice involves older children.

When we compared anaesthetists working in a children's hospital with those in a mixed adult and paediatric centre, we noted a greater preference for awake removal in the mixed centres. The accompanying comments again suggested that this reflected the skill-mix and preference of recovery staff. It is possible that many recovery staff in mixed centres may have primarily adult practice, making them more comfortable with awake removal, and less confident to perform simple airway manoeuvres in children who have not yet recovered airway reflexes.

CONCLUSION

Our survey has shown a wide variety of practice around the timing of SAD removal. The evidence does not strongly support one practice over another. In the real world, practice appears to be guided by local pragmatic factors, including the preference of recovery staff. This would appear very sensible, given the absence of strong evidence in favour of either awake or deep removal.

REFERENCES:

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