Local anaesthesia for eye surgery

The trend towards local anaesthesia in preference to general anaesthesia in eye surgery increases apace for several reasons, not least of which is the move towards day case surgery. In many countries, local anaesthesia is the norm not only for cataract, glaucoma, and lid surgery but for squint surgery and for more prolonged procedures such as vitreoretinal surgery. The question which exercises the minds of surgeons is which is the simplest, most effective, and safest procedure for local anaesthesia. Currently there are several techniques including retrobulbar, peribulbar, sub-Tenon’s, and subconjunctival, and some surgeons perform cataract surgery only with topical anaesthesia.

The increasing use of peribulbar anaesthesia can be partly attributed to its reputation for a reduced risk of complications including retrobulbar haemorrhage, globe perforation, optic nerve injury, and respiratory arrest from brain stem anaesthesia. Peribulbar anaesthesia is used with good effect in most forms of ocular surgery including retinal detachment surgery. However, peroperative complications are not eliminated by peribulbar anaesthesia, especially globe perforation in which axial length has been identified as the greatest single risk factor.

'Each to his own' one might say, since all of these procedures appear to work well in experienced hands. Most surgeons, however, continue to use the technique they know best and there is little doubt that retrobulbar anaesthesia is still commonly practised. Many surgeons have also been taught to believe that Atkinson’s position, wherein the globe is positioned in an upwards and inwards position, is the preferred position to achieve optimal anaesthesia. However, previous studies suggested that this was more likely to cause injury to the optic nerve, and to increase the relative risk of brain stem anaesthesia and respiratory arrest. This study suffered from the drawback that it was performed on cadavers and might not have been applicable to the in vivo situation.

In this month’s issue of the journal, Liu et al report on the intraorbital anatomical relations of the optic nerve in vivo using the sensitive ‘STIR’ magnetic resonance imaging technique and confirm that in Atkinson’s position the optic nerve would adopt a sinuous course which lies dangerously close to the path of the needle during administration of a retrobulbar anaesthetic. They recommend that the globe be positioned in a downwards and inwards position and, in addition, the skin of the lower lid be gently pinched at the site of injection with the effect of elevating the globe out of the path of the needle. These recommendations should be considered by any surgeon who practises retrobulbar anaesthesia particularly with modern disposable, long and sharp needles. Atkinson’s original paper recommended the use of short (2.5–3.5 cm) blunt needles which may not traverse the orbit sufficiently to enter the nerve sheath, but the risk is probably not worth taking.

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