Ocular anaesthesia and the never-ending story

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Anaesthesia in ophthalmology has been a popular topic of discussion since the beginnings of the profession. General anaesthesia or sedation paved the way for early ocular surgery until the discovery of cocaine and the development of the hypodermic needle allowed topical and local anaesthetics to gain momentum in the mid-1800s. Almost a century later, improved anaesthetic agents and the addition of epinephrine and hyaluronidase have led to significant improvements in anaesthetic safety and efficacy.

Since then, much of the discussion has focused on the particular route of administration. Variations of facial neve, retrobulbar, peribulbar and sub-Tenon anaesthesia cycled in popularity over the next 50 years. Finally, topical anaesthesia was revived in the 1990s and has become a popular choice for phacoemulsification with or without intracameral lidocaine.[1 2]

Throughout the continuing evolution of ocular anaesthesia, it has become necessary to have reproducible methods of evaluating and comparing the effectiveness for each procedure. Effectiveness can be expressed according to the surgeon's opinion of anaesthesia and akinesia,[3] variations in vital signs during the procedure or according to the patient's experience.

In this issue, Cehajic-Kapetanovic *et al* ***(see page 26)*** describe a novel tool that they have developed, specifically for the assessment of ocular anaesthesia, called the Ocular Anaesthesic Scoring System (OASS).[4] This tool combines objective and subjective measures to provide a thorough assessment of akinesia and anaesthesia. It is simple to use and can provide the surgeon or anaesthetist with a reliable way of auditing their results using different techniques. Accurate estimation of the required anaesthetic may reduce the frequency of "top-up" injections, which would lower the risk of complication.

Cehajic-Kapetanovic *et al* demonstrate that 4 ml of anaesthetic given by the sub-Tenon route is superior to an equal volume given by a single peribulbar injection. This finding highlights the need for either increased volume and/or multiple injections using the peribulbar approach (compared with sub-Tenon) in order to achieve optimal results.

Interestingly, this study also demonstrated that 300 units of hyaluronidase was superior to 150 units for both the sub-Tenon and peribulbar approaches. This may explain the variable results seen by clinicians who have been extending a single phial over the morning list of cataract cases. In some cases, the amount of hyaluronidase used is so small that the patient might as well be looking at the phial across the room while plain anaesthetic is injected.

Many tools intended for assessing patient comfort have not been validated or thoroughly tested and therefore may not be reproducible.[5] Dexter *et al*, however, have tested the OASS against the Visual Analogue Pain Scale and the Iowa Satisfaction with Anaesthesia Scale (ISAS).[6] The ISAS has been used in many other studies, and its construction and validity were recently endorsed in a systematic review by Chanthong *et al*.[5]

The OASS does not specifically address patient preference,[7] but such a tool should perhaps be developed specifically for the population being treated. For instance, in Central Australia many indigenous patients seem to tolerate surgery better if the periocular region is numb (preventing awareness of periocular sensation during draping and surgery), but this is undesirable for patients from other areas.[8]

So, although the OASS is not all encompassing, it does provide a useful and reproducible method for ophthalmologists and anaesthetists to monitor their results and tailor their technique appropriately.

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