Further Evidence of Oxymetazoline's Safety in Otologic Surgery

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Letters to the Editor

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In “Oxymetazoline Ototoxicity in a Chinchilla Animal Model,” Drs Daniel, Akinpelu, Sahmkow, and Funnell and Mr Akach have used their established ototoxicity model to show that an over-the-counter preparation of this commonly used agent is not ototoxic when instilled in the ear canals of research animals with freshly placed tympanostomy tubes. Their elegant experiment includes positive and negative controls and examines both cochlear histology and distortion product otoacoustic emissions. It lays to rest concerns that the vasoconstrictive effect of oxymetazoline might damage hearing, despite the lack of harm to cochlear microstructure previously demonstrated.3

Currently, no medication has US Food and Drug Administration approval for perioperative application after tympanostomy tube placement. Therefore, use of any eardrop is considered off label. Ototopical drops decrease the incidence of postoperative tympanostomy tube occlusion and otorrhea compared with controls, but the effect is small; thus, only very safe preparations should be used. Given this logic and previous work from Dr Daniel’s laboratory, gentamicin, certain fluoroquinolones (moxifloxacin), and cerumenolytics (triethanolamine polypeptide) should be avoided after tube placement, as they damage the cochlea in this sensitive research model. Ciprofloxacin/dexamethasone otic suspension causes transient increases in auditory brainstem response thresholds in chinchillas when instilled for 7 days but produces no statistically significant long-term hearing loss or histologic damage.4

Freedom from experimental ototoxicity, favorable vasoconstrictive effect, and low cost make oxymetazoline an attractive agent for use in the operating room. We have previously reported a 10-year experience with oxymetazoline following tympanostomy tube placement.5 Postoperative audiometry and otoacoustic emissions testing showed no evidence of ototoxicity in more than 10,000 treated ears.

The work of Daniel et al provides further assurance to otolaryngologists who choose to use oxymetazoline solutions to optimize the results of their otologic surgery.

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Response to “Further Evidence of Oxymetazoline’s Safety in Otologic Surgery” from Glenn Isaacson
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We wish to thank Dr Isaacson for his insightful comments on our publication1 and congratulate him on being a true leader in the use of oxymetazoline in otologic surgery. In fact, Dr Isaacson’s pioneering work in the field, and some of the concerns raised with regard to the potential danger of the vasoconstrictive effect of oxymetazoline, were part of the impetus for our experiments.2-4

Oxymetazoline can be very useful in controlling bleeding during myringotomy and tympanostomy tube placement. Although this is rarely significant, bleeding can prolong the time of surgery as well as lead to blockage of the pressure-equalizing tube. Interestingly, the prophylactic use of adrenergic α-agonists to prevent the occurrence of blocked tubes was shown to be the practice of 13% of otolaryngologists in a recent survey. It is also the practice of several otolaryngologists at the Montreal Children’s Hospital, where to date more than 2000