



Andrea Lovato*

Department of Neuroscience, University of Padova, Audiology unit at Treviso Hospital, Treviso, Italy

Dates: Received: 10 July, 2017; Accepted: 24 July, 2017; Published: 25 July, 2017

*Corresponding author: Andrea Lovato, Department of Neuroscience, University of Padova, Audiology unit at Treviso Hospital, Treviso, Italy, Tel: +39 0422 322318; Fax: +39 0422 322351; E-mail: andrea.lovato.3@hotmail.it

Keywords: Eardrops; Quinolone; Aminoglycoside; Tympanoplasty; Tympanic membrane perforation

<https://www.peertechz.com>

Letter to Editor

Are quinolone eardrops safe? New data on the association with persistent tympanic membrane perforation

Dear Editor,

Recently Alrwisan et colleagues [1] compares the rates of tympanic membrane (TM) perforation after use of the two available classes of eardrops, quinolones and neomycin, following ear tube surgery. Considering a total of 96,595 children, they found an increased risk of TM perforation requiring tympanoplasty in children which used quinolone eardrops. The adjusted hazard ratios were 1.49 (95% confidence interval [CI], 1.05–2.09) for ofloxacin, 1.94 (95% CI, 1.32–2.85) for ciprofloxacin plus hydrocortisone, and 2.00 (95% CI, 1.18–3.41) for ciprofloxacin. A recent cell culture study showed that treatment of mouse TM fibroblasts with ciprofloxacin, at concentrations similar to those achieved with eardrops in humans, led to marked cytotoxicity and depression in collagen synthesis [2]. These findings, together with the well-known detrimental effect of systemic quinolones on human collagenous tissue [3], raise suspicions about quinolone eardrops, as they could contribute to the development of persistent TM perforations. Clinicians are stuck in a difficult situation, as alternative eardrops with aminoglycosides have been known to cause hearing loss in the presence of TM perforation [4].

Besides the treatment of otorrhea following ear tube surgery, eardrops are commonly used to treat episodes of acute otitis externa [5]. Until other safer antibiotic eardrops will be available, physicians and patients must be cautious when using quinolones or neomycin drops, and understand the risks associated with both classes of drugs.

In the post-operative management of tympanoplasty patients, eardrops are frequently prescribed. Quinolone eardrops may be dangerous also in these patients and increased the risk of a recurrent and persistent perforation. In fact, in tympanoplasty the most common graft materials used to repair a perforated TM are collagenous tissues (i.e. temporalis muscle fascia and tragus cartilage) [6]. In the presence of an intact repaired TM after tympanoplasty, ear surgeons should consider to prescribe aminoglycoside over quinolone eardrops, in order to reduce the risk of a recurrent perforation.

References

1. Alrwisan A, Antonelli PJ, Winterstein AG (2017) Quinolone ear drops after tympanostomy tubes and the risk of eardrum perforation: a retrospective cohort study. *Clin Infect Dis* 64: 1052-1058. [Link: https://goo.gl/idceZk](https://goo.gl/idceZk)
2. Orobello NC, Dirain CO, Schultz G, Milne-Davies BA, Ng MR, Antonelli PJ, et al. (2016) Ciprofloxacin decreases collagen in mouse tympanic membrane fibroblasts. *Otolaryngol Head Neck Surg* 155: 127–132. [Link: https://goo.gl/4dwdLJ](https://goo.gl/4dwdLJ)
3. Corrao G, Zambon A, Bertù L, Mauri A, Paleari V, et al. (2006) Evidence of tendinitis provoked by fluoroquinolone treatment: a case-control study. *Drug Saf* 29: 889–896. [Link: https://goo.gl/CGJt77](https://goo.gl/CGJt77)
4. Roland PS, Stewart MG, Hannley M, Friedman R, Manolidis S, et al. (2004) Consensus panel on role of potentially ototoxic antibiotics for topical middle ear use: introduction, methodology, and recommendations. *Otolaryngol Head Neck Surg* 130: 51–56. [Link: https://goo.gl/CTCcV7](https://goo.gl/CTCcV7)
5. Bernkopf E, Lovato A, Bernkopf G, Giacomelli L, Carlo De Vincentis G, et al. (2016) Outcomes of Recurrent Acute Otitis Media in Children Treated for Dental Malocclusion: A Preliminary Report. *Biomed Res Int*: 5 pages. [Link: https://goo.gl/3fLLjZ](https://goo.gl/3fLLjZ)
6. Nicholas BD, O'Reilly RC (2010) Is cartilage preferable to fascia myringoplasty in children? *Laryngoscope* 120: 2136-2137. [Link: https://goo.gl/Gr41g3](https://goo.gl/Gr41g3)

Copyright: © 2017 Lovato A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.