

Role of oxidative stress in chronic otitis media with effusion in children

M. Paccone¹, G. Guerra², D. Testa³, M.P. Cinelli¹, G. Marcuccio³, D. Tafuri⁴, G. Motta³ and S. Montagnani¹

¹ Dipartimento di Sanità Pubblica, Università degli Studi di Napoli "Federico II"

² Dipartimento di Medicina e di Scienze della Salute, Università degli Studi del Molise

³ Dipartimento di Otorinolaringoiatria- Chirurgia Testa-Collo, Seconda Università degli Studi di Napoli

⁴ Dipartimento di Scienze Motorie e del Benessere, Università degli Studi di Napoli "Parthenope"

Chronic otitis media with effusion (OME) is a common pathologic condition characterized by nonpurulent fluid in the middle ear (ME) that leads to moderate conductive hearing loss and flat tympanogram. During OME inflammatory cells generate large amounts of superoxide radicals to improve bactericidal activity. Overproduction of oxygen-derived free radicals induces oxidative damage in humans. Glutathione (GSH) is one of the major components of the antioxidant system that protects cells from oxidative stress. The aim of the study was to evaluate oxidative stress in chronic OME by investigation of ME fluids collected during myringotomy.

During myringotomy, fluid was collected from the ME to evaluate lipid peroxide levels in the effusion. Immunohistochemical study was also performed to assess the anatomical features of tympanic membrane. Fifty-nine children with ME effusion without any resolution after repeated medical treatments were enrolled in the study.

No morphological significant changes were observed. Lipid peroxide levels in all samples were high (mean 11.5 nmole/million cells), similar to the values found in other chronic diseases. GSH might be employed during surgery while applying ventilation tubes and after surgery to prevent oxidative stress.

The high oxidant levels in chronic OME observed in our research and the improvement seen in children after antioxidant treatment suggest that oxygen-derived free radicals play an important role in chronic OME.

References

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Key words

Lipid peroxide, glutathione, free radicals, myringotomy, children.