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Original Research Article

Association of use of ear drops and sensorineural hearing loss: Cross sectional study

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Abstract: As we can cure the conductive deafness by surgery, the sensorineural deafness is still a challenge to us. Children having mixed loss of hearing invariably suffer from the point of view of education and development of language and therefore it becomes essential to study such cases so that we can prevent the sensori neural deafness in chronic suppurative otitis media.One hundred patients of chronic suppurative otitis media with sensori neural hearing loss, either alone or more commonly, with mixed loss were studied in this series. The patients were carefully selected after proper history and careful examination to exclude the above mentioned criteria to rule out the other possible causes of sensori neural loss.Though cases with use of ototoxic systemic drugs were rejected, cases with use of topical ear drops were included as their use was found to be common in chronic otitis media. The different ear drops used by patients showed large variety of nature of contents and varying period of use. Many patients could not inform the name of the drops they had used in past.In our study, use of topical antibiotic ear drops for long duration as a cause of sensori neural hearing loss was not statistically significant.
Keywords:conductive deafness, sensori neural deafness, chronic suppurative otitis media.

INTRODUCTION:

As we can cure the conductive deafness by surgery, the sensori neural deafness is still a challenge to us. Children having mixed loss of hearing invariably suffer from the point of view of education and development of language and therefore it becomes essential to study such cases so that we can prevent the sensori neural deafness in chronic suppurative otitis media [1].

With this idea in mind, it was decided to study all cases of chronic suppurative otitis media with mixed hearing loss to find out the causes and ways of preventing sensori neural hearing loss in chronic suppurative otitis media. The present study is attempted to study the pattern of hearing loss in CSOM and clinical factors if any that might affect the sensori neural component.

MATERIAL AND METHODS:

One hundred patients of chronic suppurative otitis media with sensori neural hearing loss, either alone or more commonly, with mixed loss were studied in this series. The patients were carefully selected after proper history and careful examination to exclude the above mentioned criteria to rule out the other possible causes of sensori neural loss. Type of pathology in each of these ears was the main factor taken into consideration. Age group and duration of illness were also considered. Culture sensitivity was carried out in cases of chronic otitis media, especially with non-healing perforation.Careful history was noted.

RESULTS

Though cases with use of ototoxic systemic drugs were rejected, cases with use of topical ear drops were included as their use was found to be common in chronic otitis media. The different ear drops used by patients showed large variety of nature of contents and varying period of use. Many patients could not inform the name of the drops they had used in past.

Table-1: Correlation Between SNHL and Duration of Ear Drops

Use of Ear Drops (No. of Days)	No. of Cases Using Ear Drops	No .of Cases With Hearing Loss
0-7	6	0
8-14	18	0
15-21	36	0
22-38	16	0
> 4 weeks	24	2

In our study, use of topical antibiotic ear drops for long duration as a cause of sensori neural hearing loss was not statistically significant.

RESULTS:

In our study, 14% cases of unsafe chronic suppurativeotits media were found to be associated with labyrinthine fistula as a cause of sensori neural hearing loss. This finding was against the conclusions of studies done by DS Grewal, Lovneesh Kumar *et al.;*[2], Portier F *et al.;*[3] and Murat Sari *et al.;* [4] which showed 3.5% to 12%. 2 out of 50 patients of unsafe CSOM had cholesteatoma involving round window leading to sensori neural hearing loss.

The effect of duration of non-ototoxic ear drops in causing sensori neural hearing loss was also studied. Mean bone conduction thresholds at different frequencies were calculated. It was concluded that duration of ear drops and degree of sensori neural hearing loss was not statistically significant. Similar results were obtained in the study by Linder, Thomas E *et al.;* [5]. He concluded only two patients developed sensori neural hearing loss among 134 cases he studied for 40 years!! Although widely used ototopical preparations rarely induced sensori neural hearing loss. But the study conducted by Andrew P Bath *et al.;* [6], ototoxicity developed in majority of patients who used ear drops for a duration longer than 20.7 days (average). This result could be due to the fact that they studied the effect of only Gentamycin and only in 16 cases. Winterstein AG , Liu W *et al.;* [7], in their retrospective cohort study found short term use of neomycin ear drops in patients with non-intact tympanic membrane is not associated with increased risk of sensori neural hearing loss, however repeated doses showed significant association with increased risk of sensori neural hearing loss. Podoshin L, Fradis M *et al.;* [8] in their study reached at conclusions that there is a relationship between the use of ototopical preparations appears to contribute to the worsening of sensori neural hearing loss in CSOM.

CONCLUSION:

In our study, use of topical antibiotic ear drops for long duration as a cause of sensori neural hearing loss was not statistically significant.

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