Frequency-specific hearing results after chronic otitis media surgery: a comparison of surgical methods

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Materials and Methods

The study was designed as an prospective, single-blind, randomized, controlled clinical trial. (Group A) was defined as the group who underwent the tympanomastoidectomy and the ossicular reconstruction, while the control group (Group B) received only the tympanomastoidectomy. The two groups were comparable in terms of age, sex, ear laterality, and hearing level. The primary endpoint was the difference in mean hearing level at each frequency between the two groups. The secondary endpoints included the difference in the speech reception threshold (SRT) and the difference in the mean hearing level at the frequencies of 1000, 2000, and 4000 Hz.

Results

The study showed a significant improvement in the mean hearing level at each frequency in Group A compared to Group B. The difference in the mean hearing level at each frequency was statistically significant at 1000 Hz, 2000 Hz, and 4000 Hz. The SRT also showed a significant improvement in Group A compared to Group B. The difference in the SRT was statistically significant.

Discussion

The results of this study suggest that surgical procedures for chronic otitis media, such as the tympanomastoidectomy and the ossicular reconstruction, can significantly improve the hearing level and the speech reception threshold. The improvement was more pronounced at the frequencies of 1000 Hz, 2000 Hz, and 4000 Hz, which are critical for understanding speech.

Analysis

1. **Analysis of the primary endpoint**: The mean hearing level was significantly higher in Group A compared to Group B at each frequency. The difference was statistically significant at 1000 Hz, 2000 Hz, and 4000 Hz.

2. **Analysis of the secondary endpoint**: The speech reception threshold (SRT) was also significantly lower in Group A compared to Group B. The difference was statistically significant.

3. **Analysis of the other endpoints**: The mean hearing level at 500 Hz showed a significant improvement in Group A compared to Group B, but the difference was not statistically significant. The mean hearing level at 8000 Hz showed a significant improvement in Group A, but the difference was not statistically significant.