Exploration of amplification use and therapy interventions in pre-school children with mild bilateral and unilateral hearing loss.

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Introduction

Mild bilateral and unilateral hearing loss (MBUHL) was previously prone to late-identification in children. However, with the implementation of universal newborn hearing screening (UNHS), MBUHL is now being identified in early childhood. Published evidence suggests that MBUHL effects approximately 0.4 to 1.3 per 1000 newborns (Watkin & Baldwin, 1999; Johnson et al., 2005). Also, a review of children followed at the Children’s Hospital of Eastern Ontario Audiology Clinic in 2011 showed that up to 40% of children have MBUHL (Fitzpatrick et al., 2013).

It is agreed upon that these children need to be fitted with amplification. There is also some research that shows that those who consistently use their amplification will have better outcomes, but factors affecting the use of amplification among MBUHL patients are not clear (Walker et al., 2013). While some researchers have concluded that age, degree of hearing loss and socioeconomic status affect the use of amplification (Walker et al. 2013), others conclude that early intervention and the use of therapies are predictors of amplification use (Roush & Harrison, 2010).

This study is a part of a larger project that examines the developmental outcomes of early-identification on children with MBUHL. The objectives of this study are:

1. To examine the recommendations and use of amplification in children with MBUHL.
2. To explore the differences in characteristics between children who do and do not use amplification.
3. To investigate the usage of therapy interventions for MBUHL children.

Results

Are children with mild bilateral/unilateral hearing loss using amplification that has been prescribed?

Figure 5: Amplification recommendation by age in months

- 51 of the 61 (83.6%) children had a recommendation for amplification
- Recommendations were not associated with unilateral/bilateral HL or age of the child
- 11 of the 51 children (21.6%) do not use recommended amplification
- Of the 40 children who are using their amplification, 37 (92.5%) use amplification regularly

Are there differences in clinical characteristics of children who use or do not use their amplification?

Figure 6: Frequency of amplification use

- 81.5% of females and 75.0% of males currently use amplification

Of 51 participants that have been recommended with amplification:

- 27 children have a unilateral hearing loss
- 24 children have a mild bilateral hearing loss
- 70.4% of children with unilateral hearing loss currently use amplification
- 87.5% of children with mild bilateral hearing loss currently use amplification

Figure 7: Use of amplification by age for the 51 children with a recommendation

- Age is not a significant factor influencing use of amplification (Cramer’s V = .216, P = .498).
- The sex of the child is not a significant factor affecting the use of amplification (Chi² = .316, P = .542).
- More than 75% of mild bilateral hearing loss patients use their amplification regularly in comparison to less than 50% of regular amplification users in unilateral hearing loss children.
- However, there is no significant difference between children with unilateral or bilateral hearing loss in the use of amplification (Chi² = 2.204, P = .182).

Conclusion

No significant factors influencing the use of amplification in the study sample was found. Also, there were no significant factors influencing the frequency of use found in the study sample.

Most MBUHL children in the study sample are receiving or have received therapy interventions to aid in the support of development. However, it is evident that communication rehabilitation is used by a larger group in the study sample.

Acknowledgements

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References


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Figure 1: Audigram of a person with unilateral hearing loss in their left ear

Figure 2: Audigram of a person with unilateral hearing loss in their right ear

Figure 3: Audigram of a person with mild bilateral hearing loss

Figure 4: Study Sample

Table 1: Ages of children at their most recent assessment

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<td>Total</td>
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Figure 5: Use of amplification by age for the 51 children with a recommendation

Figure 6: Frequency of amplification use

Figure 7: Use of amplification by age for the 51 children with a recommendation

Figure 8: Frequency of amplification use by hearing loss type

Are children with MBUHL receiving therapy interventions to support development?

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