Enlarged Vestibular Aqueduct and Cochlear Implants: The effect of early counseling on the length of time between candidacy and implantation

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INTRODUCTION

Enlarged vestibular aqueduct (EVA) is the most frequently identified anatomical abnormality in children with sensorineural hearing loss(1). The age at onset of hearing loss may range from birth to adolescence(2), but typically fluctuates or progresses to a profound degree by early childhood(3). Many patients with EVA eventually will be referred for consideration for cochlear implantation (CI). Research has shown that this route can prove successful for these patients(4) if no other developmental delays are present and they have demonstrated excellent speech and language outcomes. One previous study found that the average length of time between hearing sensitivity documented at a severe/profound hearing level and implantation was 6.3 months(5). Efforts to limit the amount of time between reaching audiological candidacy criteria and decisions regarding surgery may benefit patients.

OBJECTIVES

• Describe length of time from audiologic candidacy to surgical implantation.
• Compare length of time between candidacy and implantation between recipients who began the process before vs. after candidacy was reached.
• Describe the status of newborn hearing screening referral in this population.

METHODS

Participants. All participants (n=42) have a diagnosis of EVA and are CI recipients; excluded if implanted at an outside facility or any additional diagnoses.

Data Collection. A medical chart review was completed of all patients who received a CI at Boston Children’s Hospital. Variables: communication modality, date of hearing loss diagnosis, date of audiologic candidacy, and date of surgical implantation.

Data Analysis. Descriptive statistics were used to characterize patients with EVA. Wilcoxon rank-sum test was used to compare continuous variables between two groups: those who began the CI process before reaching audiologic candidacy criteria (n=18) versus those who began the process after (n=22). Fisher’s exact test was used to compare proportions.

RESULTS

Time from reaching candidacy to cochlear implants

The median time between reaching candidacy and CI surgery was 3.9 months in patients with EVA (mean = 10.2 months; ranging from 3 days to 5.2 years). Discussing CI before reaching candidacy was associated with a significantly shorter duration between reaching candidacy and CI (median = 3.1 month) as compared to discussing CI after reaching candidacy (median = 5.8 months; p = 0.012).

DISCUSSION

• Patients with EVA who underwent the CI evaluation process before reaching audiological candidacy experienced a significantly shorter duration of time between reaching candidacy and surgical implantation than patients who were evaluated after reaching audiologic candidacy.
• Results suggest a shift in best practice when managing the EVA population to support discussion of cochlear implantation prior to reaching audiologic candidacy.
• Early evaluation to prepare families for possible surgical intervention and subsequent aural habilitation may improve quality of life by reducing time without adequate auditory access.
• The four participants older than 10 years of age upon reaching audiologic candidacy had not been screened at birth, and had been “accustomed” to coping with significantly reduced auditory access; both age and “coping” were likely factors in the delay to decision about CI.
• An easily accessible interdisciplinary team of professionals qualified to support the psychosocial, educational, and communication aspects of those affected by hearing loss is beneficial.

REFERENCES


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