Vestibular Dysfunction Associated with Hearing Impairment

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Why this topic?

- Clinical experience and observations
- Curiosities related to an apparent void
  - Difficult for children to describe symptoms
- To address a self identified area of deficit
- Personal relationship
Multidisciplinary Implications

- Audiologists
- Neurotologists
- Ophthalmologists
- Otolaryngologists
- Otologists
- Pediatricians
- Speech Therapists
- (Pediatric) Occupational and Physical Therapists
  - with advanced training
+ Others possible
Causes of Vestibular Dysfunction in Kids

**Etiology:**
- Benign Paroxymal Vertigo of Childhood
- Viral Infections
- Vestibular neuritis
- Labyrinthitis
- Otitis Media
- Migraine
- Head Trauma
- Meniere’s disease
- Tumors

*Also associated with: Sensorineural and Conductive Hearing Loss*
A Brief context

Worldwide Deafness (Millions)

- North America: 42
- South America: 2
- Europe: 36
- Africa: 24
- Asia: 63
- Oceania: 303
A Brief context

- Prevalence of mod-profound hearing loss, including sensorineural and conductive, is 1-6/1000.
  - 10% fall in profound range (Rajendran V, 2011)
- Deaf Children demonstrate greater motor delays than hearing peers (Maes L, 2014)
- Vestibular dysfunction is found in ~30-70% of HI children (Fernandes R, 2015)
So Why the Association?
Why Does it Affect Balance?

- Eye
- Joint position
  - Proprioception
  - Superficial sensation
- Labyrinthine activity
- Eye movement/control of oculomotor activity
- Control of motor skills
- Control of posture
Vestibular Rehabilitation Therapy (VRT)

- Is an exercise-based program for reducing disequilibrium and dizziness
  - Can include balance, eye gaze, and coordination exercises
- Current research indicates that intervention in children with HI is ideal at 3–4 years of age
  - This is the critical period of balance skill development.
  - Children of other ages also demonstrate gains with VRT.
- Research is ongoing to determine role of treatment for children.
  - Eg. Efficacy, parameters, and how this can be part of a team approach to best help a child.
Pediatric Vestibular Info

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- Tumors
  - Also associated with
    - Sensoryneural and Conductive Hearing Loss
    - Vestibular dysfunction is found in ~20-70% of hearing losses

References:
References:


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