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NOVEL SURVEILLANCE OF MIDDLE EAR FLUID IN TRISOMY 21 PATIENTS

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Down syndrome or Trisomy-21 is a genetic chromosomal disorder affecting approximately 1/700 to 1/1000 live births [1]. Previous studies demonstrate that there is a high incidence rate of middle ear fluid in Down syndrome children that can lead to adverse effects such as hearing loss. Those with Down syndrome exhibit physical manifestations such as stenotic ear canals which make it difficult to examine these children [2]. Stenotic ear canals occur in up to 50% of newborns with DS, making the diagnosis of otitis media with effusion challenging [3].

To address these challenges, we recommend for this population group to undergo tympanometry testing because it is difficult to examine them due to their developmental delay and narrow ear canals. This study is a retrospective chart review and will look at clinical charts of patients who have undergone tympanometry testing and compare their outcomes to those who have not undergone this testing. Other pertinent information will also be included and considered such as patient demographics and comorbidities (i.e., age, gender).

We hypothesize that the time to diagnose middle ear fluid in Down syndrome children who undergo tympanometry is shorter than for those who do not undergo tympanometry. If the approach of this study is demonstrated to be efficient, its conclusions could impact clinical practices and may result in a change in patient care.

The results from this study may provide physicians, audiologists, parents and educator's potential methods to improve evaluation and treatment plans for children with Down syndrome.

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1. Jorde LB, Carey JC, Bamshad MJ, White RL, Medical Genetics. Mosby Inc. 2006. 3rd Edition: p2.
2. Park, Albert H., et al. "Identification of Hearing Loss in Pediatric Patients with Down Syndrome." *SAGE Journals*
3. Shott SR. Down syndrome: common otolaryngologic manifestations. *Am J Med Genet C Semin Med Genet.* 2006; 142:131-140.