Factors influencing the decision-making of cochlear implantation in congenital hearing loss: A retrospective cohort study

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Learning Objectives:

Background / Objective: Cochlear implantations (CIs) are well recognized and accepted treatment for severe to profound congenital hearing loss, but CIs are not performed because of malformation, family attitude and others. We conducted retrospective chart review to examine the clinical factors influencing the decision making of CIs in congenital hearing loss.

Study Design: Retrospective chart review.

Methods: We included bilateral congenital hearing loss children who first visited Ehime Welfare Center for the Handicapped from April 2007 to December 2015, and met the criteria of the indication for CI. To examin factors associated with opt-out cochlear implantation, we performed univariate analyzes of following factors; age, sex, birth weight, maternal age, cochlear malformation, multiple organ abnormalities, severe handicap, deaf family and availability of CI-rehabilitation service.

Results: During the study period, 38 bilateral congenital hearing loss children met the criteria for cochlear implantation. Of 38 children, 10 children were unwilling to use CIs. In univariare analysis, severe handicap and deaf family are correlate with opt-out CIs.

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Diffusion-weighted MR imaging for evaluation of cholesteatoma and the value of T1 weighted MR imaging in the exclusion of the false-positive

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Learning Objectives:

Introduction: Magnetic resonance imaging (MRI) is becoming increasingly used as a tool for cholesteatoma diagnosis. The purpose of this retrospective study was to assess a role of T1 weighted imaging (T1WI) in diagnosing recurrent temporal bone cholesteatoma with Diffusion-weighted MR imaging (DWI).

Method: We studied 44 patients (45 temporal bones) with preoperatively suspected cholesteatoma. Each patient underwent an MRI examination including both DWI and T1WI. Diagnosis of cholesteatoma was based on the evidence of a high intense image on DWI. Results of MRI were compared with operative diagnosis.

Result: The patients were consisted of 24 males and 20 females, ranging in age between 8 and 87 (median age = 53). DWI accurately predicted the presence of cholesteatoma in 31 of 36 cases, and it correctly excluded in 5 of 9 cases. False positives included 2 cholesterol granulomas, 1 schwannoma, and 1 fibrosis. False negatives included 4 small keratin pearls, 1 weter debris caused by infections. Overall sensitivity and specificity for detection of cholesteatoma were 86.1% and 55.6%, respectively. Positive predictive value and negative predictive value were 88.6% and 50.0%, respectively. Overall accuracy for detection of cholesteatoma was 80.0%. Only 5.6% of cholesteatomas (2/36) showed high intensity on T1WI, on the other hand, 75.0% of false positives (3/4) showed high intensity on T1WI. When diagnosis of cholesteatoma was based on the evidence of both high intensity on DWI and low or intermediate intensity on T1WI, overall accuracy for detection of cholesteatoma increased to 82.2%.

Conclusion: The combination of DWI and T1WI may improve specificity and overall accuracy for detection of cholesteatoma.