Korelasi antara Luas Penampang Nervus Koklearis, Diameter Kanalis Auditori Interna dan Usia saat Implantasi Koklea terhadap Luaran Auditori pada Anak dengan Gangguan Pendengaran Sensorineural Prelingual Pascaimplantasi Koklea = Correlation of Cochlear Nerve Cross-Sectional Area, Internal Auditory Canal Diameter, Age at Implantation and Auditory Performance after Cochlear Implantation in Prelingual Children with Sensorineural Hearing Loss

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Abstrak

Latar belakang: Gangguan pendengaran merupakan keluhan umum yang sering dirujuk ke spesialis Telinga Hidung Tenggorok (THT), dengan kasus terbanyak di wilayah Pasifik Barat dan Asia Tenggara. Gangguan pendengaran dapat mengganggu kemampuan wicara dan bahasa anak, mengakibatkan kesulitan dalam sosialisasi dan prestasi akademik yang buruk. Implantasi koklea merupakan metode rehabilitasi efektif untuk pasien gangguan pendengaran sensorineural. Terdapat bukti variasi jangkauan komunikasi reseptif pascaimplantasi koklea. Korelasi antara luas penampang nervus koklearis, diameter kanalis auditori interna dan usia saat implantasi terhadap luaran auditori pascaimplantasi koklea diharapkan dapat menjadi parameter kandidat implantasi serta prediktor luaran auditori pascaimplantasi koklea.
Metode: Studi korelasi dengan desain cross-sectional. Terdapat 40 sampel yang telah menjalani implantasi koklea. Dilakukan pengukuran luas penampang nervus koklearis pada MRI koklea dan diameter kanalis auditori interna pada HRCT scan tulang temporal pada masing-masing sampel, kemudian dikorelasikan terhadap luaran auditori pascaimplantasi koklea berdasarkan skor CAP-II
Hasil: Median luas penampang nervus koklearis sampel 0,52 mm2 (+/- 0,14), median diameter kanalis auditori interna sampel 2,14 mm (+/- 0,35), dan median usia sampel saat implantasi koklea 4 tahun (1-11). Tidak terdapat korelasi antara luas penampang nervus koklearis terhadap luaran auditori pascaimplantasi koklea (r = 0,29; p = 0,075). Tidak terdapat korelasi antara diameter KAI terhadap luaran auditori pascaimplantasi koklea (r = - 0,02; p = 0,929). Tidak terdapat korelasi antara usia saat implantasi terhadap luaran auditori pascaimplantasi koklea (r = 0,07; p = 0,687).
Kesimpulan: Tidak terdapat korelasi antara luas penampang nervus koklearis terhadap luaran auditori pascaimplantasi koklea. Tidak terdapat korelasi antara diameter KAI terhadap luaran auditori pascaimplantasi koklea. Tidak terdapat korelasi antara usia saat implantasi terhadap luaran auditori pascaimplantasi koklea. Diperlukan penelitian lanjutan secara prospektif untuk menentukan parameter kandidat implantasi serta prediktor luaran auditori pascaimplantasi koklea.
.....Background: Hearing loss is a common complaint that is often referred to an Ear Nose Throat (ENT) specialist, with the most cases occurring in the West Pacific and Southeast Asia regions. Hearing loss can interfere with a child's speech and language skills, resulting in difficulties in socialization and poor academic performance. Cochlear implantation is an effective rehabilitation method for sensorineural hearing loss patients. There is evidence of variation in the range of receptive communication after cochlear implantation. The correlation between cochlear nerve cross-sectional area (CSA), internal auditory canal diameter and age at implantation with postcochlear implantation auditory outcome is expected to be a candidate parameter for

implantation as well as a predictor of postcochlear implantation auditory outcome.
Methods: Correlation study with cross-sectional design. There were 40 samples that had undergone cochlear implantation. The cross-sectional area of the cochlear nerve was measured on cochlear MRI and the diameter of the internal auditory canal on the HRCT scan of the temporal bone in each sample, then correlated with the postcochlear implantation auditory outcome based on the CAP-II score.
Results: The median CSA of the cochlear nerve sample was 0,52 mm2 (+/- 0,14), the median diameter of the internal auditory canal sample was 2,14 mm (+/- 0,35), and the median age of the sample at cochlear implantation was 4 years (1- 11). There was no correlation between the cross-sectional area ofthe cochlear nerve and the auditory output after cochlear implantation (r = 0,29; p = 0,075). There was no correlation between KAI diameter and postcochlear implantation auditory output (r = -0,02; p = 0,929). There was no correlation between age at implantation and postcochlear implantation auditory outcomes (r = 0,07; p = 0,687).
Conclusion: There is no correlation between the cross-sectional area of the cochlear nerve and the auditory output after cochlear implantation. There is no correlation between KAI diameter and postcochlear implantation auditory output. There is no correlation between age at implantation and postcochlear implantation auditory outcomes. Further research is needed prospectively to determine the parameters of implantation candidates and predictors of postcochlear implantation auditory outcome.