

Does The Hounsfield Unit measured in multiple focus in high resolution temporal bone tomography contribute to the diagnosis of otosclerosis?

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Abstract

Objective: In this study, it was aimed to investigate the function of high-resolution computed tomography (HRCT) densitometry in the diagnosis of otosclerosis by performing densitometric measurements on the foci around the cochlea. **Materials and Methods:** The HRCT images of 0.5 mm thin-slice axial-sections obtained from 30 patients with otosclerosis, who had been surgically confirmed and performed computed tomography of the temporal bone before the surgery, and 30 patients, who had undergone cochlear implant surgery and had been identified as the control group were examined. Densitometric measurements obtained from 7 different points of the otic capsule were recorded as the mean Hounsfield unit (HU) for each patient. **Results:** When we compared the patient and the control groups, a statistically significant difference was found in densitometric measurements in 6 of the 7 different regions ($p < 0.05$). There was no statistically significant difference only in the HU 4 region ($p > 0.05$). There was also a statistically significant difference between these two groups in the mean HU value obtained by measurements performed in 7 regions ($p < 0.05$). In addition, no significant difference was found between both ears in all regions in the densitometric measurements at 7 different points of the otic capsule between the operated and non-operated ears of these patients ($p > 0.05$). Moreover, a negative and significant relationship was found between the bone conduction hearing threshold and HU4, HU5 and mean HU values according to the result of the Spearman correlation test. **Conclusion:** In our study, it was found that the density around the otic capsule was lower in patients with otosclerosis compared to normal patients. In addition, it was found that there was no statistically significant difference in density between the ear that was surgically confirmed to have otosclerosis and the non-operated ear in patients with otosclerosis

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