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Titel des Beitrags: MR visualization of the inner ear structures: comparison of 1.5 Tesla and 3 Tesla images.

Abstract:
AIM OF THE STUDY: To compare high resolution MRI examinations of inner ear structures at 1.5 T and at 3 T. METHOD: Temporal bones were measured bilaterally in 3 healthy volunteers in a 1.5 T and in a 3 T MR-scanner using the respective one channel head coil (quadrature detection) of the manufacturer. The same steady-state gradient echo sequence (3D-CISS) was employed at a voxel size of 0.4 x 0.4 x 0.4 mm(3). The signal-to-noise ratio (SNR) was determined quantitatively. RESULTS: An SNR of 8 could be achieved for the measurements at 3 T in 7:37 min. The SNR at 3 T was, on average, a factor of 1.34 higher than that at 1.5 T despite the fact that the excitation angle had to be drastically reduced (alpha = 42 degrees instead of alpha = 70 degrees at 1.5 T) due to the limit of the specific absorption rate (SAR). DISCUSSION: The MR representation of the inner ear is clearly improved at 3 T. To obtain the same SNR at 1.5 T approximately the double measuring time would be required, connected with reduced patient comfort and an increased risk for a displacement of the head during the high resolution measurement.

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