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Authors: Mehmet Cingoz, Sedat Giray Kandemirli, Deniz Can Alis, Cesur Samanci, Guzin Cakir Kandemirli, Nurten Uzun Adatepe

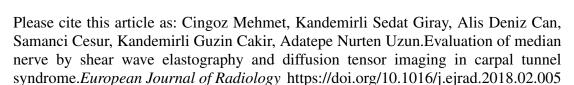
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ACCEPTED MANUSCRIPT

Evaluation of median nerve by shear wave elastography and diffusion tensor imaging in carpal tunnel syndrome

List of authors:

Mehmet Cingoz^a
Sedat Giray Kandemirli^{a*}
Deniz Can Alis^a
Cesur Samanci^a
Guzin Cakir Kandemirli^b
Nurten Uzun Adatepe^c

- ^a Istanbul University, Cerrahpasa Medical Faculty, Department of Radiology
- ^b Taksim Training and Research Hospital, Department of Physical Medicine and Rehabilitation
- ^c Istanbul University, Cerrahpasa Medical Faculty, Department of Neurology

*Corresponding Author: Sedat Giray Kandemirli

Istanbul University, Cerrahpasa Medical Faculty Department of Radiology, Fatih Istanbul, Turkey gskandemirli@yahoo.com
554 3971851

Abstract

Purpose: The aim of the current study is to investigate the diagnostic role of shear-wave elastography and diffusion tensor imaging in patients with carpal tunnel syndrome.

Material and Methods: The study included a total of 77 wrists; 18 normal, 35 wrists with mild, 9 wrists with moderate and 15 wrists with severe carpal tunnel syndrome. Elastography of the median nerve was performed by defining the boundaries of a segment of the nerve at sagittal plane at the level of proximal carpal row. Additionally, the cross-sectional area of the median nerve was evaluated. Fractional anisotropy and apparent diffusion coefficient measurements were carried out by placing region-of-interest at three levels: at pisiform bone (carpal tunnel inlet), mid carpal tunnel, and hook of hamate (carpal tunnel outlet).

Results: Patients with carpal tunnel syndrome had higher elasticity values of median nerve (53.0 kPa; IQR 40.8-77.0 kPa) compared to control subjects. (36.8 kPa; IQR 31.0-39.9 kPa) Patients with moderate-severe carpal tunnel syndrome had higher elasticity values (82 kPa; IQR 64.0-95.5 kPa) compared to patients with mild carpal tunnel syndrome. (44 kPa; IQR 32.5-59.5 kPa)

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