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

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

PII: S0720-048X(18)30043-3
DOI: https://doi.org/10.1016/j.ejrad.2018.02.005
Reference: EURR 8089

To appear in: *European Journal of Radiology*

Received date: 20-9-2017
Revised date: 23-1-2018
Accepted date: 6-2-2018

Please cite this article as: Cingoz Mehmet, Kandemirli Sedat Giray, Alis Deniz Can, Samanci Cesur, Kandemirli Guzin Cakir, Adatepe Nurten Uzun.Evaluation of median nerve by shear wave elastography and diffusion tensor imaging in carpal tunnel syndrome.*European Journal of Radiology* https://doi.org/10.1016/j.ejrad.2018.02.005

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)