Halvtidskontroll
Simon Götestrand

MRI of the wrist at 7T and 3T

Halvtidsbedömare
Docent Ylva Aurell Sahlgrenska Göteborg
Docent Erik Hedström BoF Lund

Tid
28 oktober 2021 kl. 13.00

Lokal
Demonstrationsrum 11, BoF, plan 4

Zoomlänk:
https://gu-se.zoom.us/j/64010828421?pwd=dXVtRzUrVjV2dGYrcjJoZjFDSjN3UT09

Meeting ID: 640 1082 8421  Passcode: 200990

Välkomna!
Huvudhandledare: Professor Mats Geijer
Bihandledare: Professor Anders Björkman
Abstract

Title: Magnetic resonance imaging of the wrist at 7T with focus on ligaments

Background: Wrist ligaments are difficult to assess using MR, and diagnostic arthroscopy is often necessary when injury is suspected.

Aim:

To investigate whether 3D imaging and imaging at 7T can improve visualization of wrist ligaments, and reach the same level of diagnostic certainty as wrist arthroscopy.

Method:

I. The wrist was examined in eighteen healthy volunteers at 7T and 3T using a 3D sequence and 2D sequences. Four musculoskeletal radiologists graded the anatomical visibility of ligaments, and the image quality.

II. The wrist was examined in eighteen healthy volunteers at 7T and 3T MR. Four musculoskeletal radiologists graded the visibility of ligaments, cartilage, nerves, trabecular bone, and tendons, as well as overall image quality.

III. Forty patients with suspected wrist ligament injury will be examined with MR at 7T and 3T. The findings will be compared with those found at a subsequent diagnostic arthroscopy.

IV. A follow up MR scan of some of the patients who has undergone wrist arthroscopy will be carried at 7T and 3T, to evaluate whether the procedure causes cartilage injury.

Preliminary results:

I. Our study found that 3D imaging was superior to 2D imaging for most of the studied ligaments.

II. Visibility of cartilage, trabecular bone, tendons, nerves, and ligaments was graded significantly higher at 7T compared to 3T. Imaging with 3T was not graded as superior to 7T for any structure. Image quality was also significantly superior at 7T.

III. Study not yet initiated.

IV. Study not yet initiated.

Significance:

3D imaging is seldom utilized in musculoskeletal MR. By demonstrating its superiority to 2D imaging in imaging of the wrist, more institutes may start using this technique.

Imaging of the wrist at 7T improves visualization of all studied anatomical structures compared to imaging at 3T. A supposition is that better anatomical visibility and delineation will translate into better detection and definition of pathology. This will be investigated in study III.

Publications:
