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Introduction and aim: Currently the best method for in vivo evaluation of the articular cartilage is MRI. The aim of the study was comparative assessment of different MRI sequences in terms of the evaluation of the articular cartilage of the knee.
Methods and Materials: The study was performed using a 1,5T MRI scanner and involved 62 patients age range from 20 to 65 years (34 women, 28 men). History of articular surface injury and severe arthrosis were the exclusion criteria. For evaluation of the cartilage used following sequences and parameters: PD FS tra (TE=23ms, TR=3500ms, resolution=0,5x0,5x3,5 mm), T2 FS sag (TE=9,52ms, TR=18,2ms,resolution =0,5x0,5x1,5mm) , T2 DESS (TE=7,97ms, TR=21,35ms,resolution =0,5x05x1,5 mm) andVIBE sag (TE=105ms, TR=4200ms, resolution = 0,5x0,5x3 mm). Thickness of cartilage was measured on the medial and lateral surface of the patella and the medial and lateral condyles of the femur. Two musculoskeletal radiologists independently measured thickness of cartilage. Statistical analysis was performed using t-test. Statistical significance was defined as $p<0.05$.
Results: The differences between two measurements of cartilage thickness were least significant in VIBE sag ($p<0,773$). No significant differences were also observed in T2 DESS ($p<0,347$) and PD FS ($p<0,189$) techniques. Most differences in measurements obtained in T2 FS sag method ($p<0,047$).
Discussion and conclusion: There was a significant advantage of VIBE sequence in assessing the thickness of the cartilage and its outline. An alternative method is T2DESS imaging in which also no statistically significant differences were obtained in the two-fold thickness measurements of the cartilage. Among the standard methods much more useful technique proved to be PD FS tra than T2FS sag.