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The Ability of Quantitative Analysis in Articular Cartilage

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Clinical magnetic resonance imaging of articular cartilage is possible by using techniques that offer high contrast between articular cartilage and adjacent structures in reasonable examination times. Magnetization Transfer (MT) imaging generates contrast dependent on the phenomenon of magnetization exchange between free water proton and restricted proton in macromolecules. How MT work is given with clinical evidence that leads to quantitative model for MT in tissues. The fat-suppressed, three-dimensional, spoiled gradient-echo sequence has been reported to be accurate and reliable, and the addition of this sequence to a routine examination does not significantly compromise patient throughput. Fast spin-echo imaging also shows promise in the clinical evaluation of articular cartilage, because the newer, stronger-gradient systems allow thinner slice acquisition with two-dimensional sequences. Together, these sequences allow the evaluation of osteoarthritis and inflammatory arthritis. Furthermore, quantitative measurements of cartilage volume for follow-up studies are possible with the use of the fat-suppressed, three-dimensional, spoiled gradient-echo sequence.

Keywords : Magnetization Transfer Imaging, Articular Cartilage, Fat-Suppressed