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The Diffusion Tensor Imaging of Muscle : Preliminary Results

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목적 : To obtain normative human skeletal muscle data and evaluate quantitative diffusion-ten anisotropy information using diffusion-tensor imaging technique.

대상 및 방법 : Quantitative extremity muscle diffusion tensor MR images were obtained in 5 healt adults by using turbo STEAM sequence and a combination of tetrahedral and orthogon diffusion gradients. Relative anisotropy(RA) and fractional anisotropy(FA) values we measured in soleus and gastrocnemius muscle in addition to mean ADC value.

결과 : The mean ADC, RA, and FA were $(0.36\pm0.10)\times10^{-3}$ mm^2/s, 0.46, and 0.62 for soleus muscle and $(0.24\pm0.08)\times10^{-3}$ mm^2/s, 0.64, and 0.74 for gastrocnemius muscle. It is revealed that soleus muscle has less mean diffusivity but has higher diffusion anisotropy. It also shown that FA index is higher than RA index in both types of muscle.

결론 : The fact that human extremity muscles show high diffusion anisotropy suggests that diffus tensor measurement has a sensitivity to microscopic filament structure of muscle and m have clinical implication to identify muscular disease.