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MR diffusion imaging in diagnosis of femoral head necrosis

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英文关键词:Magnetic resonance imaging Femoral head necrosis Apparent diffusion coefficient

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中文摘要:

目的 探讨MR DWI在股骨头坏死诊断及分期中的价值。方法 应用MR SE-EPI-DWI序列对34例股骨头坏死患者共40个髋关节 及90名健康志愿者共180个髋关节进行图像采集,b值分别取300、500、700 s/mm^2。应用Functool软件进行分析,得到ADC图。选取ROI为100 mm^2,测量双侧股骨头的ADC值,并进行统计学分析。结果 b值为300、500、700 s/mm^{2}时,股骨头坏死股骨头的ADC均值分别为(13.00±2.54)×10^{-4} mm^2/s、(10.73±3.10)×10^{-4} mm^2/s、(8.77±1.55)×10^{-4} mm^2/s,正常股骨头的ADC均值分别为(3.63±1.34)×10^{-4} mm^2/s、(1.87±0.76)×10^{-4} s、(1.49±0.53)×10^{-4} mm^2/s,差异均有统计学意义(*P*均<0.05)。第1组股骨头坏死区ADC值最小,第2组ADC值最大,而第3组ADC值又减小,差异有统计学意义(*P*<0.05)。结论 MR DWI可以显示股骨头坏死的病变区域,ADC值对于区分正常及病变区域、指导股骨头坏死分期有一定价值。

英文摘要:

Objective To assess the value of MR DWI in diagnosis and staging of femoral head necrosis. **Methods** Thirty-four patients with femoral head necrosis (40 hip joints) and 90 healthy volunteers (1 hip joints) were included. The patients were divided into 3 groups according to Steinberg stage (Ⅰ-Ⅱ of group 1, Ⅲ-Ⅳ of group 2, Ⅴ-Ⅵ of group 3). SE-EPI-DWI was performed to obtain images w values of 300, 500 and 700 s/mm^2, respectively. ADC maps were obtained with Functool software. ADC values of femoral head were measured using 100 mm^2 ROIs, and then were statistically analy **Results** With b value of 300, 500 and 700 s/mm^2, the mean ADC value of femoral head necrosis was (13.00±2.54)×10^{-4} mm^2/s, (10.73±3.10)×10^{-4} mm^2/s and (8.77±1.55)×10^{-4} mm^2/s, respecti while the mean ADC value of healthy femoral heads was (3.63±1.34)×10^{-4} mm^2/s, (1.87±0.76)×10^{-4} mm^2/s, (1.49±0.53)×10^{-4} mm^2/s. There were significant statistical differences in ADC valu normal femoral head and femoral head necrosis (all *P*<0.05). ADC values of femoral head necrosis in group 1 were minimum, and were maximum in group 2, then reduced in group 3 (*P*<0.05). **Conclu** DWI can display the femoral head necrosis clearly. ADC values contribute to distinguishing the normal and pathological regions of femoral head, as well as staging necrosis of the femoral head.

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