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BOLD MRI分析肾癌及癌旁肾组织氧合状况

BOLD MRI in the evaluation of oxygenation level in renal cell carcinoma and adjacent renal tissue

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中文摘要:

目的 通过BOLD MRI分析肾透明细胞癌病灶及癌旁肾组织的氧合水平。方法 使用3.0T MR对22例肾透明细胞癌患者进行术前BOLD MR检查。将BOLD原始图像输入GE ADW 4.4站,应用Functool软件进行后处理,并测量病灶、癌旁肾组织、远端肾组织及对侧肾组织的皮质、髓质的表现自旋-自旋弛豫率($R2^*$)值。对不同部位的 $R2^*$ 值进行统计学分析。结果 癌旁肾皮质、远端肾皮质及对侧肾皮质 $R2^*$ 值显著低于髓质($P<0.01$)。癌旁肾髓质与远端肾髓质及对侧肾髓质 $R2^*$ 值差异有统计学意义($P<0.01$),但远端肾髓质与对侧肾髓质 $R2^*$ 值间差异无统计学意义($P>0.05$)。癌旁肾皮质、远端肾皮质及对侧肾皮质 $R2^*$ 值差异无统计学意义($P>0.05$)。肾透明细胞癌病灶与癌旁肾髓质及对侧肾髓质差异有统计学意义($P<0.05$),与癌旁肾皮质、远端肾皮质及对侧肾皮质差异无统计学意义($P>0.05$)。结论 BOLD MRI对于评价肾透明细胞癌病灶及癌旁肾组织的氧合水平有重要价值。

英文摘要:

Objective To analyze the oxygenation levels of clear cell renal cell carcinoma (CRCC) and adjacent renal tissue with BOLD MRI. **Methods** BOLD MR imaging was performed on 22 patients with CRCC before surgery. The original images were inputed to the workstation (GE ADW 4.4) for post-process with Functool and measurement of the apparent spin-spin relaxation rate ($R2^*$) values in different parts, including CRCC lesions, cortex and medulla of adjacent renal tissues, distal renal tissues and contralateral renal tissues. $R2^*$ values of the above locations were analyzed statistically. **Results** The cortical $R2^*$ values of adjacent renal tissues, distal renal tissues, and contralateral renal tissues were lower than those of the medulla ($P<0.01$). The medullary $R2^*$ values between adjacent renal tissue and distal renal tissues, and between adjacent renal tissues and contralateral renal tissues were statistically different ($P<0.01$), but the medulla $R2^*$ values between the distal renal tissues and the contralateral renal tissues were not statistically different ($P>0.05$). The cortex $R2^*$ values among adjacent renal tissues, distal renal tissues and contralateral renal tissues had no statistical difference ($P>0.05$). The $R2^*$ values were statistical different between CRCC lesions and adjacent renal medulla, as well as between CRCC lesions and the contralateral renal medulla ($P<0.05$), but no statistical difference among CRCC lesions and the cortex of adjacent renal tissues, distal renal tissues, contralateral renal tissues ($P>0.05$). **Conclusion** BOLD MRI is of certain value in evaluating the oxygenation levels of CRCC and adjacent renal tissue.

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