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封面文章

视力下降,特别是视力丧失,会严重影响人类的生活质量。眼眶占位性病变是导致视力下降的重要原因之一,尤其是发生在眼眶尖或视神经周围,压迫甚至损伤视神经,从而导致视力丧失。常规影像学检查方法只能从形态学上对眼眶占位病变进行显示,不能评估视神经的损伤程度,该研究采用无创的体素内非相干运动磁共振成像技术,评估视神经的微观变化。

体素内非相干运动 (intravoxel incoherent motion, IVIM) 是一种基于扩散的分离组织扩散和微循环灌注的磁共振技术,能分别反映组织扩散和微循环灌注的信息,比传统的扩散加权成像提供更多的信息,IVIM 成像在肿瘤中的研究比较成熟,但在视神经研究比较少,纳入的 25 例眼眶内肿瘤病人和 12 名健康人,未前行常规磁共振和 IVIM 检查。在 GE ADW 4.6 工作站处理图像,测出视神经表现扩散系数 (apparent diffusion coefficient, ADC), 纯扩散系数 (slow ADC, D)、伪扩散系数 (fast ADC, D*)、灌注分数 (fraction of fast ADC, f), 比较患侧视神经相比健侧视神经、健康人视神经各参数值的变化,另外,比较患者双侧视神经各参数值不对称性指数 (asymmetry index, AI) 相对健康人双侧视神经各参数值不对称性指数的变化,分析各参数值与视力的相关性。

研究结果显示患侧视神经微观结构确实发生了意想不到的变化,究竟发生了什么变化? 该研究正在进行下一步深入探究。详见内文第 33~37 页。

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About the cover

Impaired vision, especially visual deprivation, can seriously affect the quality of human life. Orbital space occupying lesions are one of the important causes of impaired vision, especially in the orbital apex or around the optic nerve, which can compress or even damage the optic nerve, resulting in visual deprivation. Conventional imaging methods can only show orbital space occupying lesions from the morphological perspective, but can not evaluate the degree of optic nerve damage. In this study, Noninvasive voxel incoherent motion magnetic resonance imaging technique was used to evaluate the microscopic changes of optic nerve.

IVIM (intravoxel incoherent motion) is a magnetic resonance technology which is based on diffuse separating tissue diffusion from micro-circulation per-fusion. It also can reflect the information of organization diffusion and micro-circulation perfusion respectively, providing more information than the traditional diffusion weighted imaging, IVIM -MRI is relatively mature in the tumor research, but is relatively rare in optic nerve research. Involved in the research, 25 patients with intraorbital tumor and 12 healthy people was conducted the routine MRI and IVIM tests before operation. After disposing the imaging in the ADW4.6 workstation, we measured the ADC, D, D', f of optic nerve while we compared the change of the optic nerve parameters of the patient with the ones of healthy people.

The findings showed that optic nerve microscopic struction were changed considerably. What is it? This research will be go on in the near futuer. See text page 33-37.