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垂体大腺瘤患者视觉皮层的fMRI观察

Functional MRI on visual cortex in patients with large pituitary adenoma

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中文关键词: 垂体肿瘤 视觉皮层 视野 磁共振成像

英文关键词:Pituitary neoplasms Visual cortex Visual field Magnetic resonance imaging

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中文摘要:

目的 采用fMRI方法评价垂体大腺瘤患者视觉中枢的激活形式,观察视野改变与初级视觉皮层功能变化之间的关系。方法 对23例伴视交叉受压的垂体大腺瘤患者及18名正常志愿者的左右眼分别进行组块设计的fMRI实验,刺激内容为全视野黑白翻转棋盘格,对照内容为黑色屏幕中心的白色"+",6个对照组块与5个刺激组块交替进行,每个组块20 s。采用1.5T MR扫描仪。数据后处理采用SPM2软件。采用两样本*t*检验的组间分析方法分别获得左眼及右眼刺激下患者组与对照组间的激活差异图。分析患者视野缺损类型与初级视觉皮层激活形式之间的对应关系。结果 在严格控制头动和机械噪声等影响因素后,最终左、右眼刺激各入组12例。患者组与对照组比较,初级视觉皮层激活范围及强度均明显缩小,左眼刺激时患者组以右侧初级视觉皮层激活下降为主,右眼刺激时患者组以左侧初级视觉皮层激活下降为主。6例患者表现为典型左颞侧视野缺损,左眼刺激时表现为左侧初级视觉皮层激活,而右侧激活明显下降或无激活。7例患者为典型右颞侧视野缺损,右眼刺激时表现为右侧初级视觉皮层激活,而左侧激活明显下降或无激活。结论 垂体大腺瘤患者初级视觉皮层的激活形式与视野缺损类型存在对应关系,颞侧视野缺损主要以对侧初级视觉皮层激活下降为主。fMRI是研究前视路病变对视觉中枢皮层影响的有效方法。

英文摘要:

Objective To evaluate the activation of visual cortex in patients with large pituitary adenoma, and to observe the relationship between visual field deficits and activation in visual cortex. **Methods** Twenty-three patients with large pituitary adenoma and eighteen matched subjects were recruited in this study. Block-designed fMRI was performed with 1.5T MR scanner. Black and white check board and "+" were used as stimulus and control respectively with 6 control and 5 stimulus blocks running alternately; every block lasted for 20 s. Bilateral eyes in two groups received stimulus individually. The fMRI data were processed with SPM2. Different mappings between two groups during bilateral eyes experiments were obtained respectively with inter-group analysis. The relationship between visual field deficits and activation in visual cortex was analyzed. **Results** The number of patients for group analysis in left and right eye experiments were both twelve after head motion effect was ruled out. In contrast to the control subjects, activated extent and intensity of visual cortex decreased in patients group, especially in contralateral visual cortex. Six patients with typical visual field deficits on the left temporal side presented with decreased or diminished activation in the right visual cortex during the left eye experiment. Seven patients with typical visual field deficits on the right temporal side appeared as decreased or diminished activation in the left visual cortex during the right eye experiment. **Conclusion** There is a corresponding relationship between visual field deficits and activation of visual cortex in patients with large pituitary adenoma. Visual field deficit on temporal side of each eye mainly cause activation decrease in the contralateral visual cortex. Functional MRI is an effective method for studying effect of diseases in anterior visual pathway on visual cortex.

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