中国医学影像技术
CHINESE JOURNAL OF MEDICAL IMAGING TECHNOLOGY



高万军,张云亭,张敬,张权,李威.手术前、后采用Bold-fMRI与DTI融合技术对比观察脑瘤累及初级皮层运动区[J].中国医学影像技术,2009,25(1):46~49

# 手术前、后采用Bold-fMRI与DTI融合技术对比观察脑瘤累及初级皮层运动区

# Pre- and postoperation observation with combination of Bold-fMRI and DTI of brain tumors located within or near the M1

投稿时间： 2008-09-18 最后修改时间： 2008-10-19

**DOI**:

中文关键词：脑肿瘤 初级运动皮层 磁共振成像

英文关键词:Brain neoplasms Primary motor cortex Magnetic resonance imaging

基金项目:天津市高等学校科技发展基金(20030321)。

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中文摘要：

目的 采用血氧依赖水平功能磁共振成像(Bold-fMRI)和弥散张量成像(DTI)融合技术,初步观察脑瘤、皮质脊髓束(CST)、初级皮层运动区(M1)之间的关系。方法 对18例邻近M1区脑瘤患者行术前及术后Bold-fMRI和DTI检查。采用Bold-fMRI与DTI融合技术建立脑瘤、M1区、CST三者融合的三维图像,观察手术前后三者的关系及手术前后变化。按照肿瘤级别将脑瘤分为2组。结果 术前脑瘤使M1区及CST受压、移位,部分CST出现中断和缺损。高级别脑瘤对CST的影响程度高于低级别脑瘤。术后M1区及CST出现不同程度的恢复,高级别脑瘤与低级别脑瘤术后恢复程度差异没有显著性统计学意义。结论 利用Bold-fMRI与DTI融合技术,术前可直观地观察脑瘤、M1区、CST三者间的关系,了解M1区和CST的受累程度,有助于手术方案制定,术后可观察M1区和CST变化情况,并同术前进行比较,为评估手术效果提供依据。

英文摘要：

Objective To compare and analyze the differences of the Bold signal in M1 among different types of brain tumor, and to observe the changes in corticospinal tract (CST) pre- and postoperation by combination technology of Bold-fMRI and diffusion tensor imaging (DTI). **Methods** Eighteen cases of neighbouring M1 areas of brain tumor patients underwent Bold-fMRI and the DTI inspection before and after surgery. All patients were divided into 2 groups according to the level of brain tumor. **Results** Brain tumors caused M1 and CST compression, transfer, part of CST with a break defect preoperatively. The impact of the CST of the high-level brain tumors was higher than that of low-level brain tumors. After surgical operation, varions degrees of recovery were found in M1 and CST, and no significant difference was detected between high-level and low-level brain tumors. **Conclusion** The relationship among the brain tumor, M1 zone and CST can be observed with combination of Bold-fMRI and DTI technology, helping to understand the involvement of M1 area and CST and to develop the operation plan before operation. Combination of Bold-fMRI and DTI technology can also be used to observe the changes in M1 area and the CST, and thus to assess the therapeutic effect of surgical operations.

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