

论著

静息态功能性磁共振成像下对精神分裂症的多体素模式分析

唐艳^{1,2}, 曹芳², 王利锋¹, 谭立文¹

1. 中南大学 湘雅二医院精神卫生研究所, 长沙 410011;
2. 中南大学 地球科学与信息物理学院生物医学工程系, 长沙 410083

摘要:

目的:通过多体素模式分析研究精神分裂症患者和健康对照者在静息态下的脑功能连通,找出患者异常的脑区和网络。方法:对22例精神分裂症患者和22例健康对照组受试者进行静息态下全脑的磁共振扫描,提取其功能性连通作为特征,再选用3种方法对选取的特征进行降维,最后进行分类。结果:采用主成分分析方法降维后的分类效果最好,分类率达到86.4%;而且大多数的连通特征是视觉皮层网络内部及其与中央前后回和颞叶的连通。结论:基于功能性磁共振的多体素模式分析可以将精神分裂症患者识别出来,而视觉皮层网络从生理学方面解释精神分裂症有重大的意义。

关键词: 精神分裂症 功能性磁共振成像 降维 分类 视觉皮层网络

Multivoxel pattern analysis of schizophrenia by resting-state functional magnetic resonance imaging

TANG Yan^{1,2}, CAO Fang², WANG Lifeng¹, TAN Liwen¹

1. Institute of Mental Health, Second Xiangya Hospital, Central South University, Changsha 410011;
2. Department of Biomedical Engineering Laboratory, School of Geosciences and Info-physics, Central South University, Changsha 410083, China

Abstract:

Objective: To investigate the resting-state functional connectivity in patients with schizophrenia and healthy controls using multivoxel pattern analysis, and to find out the abnormal functional connectivity in patients.

Methods: Twenty two patients with schizophrenia and 22 matched controls were given restingstate functional magnetic resonance brain scan. We used the high functional connectivity as features, reduced the dimensionality by 3 methods, and classified the features.

Results: The principal component analysis achieved the best generalization performance, whose classification rate was 86.4%. Most features were the functional connectivity within or between the visual cortex network and the pre- and post-central and temporal lobe connectivity.

Conclusion: Patients with schizophrenia can be identified with multivoxel pattern analysis based on the functional magnetic resonance imaging, and visual cortex network may play an important role in physiological explanation of the syndrome of schizophrenia.

Keywords: schizophrenia functional magnetic resonance imaging dimensional reduction classification visual cortex network

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通讯作者: 谭立文, Email: gangbie7788@yahoo.com.cn

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