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慢性疲劳综合征患儿的全脑功能连接异常

Aberrant whole-brain functional connectivity in children with chronic fatigue syndrome

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中文摘要：

目的 评估慢性疲劳综合征（CFS）患儿静息状态下全脑功能连接异常。方法 对31例CFS患儿（实验组）以及34名健康儿童（对照组），进行静息态fMRI扫描，应用REST软件包对后处理。两两计算脑区间自发BOLD变化相关系数的*z*值。应用双尾*t*检验比较各自的*z*值来确定实验组与对照组间功能连接的差异。结果 实验组中共发现15个显著的功能连接异常，其脑区功能连接增强，分别为右侧丘脑-右侧内侧前额叶皮层、右侧岛叶-右侧前扣带回皮层、右侧丘脑-右侧岛叶、右侧丘脑-右侧第二躯体感觉皮层、右侧第一躯体感觉皮层-右侧第二躯觉皮层、左侧丘脑-左侧内侧前额叶皮层、左侧丘脑-左侧第二躯体感觉皮层，8个脑区功能连接减弱，分别为右侧丘脑-右侧前扣带回皮层、右侧丘脑-右侧壳核、右侧前扣带回皮层-右一躯体感觉皮层、右侧前扣带回皮层-右侧第二躯体感觉皮层、右侧岛叶-右侧第二躯体感觉皮层、左侧丘脑-左侧壳核、左侧第一躯体感觉皮层-左侧岛叶、左侧第一躯体感觉皮层-左侧躯体感觉皮层）。结论 内侧前额叶皮层、岛叶、躯体感觉皮质、前扣带回皮层之间的脑区功能连接异常有可能与CFS的发病和进展有关。

英文摘要：

Objective To assess abnormalities of whole-brain functional connectivity in children with chronic fatigue syndrome (CFS) using fMRI. **Methods** Resting state fMRI data were obtained from 65 children, including 31 CFS (study group) and 34 age-matched healthy controls (control group). fMRI scanning was performed and post-processed using REST software. Comparisons of *z*-score corre coefficients between distinct cerebral regions were used to identify altered functional connectivity in CFS children. Individual *z*-scores were compared with two-tailed *t*-tests to determine the significar functional connectivity between the two groups. **Results** In CFS group, a total of 15 significantly different functional connectivity were identified, including 7 increased areas, i.e. right thalamus-right prefrontal cortex(MPFC), right insula-right anterior cingulated cortex (ACC), right thalamus-right insula, right thalamus-right secondary somatosensory cortices (S2), right primary somatosensory cor (S1)-right S2, left thalamus-left MPFC and left thalamus-left S2, respectively, as well as 8 decreased areas, i.e. right thalamus-right ACC, right thalamus-right putamen, right ACC-right S1, right ACC- S2, right insula-right S2, left thalamus-left putamen, left S1-left insula and left S1-left S2, respectively. **Conclusion** The abnormalities of functional connectivity between MPFC, insula, somatosenso cortices and ACC are likely to be involved in the onset and progression of CFS in children.

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