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封面文章

抑郁症(major depression disorder, MDD)目前在全世界发病已超过 3.5 亿, 在我国有将近 0.8 亿 MDD 患者, 且目前仍在增加, 自杀率高居不下, 给人类的身心健康造成了严重威胁。目前国内外治疗抑郁症的方法以药物治疗为主, 但有将近 50% 的患者是抗抑郁药无效的难治性抑郁症 (treatment-resistant depression, TRD), 因此寻找对 TRD 有效的能替代药物的治疗技术或方法, 是一个急需解决的重要临床问题。

中国中医科学院广安门医院放射科联合针灸科、身心医学科, 以及针灸研究所, 近十年来, 采用表皮电刺激耳甲部耳穴 (耳电针), 原理类似于经皮耳迷走神经刺激术 (transcutaneous auricular Vagus Nerve Stimulation, taVNS), 发现对维持药物治疗的 TRD 患者具有明显的增效作用, 同时采用磁共振技术, 探索其脑效应机制。

静息态功能磁共振技术 (resting-state functional magnetic resonance imaging, rs-fMRI) 已经被广泛地用于探索 MDD 发病机制, 发现了默认网络、认知控制网络、突显网络、纹状体-扣带回等情绪认知相关网络及脑区的异常, 对抗抑郁药物改善前额叶-纹状体的脑机制研究也取得了进展, 但目前针对 TRD 的脑机制 fMRI 研究仍较少, 也少见针刺治疗 TRD 效应的研究。

本研究初步研究了 TRD 的 rs-fMRI 脑功能 (ALFF) 及脑网络连接 (FC) 的变化, 对比正常人, 发现 TRD 患者存在边缘系统-皮层-纹状体-苍白球-丘脑神经环路脑功能活动异常, 其中情感及运动皮层相关脑区脑功能异常可能与负性情绪有关。

进一步发现 taVNS 对 TRD 的即刻脑效应, 可调节 TRD 患者的脑自发活动, 涉及眶回及小脑, 可能是耳甲电针治疗 TRD 的脑功能潜在靶点脑区。

据文献检索, 这是第一个采用 rs-fMRI 技术观察 taVNS 治疗 TRD 的即刻脑机制探索研究, 是中西医结合研究的一个范例。详见内文第 70~75 页。

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About the cover

Nowadays, the incidence of major depression disorder (MDD) has exceeded 350 million in the world, and there are nearly 80 million MDD patients in China, and it is still increasing. The suicide rate is high, posing a serious threat to human physical and mental health. At present, the drug is the main treatment for depression, but nearly 35%-50% of patients are treatment-resistant depression (TRD) that has no effect on antidepressants. Therefore, to explore the effective treatment technology or method that can replace drugs for TRD is an important clinical problem that needs to be solved urgently.

The radiology department of Guang'anmen Hospital, China Academy of Chinese Medical Sciences, in collaborating with the department of acupuncture and moxibustion, the department of Physical and mental Medicine, and the Institute of Acupuncture and Moxibustion, have used transcutaneous electric stimulation on auricular acupoints (ear electroacupuncture) in the last ten years for MDD. The mechanism of ear electroacupuncture is similar to transcutaneous auricular Vagus Nerve Stimulation (taVNS), which has been found to have a significant synergistic effect on TRD patients who are basically treated with medication. Meanwhile, the fMRI was used to explore the brain mechanism of the effectiveness.

Resting-state functional magnetic resonance imaging (rs-fMRI) has been widely used to explore the pathogenesis of MDD. The default network, cognitive control network, salience network, striatum, cingulate gyrus and other emotion and cognition related brain networks and regions were found to be relative to MDD. The brain mechanism of antidepressants could contribute to the improvement of the prefrontal-striatum network. However, there are still few fMRI studies on the brain mechanism of TRD, specially on the brain effect of acupuncture treating TRD.

This preliminary study explored the brain function (ALFF) and the brain functional connectivity (FC) of TRD with comparing with the health volunteers, and found that TRD shows abnormal brain function activities in the limbic-pallidum-thalamus-striatum neural circuit, including the dysfunctional emotion and motor cortices of the brain may be associated with the negative emotions.

Furthermore, the instant brain effects of taVNS on TRD were found to regulate the spontaneous brain activity involving the orbital gyrus and cerebellum, which may be a potential functional brain target for the treatment of TRD by ear electroacupuncture.

According to literature search, this is the first rs-fMRI study to explore the instant brain mechanism of taVNS treatment for TRD, and it is an example of integrated Chinese and Western medicine. See pages 70-75.

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