生物物理学报(2001) 17(2), 217-223

PDF文档

经颅磁刺激在大脑皮质研究中的应用和进展

乔清理[1]、王秀宏[2]、王明时[1]
1 天津大学精密仪器与光电子工程学院生物医学工程系
2 系统工程研究所

经颅磁刺激(TMS)是一种能够在脑中感应聚焦电流,瞬间调制大脑皮质的无创方法,在临床研究、基础神经学和诊治脑疾病等方面有许多应用。通过记录运动皮质诱发电位(MEPs),TMS已经或将成为探测脑下行运动路径传导、评价皮质兴奋性、皮质映射和研究皮质塑性的常规工具。TMS能够主动干预脑功能,这种特性使它成为研究正常人脑-行为关系的独特技术,可以建立脑活动与任务完成之间的因果联系,探索脑功能连接。近年来的许多实验又表明,TMS在运动紊乱和精神疾病方面有潜在的治疗作用,但达到临床应用还有一定距离。

APPLICATION AND PROGRESS OF TRANSCRANIAL MAGNETIC STIMULATION (TMS) IN THE STUDY OF HUMAN CORTEX

Transcranial magnetic stimulation (TMS) is a non-invasive method which can induce a focal current in the brain and temporally modulate the function of the target cortex. Thus, it has numerous prospective applications in clinical study, basic neuroscience and diagnosis and therapy of the brain. TMS will become a routine tool to probe the conduction of the brain's descending motor pathways, provide indices of cortical excitability, map corters and investigate corter plastic changes by recording motor-evoked potentials (MEPs). The property that TMS can interfere actively with brain function makes TMS become a unique technique to study brain-behavior relations in normal human beings and can be used to establish the causal link between brain activity and task performance, and explore functional brain connectivity. As displayed by several experiments in recent years, TMS has a potential therapeutic role in the treatment of motor disorders and psychiatric disorders but have not demonstrated in clinical utility.

关键词

经颅磁刺激(Transcranial magnetic stimulation); 运动皮质(Motor cortex); 皮质兴奋性(Cortical excitability); 脑活动(Brain activity)