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不同频率重复经颅磁刺激治疗脑卒中后失语症的效果观察*

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摘要 目的:探讨不同频率重复经颅磁刺激(Repeated transcranial magnetic stimulation, rTMS)治疗脑卒中后失语症的临床效果。**方法:**选取2015年10月至2018年10月我院收治的脑卒中后失语症患者80例,采用随机数字表法将患者分为两组,低频组患者给予低频rTMS治疗,高频组患者给予高频rTMS治疗。比较两组患者治疗后的西方失语成套测验(Western Aphasia Battery, WAB)各项评分,治疗前后日常生活交流能力检查(Communicative abilities in daily living test, CADL)评分、视图命名得分及命名反应时间的变化。**结果:**治疗后,两组患者的自发语言、听理解、命名、复述和失语商(Aphasia quotient, AQ)评分比较均无统计学差异($P>0.05$);两组CADL评分和视图命名得分均较治疗前显著升高($P<0.05$),但两组间比较无统计学差异($P>0.05$);两组命名反应时间均较治疗前显著缩短,且高频组显著短于低频组($P<0.05$)。**结论:**高频rTMS与低频rTMS均可显著改善脑卒中后失语症患者的自发语言、听理解、命名、复述及日常生活交流能力,但高频rTMS在缩短命名反应时间方面具有更好的效果。

关键词:重复经颅磁刺激;脑卒中;失语症;效果

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Effect of Different Frequency of rTMS on the Aphasia after Stroke*

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ABSTRACT Objective: To investigate the clinical effect of different frequency repeated transcranial magnetic stimulation(rTMS) on the aphasia after stroke. **Methods:** 80 patients with poststroke aphasia admitted to our hospital from October 2015 to October 2018 were selected. The patients were divided into two groups by the random number table method. Patients in the low-frequency group were treated with low-frequency rTMS, and patients in the high-frequency group were treated with high-frequency rTMS. The scores of the Western Aphasia Battery (WAB) after treatment, the changes of communicative abilities in daily living test (CADL) score, view naming score and naming response time before and after treatment were compared between the two groups. **Results:** After treatment, there was no significant difference in the spontaneous language, listening comprehension, naming, retelling and AQ scores between the two groups ($P>0.05$). The CADL score and view naming score in both groups were significantly higher than those before treatment ($P<0.05$), but there was no significant difference between the two groups ($P>0.05$). The naming reaction time of both groups were significantly shorter than those before treatment, which was significantly shorter in the high frequency group than that of the low frequency group ($P<0.05$). **Conclusion:** Both high-frequency rTMS and low-frequency rTMS can significantly improve the spontaneous language, listening comprehension, naming, retelling and daily communication ability of aphasia patients after stroke, but high-frequency rTMS has a better effect in shortening the naming response time.

Key words: rTMS; Stroke; Aphasia; Effect

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前言

失语症是一种语言功能障碍综合征^[1-3],病因主要为脑血管疾病、脑肿瘤、脑外伤及感染等,最常见的为脑血管疾病,约有56%~68%的急慢性脑血管疾病患者伴有失语症,而脑卒中后失语症的发生率高达21%~38%^[4-6]。近年来,随着人口老龄化的不

断加剧,脑卒中的发病率显著上升,脑卒中失语症的发病率也随之升高。脑卒中后失语症主要以语言意思、形式或结构及认知过程出现下降为特点,表现在听、说、读、写的各个方面,严重影响患者的日常生活,且患者与治疗师的沟通困难,不利于失语症及其他功能的恢复,还会增加患者的死亡率^[7-9]。

传统治疗失语症的方法包括药物治疗、针刺治疗、强制性

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言语诱导治疗、计算机辅助治疗等多种方法,但这些方法起效较慢,治疗效果不尽人意^[10-12]。非侵入性大脑刺激技术为脑卒中后语言功能障碍的治疗提供了一种新的手段,重复经颅磁刺激(rTMS)是在经颅磁刺激的基础上发展的一种神经电生理治疗技术,在精神疾病、脊髓损伤、运动障碍及癫痫等疾病的治疗中取得了一定的效果^[13-15]。近年来,rTMS成为脑卒中后失语症的治疗的热点,但国内的大部分研究集中在低频rTMS方面,对于低频rTMS和高频rTMS治疗脑卒中后失语症效果的对比研究方面较少。本研究主要探讨了不同频率rTMS治疗脑卒中后失语症的临床效果,为失语症的临床治疗提供更多的参考。

1 资料与方法

1.1 一般资料

选取2015年10月至2018年10月我院收治的脑卒中后失语症患者80例,纳入标准:①符合脑卒中后失语症的相关诊断标准;②首次发病,左半球单侧病灶发病;③经颅脑CT确定为单一病灶;④母语为汉语。排除标准:①合并其他神经系统疾病者;②合并视觉、听觉障碍者;③颅内金属植入者及戴有心脏起搏器者;④意识不清,不能配合者。采用随机数字表法将患者分为两组,低频组40例,男22例,女18例;年龄50~75岁,平均 62.31 ± 3.64 岁;病程3~10d,平均 6.25 ± 1.31 d;病变性质:脑梗死24例,脑出血16例。高频组40例,对照组40例,男23例,女17例;年龄51~76岁,平均 63.25 ± 3.81 岁;病程4~11d,平均 6.98 ± 1.44 d;病变性质:脑梗死22例,脑出血18例。两组一般资料比较差异均无统计学意义($P>0.05$),具有可比性。

1.2 治疗方法

两组均给予药物、常规语言训练等治疗。低频组患者给予低频rTMS治疗,患者取仰卧位,线圈与患者的颅骨表面相切,采用磁刺激仪(英国Magstim生产)对患者进行重复经颅磁刺激,刺激区域:右侧半球Broca对应区域;刺激强度:运动阈值

的80%;频率:1Hz;持续时间:20min;每周5d,两组治疗2周。高频组患者给予高频rTMS治疗,刺激区域:左侧半球Broca对应区域;刺激强度:运动阈值的80%;频率:5Hz;持续时间:20min;每周5d,两组治疗2周。其余同低频组。

1.3 评定标准

采用西方失语成套测验(WAB)、日常生活交流能力检查(CADL)和汉语失语症心理语言评估(PACA)中的视图命名对两组患者的语言功能和交流能力进行评定。WAB评定标准:包括自发语言、听理解、命名和复述4项,总分分别为20分、200分、100分和100分。检查完成后计算失语商(AQ),AQ可反映患者的失语严重程度,得分越低表示失语越严重。CADL评定标准:包括22项日常生活交流活动,每项总分为4分,总分为136分。4分:与家属以外的人交流时可作出适当的反应;3分:与家属以外的人交流时,超过3~30s才能作出适当的反应;2分:与家属以外的人交流时给予相应的提示才能作出适当的反应;1分:与家属以外的人交流时给予相应的提示或反复刺激后,超过3~30s才能作出适当的反应;0分:回答错误。PACA评定标准:让患者完成视图命名任务,屏幕中出现一张图片,让患者说出图片名称,图片包括物品、植物、动物各10个,测试过程中记录患者的命名正确率和反应时间。

1.4 统计学方法

采用SPSS16.0对数据进行统计学分析,计数资料以率(%)表示,组间比较行卡方检验,计量资料以 $(\bar{x} \pm s)$ 表示,组间比较行t检验,以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 两组治疗前后 WAB 评分的比较

治疗后,两组患者的自发语言、听理解、命名、复述和AQ评分比较均无统计学差异($P>0.05$),见表1。

表1 两组治疗后 WAB 评分的比较 $(\bar{x} \pm s, \text{分})$

Table 1 Comparison of the WAB score between two groups after treatment $(\bar{x} \pm s, \text{score})$

Groups	Case	Spontaneous speech	Auditory comprehension	Retell	Denominate	AQ
Low frequency group	40	8.15 ± 2.11	7.25 ± 1.46	6.15 ± 1.02	4.95 ± 1.01	49.12 ± 10.43
High frequency group	40	8.53 ± 2.34	7.74 ± 1.52	6.44 ± 1.11	5.23 ± 1.13	55.38 ± 13.57
t		-0.763	-1.470	-1.217	-1.168	-2.313
P		0.448	0.146	0.227	0.246	0.023

2.2 两组治疗前后 CADL 评分的比较

治疗前,两组患者的CADL评分比较无统计学差异

($P>0.05$);治疗后,两组CADL评分均较治疗前显著升高($P<0.05$),但两组间比较无统计学差异($P>0.05$),见表2。

表2 两组患者治疗前后 CADL 评分的比较 $(\bar{x} \pm s, \text{分})$

Table 2 Comparison of the CADL score between two groups before and after treatment $(\bar{x} \pm s, \text{score})$

Groups	Case	Before treatment	Afore treatment	t	P
Low frequency group	40	37.58 ± 10.21	44.32 ± 12.54	-2.636	0.010
High frequency group	40	36.97 ± 9.64	45.61 ± 13.12	3.356	0.001
t		0.275	0.450	-1.217	-1.168
P		0.784	0.654	0.227	0.246

2.3 两组治疗前后视图命名及命名反应时间的比较

治疗前,两组患者的视图命名得分与命名反应时间比较均无统计学差异($P>0.05$);治疗后,两组视图命名得分均较治疗

前显著升高($P<0.05$),但组间比较无统计学差异($P>0.05$),两组治疗后命名反应时间均较治疗前显著缩短,且高频组显著短于低频组($P<0.05$),见表 3。

表 3 两组患者治疗前后视图命名及命名反应时间比较($\bar{x}\pm s$)

Table 3 Comparison of the view naming score and response time between two groups before and after treatment($\bar{x}\pm s$)

Groups	Case	View naming score		View naming response time(s)	
		Before treatment	After treatment	Before treatment	After treatment
Low frequency group	40	14.32± 3.85	19.35± 5.64*	10.32± 2.67	8.65± 2.14*
High frequency group	40	13.87± 3.21	19.87± 5.79*	10.95± 2.82	7.83± 1.02*
t		0.568	-0.407	-1.026	-2.188
P		0.572	0.685	0.308	0.033

注:与治疗前相比,* $P<0.05$ 。

Note: Compared with before treatment,* $P<0.05$.

3 讨论

语言是机体认知功能的一个重要的组成部分。在生理状态下,双侧大脑皮层存在一种交互抑制的平衡,脑卒中后这种平衡被打破,不利于患侧半球相关语言功能的恢复^[16-18]。脑卒中失语症患者通常是由左侧大脑皮层及皮层下损伤导致语言网络结构的破坏所致,患者早期可出现一定程度的自发恢复,但大多数患者会留有不同程度的慢性失语症状。影响失语症恢复的因素较多,包括病变的大小和部位等等,其恢复取决于大脑皮层的可塑程度^[19-21]。研究显示^[22]脑卒中失语症恢复可能与左侧半球病变区域及相关的语言区域功能重建、右侧半球语言镜像区域的激活重组、非优势半球的激活有关,这些机制在语言恢复过程中发生交互作用。而 rTMS 是诱导神经可塑性的一种无创方法,有助于脑卒中后语言功能的恢复。

rTMS 产生的感应磁场激发神经系统反应,而不同频率的 rTMS 对神经组织可起到兴奋或抑制作用,低频 rTMS 作用于健侧半球,可抑制局部皮质细胞,降低其兴奋性,使大脑皮质的可塑性改变,降低对患侧半球的抑制作用,促进语言功能的恢复^[23-25]。有研究显示^[26-28]低频 rTMS 治疗两周后,患者的理解、复述等语言功能显著改善,且对不同类型的失语症症状均有明显改善。高频 rTMS 作用于患侧半球语言中枢,可易化局部神经细胞,增加大脑皮层的兴奋性,促进双侧大脑半球的兴奋性恢复至平衡状态,重建语言功能网络,进而促进语言功能的恢复。有研究显示^[29-31]采用高频 rTMS 对脑卒中失语症患者的患侧半球进行刺激,发现刺激部位周围的白质增加,可能与高频 rTMS 可增加突触间的联系,进而产生调节皮质功能调节作用有关。本研究结果显示两组患者治疗后 WBS 各项评分、CADL 评分和视图命名得分比较无显著差异,说明高频 rTMS 与低频 rTMS 对脑卒中失语症均具有较好的临床效果,可促进患者语言功能的恢复,提高患者日常生活交流能力。这与两种方法均可显著促进患者双侧大脑皮层的平衡有关。但治疗后高频组患者的命名反应时间显示短于低频组,说明高频 rTMS 可显著缩短患者的反应时间,可能是由于高频 rTMS 增加了大脑皮质兴奋性,而低频 rTMS 抑制大脑皮层的兴奋性,两种方法的作用途径和方式不同所致,但其具体的作用机制还有待于进一步

研究。

综上所述,高频与低频 rTMS 均可显著改善脑卒中后失语症患者的自发语言、听理解、命名、复述及日常生活交流能力,但高频 rTMS 在缩短命名反应时间方面具有更好的效果。

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