

溶栓联合早期肢体功能锻炼对急性脑梗死患者的康复作用

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【摘要】目的 探讨溶栓联合早期肢体功能锻炼对急性脑梗死患者神经功能康复的影响。**方法** 选取 2018-09—2020-09 中国人民解放军南部战区总医院急诊科、脑血管科收治的急性脑梗死患者 96 例为研究对象, 所有患者入院后均于 4.5 h 内进行溶栓治疗。按肢体功能锻炼的时间分为观察组和对照组, 观察组 54 例患者在溶栓 24 h 内进行肢体功能锻炼, 对照组 42 例患者在溶栓治疗 24 h 后再给予肢体康复训练, 共治疗 2 周。分别于治疗前、治疗 2 周后及治疗 3 个月后评估患者的肢体运动功能康复及并发症发生情况。**结果** 治疗前 2 组 Barthel 指数、Fugl-Meyer 量表评分、患肢关节 Ashworth 评分、Rankin 评分和 NIHSS 评分差异均无统计学意义 ($P > 0.05$)。治疗后 2 周及治疗后 3 个月, 观察组 Barthel 指数评分均明显高于对照组 ($t=4.605, 4.303, P < 0.05$), Fugl-Meyer 评分均明显高于对照组 ($t=3.371, 3.866, P < 0.05$), 患肢关节 Ashworth 评分、Rankin 评分和神经功能缺损评分均明显低于对照组 ($P < 0.05$)。观察组并发症发生率 14.29% (7/42), 明显低于对照组的 3.70% (2/54) ($\chi^2=4.987, P=0.025$)。**结论** 对急性脑梗死患者开展溶栓联合早期肢体功能锻炼能够显著改善肢体运动功能, 促进神经功能康复, 安全性好。

【关键词】 急性脑梗死; 溶栓; 肢体功能锻炼; 神经功能康复; 早期

【中图分类号】 R743.33 **【文献标识码】** A **【文章编号】** 1673-5110 (2022) 07-0798-05

Effect of thrombolysis combined with early limb functional exercise on neurological rehabilitation of patients with acute cerebral infarction

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【Abstract】 Objective To investigate the effect of thrombolysis combined with early limb functional exercise on neurological rehabilitation in patients with acute cerebral infarction. **Methods** A total of 96 patients with acute cerebral infarction admitted to the Emergency Department and Cerebrovascular Department of Southern Theater General Hospital from September 2018 to September 2020 were selected as the study subjects. All patients received thrombolytic therapy within 4.5 hours after admission. According to the time of limb function exercise, the patients were divided into observation group and control group. In the observation group, 54 patients were given limb function exercise within 24 h of thrombolytic therapy, and in the control group, they were given limb rehabilitation training after 24 h of thrombolytic therapy for a total of 2 weeks. The recovery of limb motor function and complications were evaluated before treatment, 2 weeks after treatment and 3 months after treatment. **Results** Before treatment, there was no significant difference in Barthel index, Fugl-Meyer score, Ashworth score, Rankin score and neurological deficit score between the two groups ($P > 0.05$). After 2 weeks and 3 months of treatment, Barthel Index and Fugl-Meyer score of the observation group were significantly higher than those of the control group. Fugl-Meyer scores were significantly higher than those of the control group ($P < 0.05$). At 2 weeks and 3

DOI: 10.12083/SYSJ.220604

本文引用信息: 李琴, 曾凡杰, 唐绍辉, 唐袖青, 罗高权, 古菁, 邢然然, 姚惠东. 溶栓联合早期肢体功能锻炼对急性脑梗死患者的康复作用[J]. 中国实用神经疾病杂志, 2022, 25(7): 798-802. DOI: 10.12083/SYSJ.220604

Reference information: LI Qin, ZENG Fanjie, TANG Shaohui, TANG Youqing, LUO Gaoquan, GU Jing, XING Ranran, YAO Huidong. Effect of thrombolysis combined with early limb functional exercise on neurological rehabilitation of patients with acute cerebral infarction[J]. Chinese Journal of Practical Nervous Diseases, 2022, 25(7): 798-802. DOI: 10.12083/SYSJ.220604

months after treatment, the Barthel index score of the observation group was significantly higher than that of the control group ($t=4.605$ and 4.303 , $P < 0.05$), and the Fugl-Meyer score was significantly higher than that of the control group ($t=3.371$ and 3.866 , $P < 0.05$). The incidence of complications in the observation group was 14.29% (7/42) significantly lower than that in the control group (3.70% (2/54), $\chi^2=4.987$, $P=0.025$). **Conclusion** For patients with acute cerebral infarction, early thrombolysis combined with early limb functional exercise can significantly improve the limb motor function, promote the recovery of neurological function, with good safety.

[Key words] Acute cerebral infarction; Thrombolysis; Limb function exercise; Neurological rehabilitation; Early

急性脑梗死(acute cerebral infarction, ACI)是目前最常见的脑血管疾病之一,致残率、病死率高^[1],严重影响患者的身心健康。ACI患者的主要治疗方法包括溶栓疗法和非溶栓疗效^[2]。现阶段,国内外公认的早期治疗 ACI 的首选方法是静脉溶栓疗法(intravenous thrombolysis, IVT)^[3-4],但由于 IVT 导致的脑组织缺血再灌注损伤也严重影响患者的肢体康复,因此,早期进行康复训练至关重要。本研究选取 96 例 ACI 患者为研究对象,分析 IVT 联合早期肢体功能锻炼对 ACI 患者神经功能康复的影响。

1 对象与方法

1.1 研究对象 选取 2018-09—2020-09 中国人民解放军南部战区总医院急诊科、脑血管科收治的急性脑梗死患者 96 例为研究对象,纳入标准:(1)发病时间在 4.5 h 内;(2)经影像学检查发现缺血灶,符合缺血性脑血管病的诊断标准^[5];(3)自愿入组,签署知情同意书;(4)具有进行 IVT 的治疗指征。排除标准:(1)入组后病情加重需要有创治疗者;(2)身体素质差,合并严重器质性疾病者;(3)合并恶性肿瘤者;(4)患精神性疾病,依从性较差者。本研究经伦理委员会审核通过。按肢体功能锻炼的时间分为观察组和对照组,2 组患者一般资料比较差异无统计学意义($P > 0.05$),见表 1。

表 1 2 组患者一般资料比较

Table 1 Comparison of general data between the two groups

组别	n	性别(男/女)	年龄 /岁	病程/h	偏瘫部位	
					左侧	右侧
观察组	54	35/19	62.25±7.85	6.43±1.76	30	24
对照组	42	27/15	61.76±7.43	6.09±1.25	22	20
χ^2 值		0.003	0.310	1.061	0.095	
P值		0.957	0.756	0.291	0.756	

1.2 治疗方法

1.2.1 IVT 治疗:所有患者入院后均进行常规治疗及护理,予重组组织型纤溶酶原激活剂(recombinant tissue plasminogen activator, rt-PA)(按体质量计算),

先静脉注射需要量的 1/10,余量持续泵入 30 min。尿激酶 100 万 U 溶于 100 mL 质量浓度 0.9% NaCl 注射液中静滴,0.5 h 滴完。

1.2.2 肢体康复训练:对照组在溶栓治疗 24 h 后再给予肢体康复训练,观察组在溶栓治疗后 24 h 内进行肢体康复训练,主要包括:①健康宣教,提高患者的意识及配合度。②采取早期床上综合训练,如保持肢体功能位、定期变化体位及床上翻身等,并维持关节活动度。在偏瘫早期,康复医师辅助患者伸展上肢肘关节,而且伸展腕关节背屈。③肌肉电刺激及牵拉锻炼。④床边下肢运动训练,辅助患者进行重心转移训练,开展坐位姿势、起坐姿势矫正。病情稳定后进行被动训练,左手握患肢近端,右手握远端,渐渐活动关节,以患者疼痛耐受度为宜。⑤强化日常生活能力训练,每周治疗 5~6 次,每天约 1 h,治疗 2 周。在恢复期,指导患者进行上举训练—双手交叉握手—举过头顶—耸肩运动。耸肩期间,医师适度刺激患者肱二头肌、三角肌,同时鼓励及指导患者进行主动训练,在患者耐受情况下,指导患者进行夹腿、翻身、起坐、平衡等运动,协助患者进行日常生活进食、穿衣等锻炼。另外,协助患者进行“卧—站—走”训练,进行立位平衡、单腿负重、步行、上下楼梯训练。

1.3 观察指标 治疗前、治疗 2 周后及治疗后 3 个月由治疗师和医师共同进行下述指标的评估:以 Barthel 指数评分评估日常生活活动(activities of daily living, ADL)能力,满分 100 分,评分越高能力越强^[6]。采用 Fugl-Meyer 肢体运动功能评分评估患者的肢体运动能力,满分为 100 分^[7]。采用改良患肢关节 Ashworth 分级量表评定患侧上肢肘关节肌张力,评分越高提示肌张力升高越严重,0 级:0 分;1 级:1 分;1+级:2 分;2 级:3 分;3 级:4 分;4 级:5 分^[8]。下肢膝关节活动能力以改良的 Rankin 量表进行评定^[9]。对 2 组患者神经功能缺损情况进行评估,采用美国国立卫生研究院卒中量表(National Institutes of Health stroke scale, NIHSS)评分,分数越高提示神经功能缺损越严重^[10]。并发症发生情况:观察并记录 2 组患者

有无脑出血、肺感染。

1.4 统计学方法 应用 SPSS 20.0 统计学软件进行数据处理, ADL、肢体运动能力等指标用均数±标准差($\bar{x}\pm s$)表示, 2组比较行 t 检验, 偏瘫部位、并发症等指标用例、百分率(%)表示, 2组间比较行 χ^2 检验, 检验水准取 $\alpha=0.05$ 。

2 结果

2.1 2组患者 Barthel 指数和 Fugl-Meyer 评分比较 治疗前 2组患者 Barthel 指数、Fugl-Meyer 评分对比差异无统计学意义 ($t=0.368、0.269, P=0.714、0.788$)。治疗后 2周及治疗后 3个月, 观察组 Barthel

指数评分均明显高于对照组 ($t=4.605、4.303, P<0.001$), Fugl-Meyer 评分均明显高于对照组 ($t=3.371、3.866, P=0.001、<0.001$)。见表 2。

2.2 2组患者患肢关节 Ashworth 分级量表和 Rankin 量表评分比较 治疗前 2组患者患肢关节 Ashworth 分级量表评分 ($t=0.744, P=0.458$) 和 Rankin 量表评分 ($t=1.861, P=0.0665$) 对比差异无统计学意义 ($P>0.05$)。治疗后 2周及治疗后 3个月, 观察组患肢关节 Ashworth 分级量表评分明显低于对照组 ($t=2.369、4.456, P=0.019、<0.001$), Rankin 量表评分均明显低于对照组 ($t=2.369、4.456, P=0.019、<0.001$)。见表 3。

表 2 2组患者 Barthel 指数和 Fugl-Meyer 量表评分比较 ($\bar{x}\pm s$)

Table 2 Comparison of Barthel index and Fugl-Meyer scale between the two groups ($\bar{x}\pm s$)

组别	n	Barthel 指数评分/分			Fugl-Meyer 评分/分		
		治疗前	治疗后 2周	治疗后 3个月	治疗前	治疗后 2周	治疗后 3个月
观察组	54	37.15±12.32	57.93±9.26	70.45±9.05	38.03±9.76	58.35±9.75	77.03±12.38
对照组	42	38.06±11.62	48.75±10.22	62.56±8.73	37.49±9.75	51.06±11.42	67.09±12.64
t 值		0.368	4.605	4.303	0.269	3.371	3.866
P 值		0.714	<0.001	<0.001	0.788	0.001	<0.001

表 3 2组患者患肢关节 Ashworth 分级量表和 Rankin 量表评分比较 ($\bar{x}\pm s$)

Table 3 Comparison of Ashworth score and Rankin score of joints in the two groups ($\bar{x}\pm s$)

组别	n	Ashworth 分级量表评分/分			Rankin 量表评分/分		
		治疗前	治疗后 2周	治疗后 3个月	治疗前	治疗后 2周	治疗后 3个月
观察组	54	4.09±0.37	3.01±0.58	1.75±0.42	2.28±0.21	1.67±0.36	1.14±0.22
对照组	42	4.14±0.26	2.76±0.41	2.16±0.48	2.35±0.14	1.86±0.24	1.38±0.25
t 值		0.744	2.369	4.456	1.861	2.947	4.994
P 值		0.458	0.019	<0.001	0.846	0.004	<0.001

2.3 2组患者 NIHSS 评分比较 治疗前 2组患者 NIHSS 评分对比差异无统计学意义 ($t=1.730, P=0.086$), 观察组治疗后 2周 ($t=6.234, P<0.001$) 及治疗后 3个月 ($t=7.769, P<0.001$) NIHSS 评分均明显低于对照组。见表 4。

表 4 2组患者 NIHSS 评分比较 ($\bar{x}\pm s$)

Table 4 Comparison of NIHSS scores between the two groups ($\bar{x}\pm s$)

组别	n	NIHSS 评分/分		
		治疗前	治疗后 2周	治疗后 3个月
观察组	54	19.13±2.03	14.26±1.57	11.43±1.45
对照组	42	19.87±2.14	16.36±1.72	15.87±1.62
t 值		1.730	6.234	7.769
P 值		0.086	<0.001	<0.001

2.4 2组并发症情况比较 治疗后 3个月, 对照组患

者并发症总发生率 14.29%(7/42), 观察组为 3.70%(2/54), 观察组并发症发生率明显低于对照组 ($\chi^2=4.987, P=0.025$)。见表 5。

表 5 2组患者并发症发生率比较 [例(%)]

Table 5 Comparison of the incidence of complications between the two groups [n(%)]

组别	n	脑出血	肺部感染	总发生率/%
观察组	54	1(1.85)	1(1.85)	1.85
对照组	42	3(7.14)	4(9.52)	16.67
χ^2 值				4.987
P 值				0.025

3 讨论

ACI 是目前威胁居民生命安全的常见疾病之一, 目前临床上多采取在时间窗内进行超早期 IVT 治疗

以激活体内的纤溶系统,及时疏通堵塞的脑血管,从而改善患者近期的神经功能^[11],但 IVT 治疗后往往会引起脑缺血再灌注损伤,严重影响患者肢体运动功能的恢复^[12-13]。近年来,有学者提出应用早期康复介入治疗 ACI,国外多项研究已表明,及早实施康复治疗对 ACI 患者的肢体功能恢复有重要意义^[14],但目前国内对于该方面的研究还相对较少。

本研究显示,治疗后 2 周及 3 个月观察组 Barthel 指数评分、Fugl-Meyer 评分均明显高于对照组,患肢关节 Ashworth 分级量表评分、Rankin 量表评分和神经功能缺损评分均明显低于对照组,表明溶栓联合早期肢体功能锻炼能够显著促进机体运动功能的恢复。同时,本研究中观察组并发症发生率明显低于对照组,进一步提示对 ACI 患者早期溶栓联合早期肢体功能锻炼的安全性良好。

结合本研究结果,早期 IVT 联合早期肢体功能锻炼促进神经功能恢复的可能原因:(1)早期溶栓治疗可及时、有效地恢复缺血神经元的血供,减少神经元缺血、缺氧坏死的发生,有利于及时恢复缺血地带的突触传递,降低并发症的发生率^[15-20];(2)早期进行肢体功能锻炼利于突触功能重塑,有助于促进患者运动功能的恢复^[17,21-26];(3)早期 ACI 后易引起下运动神经元功能亢进,从而导致肌张力增高,而早期进行肢体锻炼可利用肌肉牵拉和变化体位等活动降低肌张力增高的程度^[18-19,27-33];(4)早期进行肢体锻炼能够通过大关节和肌肉训练促进肢体血液循环,加强局部肌肉的重塑能力^[20,34-49]。

对急性脑梗死患者开展早期溶栓联合早期肢体功能锻炼能够显著改善肢体运动功能,促进神经功能康复,降低并发症发生率,值得临床推广应用。

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