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颈总动脉周围交感神经网剥脱切除术治疗学龄前脑瘫患儿的疗效 及对患儿认知状况的影响*

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摘要 目的:探讨颈总动脉周围交感神经网剥脱切除术治疗学龄前脑瘫患儿的临床效果及对患儿认知状况影响。**方法:**选取 2014 年 12 月~2016 年 12 月我院收治的学龄前脑瘫患儿 84 例,根据治疗方式的不同分为观察组与对照组,每组 42 例。对照组给予常规非手术治疗,观察组给予颈总动脉周围交感神经网剥脱切除术治疗,两组患儿均进行为期 24 周的随访观察。观察和比较两组的综合功能改善情况,治疗前后发育商、智商以及 C 因子值水平的变化。**结果:**观察组综合功能改善总有效率为 95.24%(40/42),显著高于对照组的 78.57%(33/42)($P<0.05$)。治疗后 24 周,观察组患儿的发育商值为(84.5 ± 11.3),显著高于对照组(62.2 ± 12.4)($P<0.05$);观察组患儿的智商值为(80.7 ± 11.4),显著高于对照组(67.3 ± 12.1)($P<0.05$);观察组患儿的 C 因子值为(12.8 ± 4.0),显著高于对照组(9.9 ± 3.3)($P<0.05$)。**结论:**颈总动脉周围交感神经网剥脱切除术治疗学龄前脑瘫患儿的临床效果显著,可有效改善患儿的认知状况。

关键词:交感神经切除;认知状况;脑瘫;学龄前

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Clinical Efficacy of Cerebral Palsy Carotid Artery Sympathetic Nerve Net Around Stripped Resection Preschool Children with Cerebral Palsy and Effect on the Cognitive Status*

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ABSTRACT Objective: To study the clinical efficacy of cerebral palsy carotid artery sympathetic nerve net around stripped resection preschool children with cerebral palsy and effect on the cognitive status. **Methods:** 84 cases of preschool children with cerebral palsy admitted in our hospital from December 2014 to December 2016 were selected and divided into the observation group and the control group according to different methods of treatment with 42 cases in each group. The control group was given routine non-surgical treatment, while the observation group was given common carotid artery sympathetic nerve net around stripped resection treatment. Both groups of children were followed-up for 24 weeks. The comprehensive function, developmental quotient and intelligence quotient and factor C value before and after the treatment were compared between two groups. **Results:** The total effective rate of comprehensive function was 95.24% (40/42) in the observation group, which was significantly higher than that of the control group [78.57%(33/42)]($P<0.05$). At 24 weeks after treatment, the developmental quotient value was (84.5 ± 11.3) in the observation group, which was significantly higher than that of the control group (62.2 ± 12.4) ($P<0.05$); the children's IQ was (80.7 ± 11.4) in the observation group, which was significantly higher than that of the control group (67.3 ± 12.1) ($P<0.05$); the C factor value was (12.8 ± 4.0) in the observation group, which was significantly higher than that of control group (9.9 ± 3.3) ($P<0.05$). **Conclusion:** Carotid artery sympathetic nerve net around stripped resection can effectively improve the patient's cognitive status in the treatment of preschool children with cerebral palsy.

Key words: Sympathectomy; Cognitive status; Cerebral palsy; Preschool

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前言

脑瘫主要是脑组织因先天性或后天性因素导致的运动功能障碍综合征候群,临床表现为固定的非进行性损害^[1],可导致

患者的运动控制能力下降,同时促使感觉、行为、交流以及认知等一系列功能发生障碍,对患者的生存质量造成严重影响^[2]。目前,脑瘫的治疗方式包括矫形手术、脑细胞移植术以及选择性脊神经后根切断术,虽然其均能改善患者临床症状,但效果仍

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不理想,尤其是在认知状况改善方面的效果并不明显^[9]。随着医疗水平的不断进步,颈总动脉周围交感神经网剥脱切除术开始被应用于临床脑瘫患者的治疗中,且能有效改善患儿的吞咽困难、言语不清、手足徐动以及流涎等临床症状^[9]。但学龄前患儿正处于认知以及智力发育的重要阶段,颈总动脉周围交感神经网剥脱切除术是否会对患儿的认知以及智力水平产生影响尚不明确。因此,本研究主要探讨了颈总动脉周围交感神经网剥脱切除术治疗学龄前脑瘫患儿的临床效果及对患儿认知状况的影响,现将结果报道如下。

1 资料与方法

1.1 临床资料

选取我院 2014 年 12 月~2016 年 12 月收治的学龄前脑瘫患儿 84 例。其中,男 52 例,女 32 例,年龄 3~6 岁,平均年龄 4.5 ± 0.8 岁。疾病类型:共济失调 24 例,手足徐动 28 例,混合型 32 例。病因:核黄疸 30 例,新生儿窒息 18 例,早产儿 13 例,颅内出血 9 例,低体重儿 5 例,高热惊厥 6 例,其他 3 例。根据治疗方式的不同分为观察组与对照组,每组 42 例。观察组男 27 例,女 15 例,年龄 3~6 岁,平均 4.5 ± 0.9 岁。对照组男 25 例,女 17 例,年龄 3~6 岁,平均 4.5 ± 0.7 岁。两组的性别、年龄等一般临床特征比较差异均无统计学意义($P>0.05$),具有可比性。本研究所有患儿家属均签署知情同意书且经医院伦理委员会批准。

1.2 治疗方法

对照组患儿给予常规非手术治疗。观察组给予颈总动脉周围交感神经网剥脱切除术治疗,具体方法如下:所有患儿均予以气管插管全身麻醉处理,取仰卧位,采用圆枕垫于肩胛骨之间,保证头后仰,颈前突。

1.3 观察指标

双侧切口各位于胸锁乳突肌中下 1/3 内侧缘,皮下以副肾盐水浸润,切开皮肤、皮下、纵形分离颈阔肌,切开封套筋膜,将

胸锁乳突肌牵向外,肩胛舌骨肌、胸骨甲状肌牵向内,切开颈总动脉鞘,在鞘内游离长约 6 cm 颈总动脉,充分暴露颈总动脉,注意保护颈静脉以及迷走神经^[9]。置显微镜,于镜下切口正中位置,纵行切开,并向近端及远端分别以血管钳钝性剥离颈总动脉外膜,近端直至颈总动脉分叉部,远端直至颈总动脉分叉部以下约 6 cm 位置,注意避免管壁被牵拉、重叠及剥脱过深变薄,注意保护下方组织,至可见约 6 cm 动脉表面光滑,不见丝、网状结构,停止剥脱,切除已剥离的颈总动脉外膜,间断缝合颈总动脉鞘,术后彻底止血,并进行逐层缝合。两组患儿均进行为期 24 周的随访观察。

分别对比两组患儿的综合功能改善情况,治疗前后发育商、智商以及 C 因子值情况^[9],综合功能改善情况主要是通过观察流涎、吞咽、语音、运动以及智力等方面进行评价:(1)显效:自我感觉好转,综合功能改善明显;(2)有效:综合功能部分改善,自我感觉一般;(3)无效:治疗前后综合功能无明显改善。总有效率 = 显效人数占比 + 有效人数占比。发育商判定主要是根据 Gesell 发育诊断量表进行^[9],主要包括适应行为、语言行为、个人社会行为、大运动及精细运动等,得分越高发育越好^[10]。智商测定采用中国韦氏儿童智力量表进行评价^[11],得分越高表示患者智商越高。C 因子测定同样是采用中国韦氏儿童智力量表进行评价,主要是考察患儿的记忆以及注意力因素,得分越高表示患儿认知状况越好。

1.4 统计学方法

本研究数据使用 SPSS20.0 软件进行统计学分析,计数资料予以 χ^2 检验,计量资料采用 t 检验,以 $P<0.05$ 为差异具有统计学意义。

2 结果

2.1 两组患儿综合功能改善情况的对比

观察组患儿综合功能改善总有效率为 95.24%(40/42),显著高于对照组[78.57%(33/42)]($P<0.05$),见表 1。

表 1 两组综合功能改善情况的对比(例,%)

Table 1 Comparison of the improvement of comprehensive function between the two groups(n,%)

Group	Case	Markedly effective	Effective	Invalid	Total efficacy
Observation group	42	18(42.86)	22(52.38)	2(4.76)	40(95.24)
Control group	42	15(35.71)	18(42.86)	9(21.43)	33(78.57)
P		0.503	0.382	0.024	0.024

2.2 两组患儿治疗前后发育商值的比较

治疗后 24 周,观察组患儿的发育商值为(84.5 ± 11.3),显著

高于对照组的(62.2 ± 12.4)($P<0.05$),见表 2。

表 2 两组治疗前后发育商值的比较($\bar{x} \pm s$)

Table 2 Comparison of the developmental quotient between the two groups before and after treatment($\bar{x} \pm s$)

Group	Case	Before treatment	At 24 weeks after treatment
Observation group	42	52.4 ± 6.0	84.5 ± 11.3
Control group	42	52.8 ± 6.1	62.2 ± 12.4
P	-	0.763	0.000

2.3 两组患儿治疗前后智商值比较

治疗后 24 周,观察组患儿的智商值为(80.7 ± 11.4),显著高

于对照组的(67.3 ± 12.1)($P<0.05$),见表 3。

表 3 两组患儿治疗前后智商值比较($\bar{x} \pm s$)Table 3 Comparison of IQ values between two groups before and after treatment($\bar{x} \pm s$)

Group	Case	Before treatment	At 24 weeks after treatment
Observation group	42	59.2 $\pm$ 4.5	80.7 $\pm$ 11.4
Control group	42	59.7 $\pm$ 4.4	67.3 $\pm$ 12.1
P	-	0.608	0.000

2.4 两组患儿治疗前后 C 因子值比较

高于对照组的(9.9 $\pm$ 3.3) (P<0.05),见表 4。治疗后 24 周,观察组患儿的 C 因子值为(12.8 $\pm$ 4.0),显著表 4 两组患儿治疗前后 C 因子值比较(例, $\bar{x} \pm s$)Table 4 Comparison of the C factor value between two groups before and after treatment(n, $\bar{x} \pm s$)

Group	Case	Before treatment	At 24 weeks after treatment
Observation group	42	8.9 $\pm$ 2.4	12.8 $\pm$ 4.0
Control group	42	9.0 $\pm$ 2.5	9.9 $\pm$ 3.3
P	-	0.852	0.001

3 讨论

大脑的血流灌注量不足是导致脑瘫患儿出现肢体功能障碍、智力发育障碍以及姿势异常等症状的主要原因^[12]。由于损伤的严重程度及部位存在一定差异,脑瘫患者其临床表现也不尽相同,但脑组织缺氧以及脑血流障碍是不同类型脑瘫的共同病理基础^[13]。近年来,全球范围内脑瘫的发生率约为 1%,患者数量较为庞大,严重影响了儿童的身心健康,寻找有效的治疗手段显得尤为重要。

本研究结果显示观察组患儿综合功能改善总有效率为 95.24%(40/42),显著高于对照组的 78.57%(33/42),说明此手术疗法对学龄前脑瘫患儿的果显著^[14]。其主要原因可能在于颈总动脉除了自身管壁结构外,其舒张和收缩主要是受交感神经支配,而交感神经主要是以网状的结构分布与颈总动脉和颈内动脉外膜中,在外膜交感神经网切除后会导致血管扩张,从而增加了血流量,进一步改善脑组织的微循环缺血状态^[15],同时对侧支循环的建立也起到了一定的促进作用,最终促进了处于临界状态的脑细胞功能得到较好的恢复^[16,17]。人类脑血流量的供应主要依赖双侧颈动脉,但其周围具有丰富的交感神经纤维限制了颈动静脉的扩张收缩^[18]。颈总动脉周围交感神经网剥脱切除术能够切断动静脉之间的末梢神经,神经反射传导功能失调能够增强血管反应性^[19]。因此,副交感神经兴奋性增强促使了脑血流量增加,也促发邻近神经元细胞活跃度增加,改善了脑组织的功能^[20]。颈总动脉周围的网状外膜层较为疏松,有利于剥离,从而有效避免了对周围组织造成损害,保证了血管壁的稳固性,具有较好的安全性^[21-23]。

此外,观察组治疗后 24 周各项值均显著高于对照组,提示颈总动脉周围交感神经网剥脱切除术并不能在短期内给脑瘫患儿的认知水平带来改善作用,但长期的认知状态改善效果显著。颈总动脉周围交感神经网剥脱切除术可有效切断动静脉之间的末梢神经,促使神经发射传导功能失调,增强血管反应,随着副交感神经兴奋性的增强脑血流量增加,增强了部分临近的神经元细胞活性,达到改善脑组织功能的目的^[24-26]。本研究结果提示了颈总动脉周围交感神经网剥脱切除术对患儿认知水

平的改善可能伴随着患儿的生长发育过程。而学龄前儿童正处于认知水平飞速发展的阶段,与正常发育的儿童相比,脑瘫患儿认知水平的发展一般是迟滞的^[27],手术治疗会有效改善对患儿今后的生长发育,无疑具有极大的临床价值^[28],因此本治疗术式对其认知状态的改善具有积极意义。另有研究报道认为^[29,30]颈总动脉周围交感神经网剥脱切除术具有一定程度的短期不良作用,会导致患儿出现脑组织高灌注状态,从而引发头痛、癫痫以及其他严重并发症的发生。因此,在对患儿进行手术治疗前应仔细评估病情,并根据患儿的具体情况可在手术前后采用 TCD 检查,及时明确脑血流变化情况,一旦发生高灌注情况立即予以血压控制、脱水等对症治疗。

综上所述,颈总动脉周围交感神经网剥脱切除术治疗学龄前脑瘫患儿的临床效果显著,可有效改善患儿的认知状况。

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