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语言障碍儿童认知功能现状及影响因素分析

Analysis of the Current Status and Influencing Factors of Cognitive Function in Children with Language Disorders

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【摘要】目的 分析语言障碍儿童的认知功能现状及影响因素。**方法** 对2021年1月~2023年12月收治的107例语言障碍儿童进行韦氏儿童智力量表测试(wechsler intelligence scale for children, WISC),低于70分的患儿为认知功能障碍组(n=42),其余为对照组(n=66),比较两组患儿临床特征,分析语言障碍儿童认知功能降低的危险因素。**结果** 107例语言障碍儿童中,42例(39.25%)存在认知功能障碍,平均WISC评分为 86.84 ± 12.84 分,低于正常水平。与对照组比较,认知功能障碍组患儿父母双亡的比例显著增加(23.81% vs. 6.06%, $P < 0.05$);平均每周户外运动时长显著缩短(3.12 ± 1.24 vs. 5.26 ± 1.47 h, $P < 0.001$);病程显著延长(4.26 ± 2.12 vs. 3.12 ± 1.58 年, $P = 0.002$);语言行为评分显著下降(28.47 ± 7.93 vs. 34.93 ± 8.03 , $P < 0.001$);脑瘫患儿比例显著增加(28.57% vs. 6.06%, $P < 0.05$)。多因素logistics回归分析显示,平均每周户外运动时长、病程、语言行为评分、脑瘫是语言障碍儿童认知功能障碍的独立影响因素。**结论** 语言障碍儿童认知功能障碍的发生率较高,应针对相关危险因素进行早期干预。

【关键词】 语言障碍;儿童;认知功能;韦氏儿童智力量表

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【Abstract】Objective To analyze the current status of cognitive functions in children with language disorders, and to analyze the risk factors for cognitive decline in children with language disorders. **Method** From January 2021 to December 2023, 107 children with language disorders admitted to the First Affiliated Hospital of Xinjiang Medical University and Xinjiang Uygur Autonomous Region Children's Hospital were prospectively collected. The Wechsler Intelligence Scale for Children (WISC) was used to assess all children, and those with scores below 70 were defined as the cognitive impairment group (n=42), while the rest were the control group (n=66). The main clinical characteristics of the two groups of children were compared, and the risk factors for cognitive impairment in children with language disorders were analyzed. **Results** Among the 107 children with language disorders, 42 (39.25%) had cognitive impairment, with an average WISC score of 86.84 ± 12.84 points, lower than the normal level. Compared with the control group, the proportion of parents who died in the cognitive impairment group significantly increased (23.81% vs. 6.06%, $P < 0.05$). The average weekly outdoor exercise duration was significantly shortened (3.12 ± 1.24 vs. 5.26 ± 1.47 h, $P < 0.001$). The course of the disease was significantly prolonged (4.26 ± 2.12 vs. 3.12 ± 1.58 years, $P = 0.002$). The score for language behavior significantly decreased (28.47 ± 7.93 vs. 34.93 ± 8.03 , $P < 0.001$). The proportion of children with cerebral palsy significantly increased (28.57% vs. 6.06%, $P < 0.05$). Multivariate logistic regression analysis showed that average weekly outdoor exercise duration, disease duration, language behavior scale score, and cerebral palsy were independent influencing factors of cognitive impairment in children with language disorders. **Conclusion** The incidence of cognitive dysfunction in children with language disorders is relatively high, and early intervention should be targeted at relevant risk factors.

【Key words】 Language disorders; Children; Cognitive function; Wechsler intelligence scale for children

语言是个体重要的交际工具,是人与人主要的沟通方式,脑瘫、孤独症、颅内病变等均可导致儿童出现语言障碍^[1]。语言障碍儿童在学习、情绪表达等方面明显受

限,可出现智力、认知功能发展迟缓或障碍,目前对语言障碍儿童认知功能特点的关注较少。儿童期是认知功能发展的关键时期^[2, 3]。认知功能的重要组成部分是执行

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功能,是对早期自我控制和实现目标至关重要认知过程的集合^[4,5],包括工作记忆(在短时间内持有和操纵信息的能力)、反应抑制(抑制冲动行为和抵抗干扰的能力)和认知灵活性(根据波动环境调整思维的能力)。此外,执行功能涉及情绪调节和词汇发展。早期认知功能可预测后期发展,包括入学准备、学业成绩、行为问题和生活质量^[6,7]。因此,早期优化认知功能很重要。为了掌握语言障碍儿童的认知功能特点,早期优化干预措施,本研究分析语言障碍儿童的认知功能现状及其认知功能降低的危险因素。

1 资料与方法

1.1 一般资料

2021年1月~2023年12月收集新疆医科大学第一附属医院和新疆维吾尔自治区儿童医院收治的语言障碍儿童107例,进行韦氏儿童智力量表(wechsler intelligence scale for children, WISC)评估,低于70分的患儿为认知功能障碍组($n=42$),其余为对照组($n=66$)。纳入标准:①语言障碍;②年龄6~16岁;③可以配合完成本研究。排除标准:①合并其他神经系统疾病;②视力障碍或听力障碍;③并发癫痫;④先天性脏器功能障碍;⑤不同意参与本研究。本研究征得新疆医科大学第一附属医院和新疆维吾尔自治区儿童医院伦理委员会批准(k202012-23),所有患儿监护人均已签署知情同意书。

1.2 观察资料

收集患儿年龄、性别、身体体重指数、受教育年限、家庭年收入、父母婚姻状态、主要监护人文化程度、平均每周户外运动时长、病程、语言行为(verbal behavior assessment scale, VerBAS)评分、语言障碍类型、WISC评分。

语言行为 VerBAS 评分共 12 个项目,每个项目 1~5 分,总分 60 分,得分越低,表明症状越严重。WISC 评分:总分 < 70 则认定存在认知功能障碍^[8]。

1.3 统计分析

采用 SPSS 26.0 进行数据分析, $P < 0.05$ 表示差异存在统计学意义。两组患者计量资料符合正态分布,采用 $\bar{x} \pm s$ 表示,独立样本 t 检验分析组间差异;两组患者计数资料采用 $n(\%)$ 表示,卡方检验分析组间差异;采用多因素 logistics 回归分析语言障碍儿童认知功能障碍的影响因素。

2 结果

2.1 语言障碍儿童认知功能障碍特点

107 例语言障碍儿童中,42 例(39.25%)存在认知功

能障碍,平均 WISC 评分 86.84 ± 12.84 分,低于正常水平。

2.2 两组儿童主要临床特征分析

与对照组比较,认知功能障碍组患儿父母双亡的比例显著增加(23.81% vs. 6.06%, $P < 0.05$);平均每周户外运动时长显著缩短(3.12 ± 1.24 vs. 5.26 ± 1.47 h, $P < 0.001$);病程显著延长(4.26 ± 2.12 vs. 3.12 ± 1.58 年, $P = 0.002$);语言行为 VerBAS 评分显著下降(28.47 ± 7.93 vs. 34.93 ± 8.03 , $P < 0.001$);脑瘫患儿比例显著增加(28.57% vs. 6.06%, $P < 0.05$),见表 1。

2.3 语言障碍儿童认知功能障碍的危险因素分析

结局变量为认知功能障碍,赋值为 1,无认知功能障碍赋值为 0;自变量的赋值情况见表 2。多因素 logistics 回归分析显示平均每周户外运动时长、病程、VerBAS 评分、脑瘫是语言障碍儿童认知功能障碍的独立影响因素,见表 2。

3 讨论

语言障碍是常见的神经发育障碍,可导致患儿表达能力、理解能力和社交能力缺陷,主要表现为阅读理解与写作表达困难和社会能力不足等^[9],同时伴有认知功能受损。本研究共纳入 107 例语言障碍儿童,39.25% 存在认知功能障碍,平均 WISC 评分为 86.84 ± 12.84 分,正常儿童 WISC 评分在 90 分以上^[10-12],说明语言障碍儿童认知功能障碍的发生率较高,可能与语言表达和理解能力受损有关;语言障碍受环境、心理、生理、病理及其他因素影响,语言输出、输入障碍可导致情绪困扰、神经系统结构问题,导致发育迟缓,造成认知功能障碍。

本研究发现,平均每周户外运动时长、病程、VerBAS 评分、脑瘫是语言障碍儿童认知功能障碍的独立影响因素,相对危险度分别为:0.872(95% 可信区间:0.712~0.909)、1.089(95% 可信区间:1.023~1.098)、0.843(95% 可信区间:0.702~0.898)、3.724(95% 可信区间:1.896~7.314),说明户外运动是认知功能障碍的保护因素,而病程长、语言障碍严重和脑瘫是认知功能障碍的危险因素。户外运动可刺激大脑多个区域,包括前额叶皮质和海马体,提高患儿的记忆、学习和情绪调节能力^[13];还可提高儿童神经可塑性与环境适应能力;此外,还能促进情绪和行为改善^[14,15]。患儿与同龄人互动,有利于生长发育和认知功能的发展。病程长、语言障碍严重,易被同龄人孤立、排斥,产生情绪困扰和神经系统问题,导致发育迟缓,使认知功能发展延缓^[16];语言障碍儿童更易焦虑、抑郁等,显著影响其认知功能发展^[17,18]。本研究显示脑瘫显著增加了语言障碍儿童认知功能障碍的发生风险,脑瘫是引起儿童语言障碍的常见类型,相较于其他疾病,脑瘫

表1 两组儿童主要临床特征分析

变量	认知功能障碍组(n=42)	对照组(n=66)	t/χ ²	P	
年龄(岁)	11.84±3.12	12.04±2.78	0.347	0.729	
性别[n(%)]	男性	24(57.14)	40(60.61)	0.128	0.721
	女性	18(42.86)	26(39.39)		
身体体重指数(kg/m ²)	23.82±2.71	24.05±2.80	0.421	0.674	
受教育年限(年)	5.12±1.84	5.43±1.70	0.895	0.373	
家庭年收入[n(%)]	≥20万	22(52.38)	34(51.52)	0.007	0.930
	<20万	20(47.62)	32(48.48)		
父母亲状态[n(%)]	双亲健在	20(47.62)	41(62.12)	7.282	0.026*
	单亲	12(28.57)	21(31.82)		
	父母双亡	10(23.81)	4(6.06)		
监护人文化程度[n(%)]	大学本科或以上	28(66.67)	46(69.70)	0.109	0.741
	大学本科以下	14(33.33)	20(30.30)		
平均每周户外运动时长(h)	3.12±1.24	5.26±1.47	7.825	<0.001*	
病程(年)	4.26±2.12	3.12±1.58	3.194	0.002*	
语言行为 VerBAS 评分	28.47±7.93	34.93±8.03	4.095	<0.001*	
语言障碍类型[n(%)]	发音障碍	4(9.52)	11(16.67)	11.376	0.010*
	脑瘫	12(28.57)	4(6.06)		
	孤独症	12(28.57)	18(27.27)		
	语言发育迟缓	14(33.33)	33(50.00)		

*P<0.05, 下同

表2 语言障碍儿童认知功能障碍的危险因素分析

变量	赋值	B	标准误	Wald	P	相对危险度	95%可信度
父母双亡	1是,0否	1.394	0.462	2.994	0.092	1.264	0.893~1.983
平均每周户外运动时长	原值	1.234	0.321	4.293	0.002*	0.872	0.712~0.909
病程	原值	1.227	0.288	3.982	0.010*	1.089	1.023~1.098
VerBAS 评分	原值	1.299	0.318	5.124	0.001*	0.843	0.702~0.898
脑瘫	1是,0否	1.315	0.344	21.614	0.000*	3.724	1.896~7.314
常数	—	-7.097	1.082	43.026	0.000*	0.001	—

儿童伴有大脑多区域受损,导致学习、记忆、思维等各方面能力显著下降,进而导致认知功能障碍^[19, 20]。由于本研究为单中心临床研究,需在多中心、前瞻性临床研究中进一步证实本研究的结论。

综上所述,语言障碍儿童认知功能障碍的发生率较高,平均每周户外运动时长、病程、VerBAS 评分、脑瘫是语言障碍儿童认知功能障碍的独立影响因素。因此,应注意观察语言障碍儿童的认知功能状态,尤其是存在相关危险因素的患儿,要早期防治,以优化其认知功能发展进程。

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