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低温等离子射频消融术治疗小儿阻塞性呼吸暂停综合征的临床疗效观察*

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摘要 目的:探究低温等离子射频消融术治疗小儿阻塞性呼吸暂停综合征的临床疗效。**方法:**收集 2014 年 5 月到 2016 年 5 月来我院就诊的小儿阻塞性呼吸暂停综合征患者 72 例,根据随机数字对照表分为对照组与试验组,各 36 例。对照组采用传统手术治疗切除患儿肥大的扁桃腺及腺样体,试验组实施低温等离子射频消融术。比较两组患者临床疗效、行为状况及 VAS 评分。**结果:**治疗后,对照组的总有效率为 91.67%;试验组的总有效率为 94.45%,两组比较差异无统计学意义($P>0.05$);治疗后,两组患儿 CBCL 量表总评分均较治疗前明显降低($P<0.05$),抑郁、社交退缩、多动、违纪及攻击各项评分均明显降低($P<0.05$),但是试验组各项评分及总评分与对照组相比并无明显差异($P>0.05$);试验组手术后 VAS 评分明显低于对照组($P<0.05$)。**结论:**低温等离子射频消融术对小儿阻塞性呼吸暂停综合征患者有明显的治疗效果,且对患儿损伤较小。

关键词:低温等离子射频消融术;阻塞性呼吸暂停综合征;VAS

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Clinical Efficacy of Low Temperature Plasma Radiofrequency Ablation in the Treatment of Children with Obstructive Apnea Syndrome*

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ABSTRACT Objective: To investigate the clinical efficacy of low temperature plasma radiofrequency ablation in the treatment of children with obstructive apnea syndrome. **Methods:** 72 children with pediatric obstructive apnea syndrome who were treated in our hospital from May 2014 to May 2016 were collected and randomly divided into the control group and experiment group with 36 cases in each group. Patients in the control group were treated by traditional surgery with the remove of the hypertrophic tonsil and adenoid, while the patients in the experiment group were treated by low temperature plasma radiofrequency ablation. Then the clinical efficacy, behavior status and VAS scored in the two groups were observed and compared before and after the treatment. **Results:** The total effective rate in the experiment was 94.45%, which was higher than 91.67% in the control group, while there was no statistically significant difference between the two groups ($P>0.05$); After treatment, the CBCL scale total scores and depression, social withdrawal, hyperactivity, discipline and attacked scores of both groups were significantly decreased than those before treatment ($P<0.05$); There was no statistically significant difference in the CBCL scale total score and depression, social withdrawal, hyperactivity, discipline and attacked scores between the two groups after the treatment ($P>0.05$); After treatment, the VAS score of the experiment group was significant lower than that of the control group ($P<0.05$). **Conclusion:** Low temperature plasma radiofrequency ablation had obvious effect in the treatment of children with obstructive apnea syndrome, which could reduce the the CBCL scale score, improve the behavior and it was worthy of clinical promotion.

Key words: Low temperature plasma radiofrequency ablation; Obstructive apnea syndrome; Children; VAS

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前言

阻塞性呼吸暂停综合征(obstructive sleep apnea and hypopnea syndrome, OSAHS)是在睡眠期间由于上气道阻塞而引起的呼吸暂停、低通气,临床表现为睡眠打鼾、白天嗜睡及低氧血症等^[1,2],流行病学资料显示阻塞性呼吸暂停综合征在儿童中的发病率大约为 2%,常可导致儿童颌面部发育畸形以及患儿注意

力不集中等,因此对于小儿阻塞性呼吸暂停综合征患者的家长应引起足够的重视^[3-5]。目前,临床上治疗阻塞性呼吸暂停综合征有手术和非手术两种方法,非手术治疗方法包括经鼻持续气道正压通气治疗及口腔矫治器治疗等,常用手术治疗包括扁桃腺、腺样体切除术、舌体缩小成形术等。由于小儿阻塞性呼吸暂停综合征多是由于扁桃腺、腺样体先天肥大导致,因此扁桃腺、腺样体切除术是目前治疗小儿阻塞性呼吸暂停综合征最为有

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效的方法,但是其对儿童造成的创伤较大^[6]。低温等离子射频消融术是一种微创疗法,近年来研究显示其对于治疗阻塞性呼吸暂停综合征效果较好^[7-8],但是对于低温等离子射频消融术对于小儿阻塞性呼吸暂停综合征治疗效果的报道较少。因此,本研究以我院就诊的72例小儿阻塞性呼吸暂停综合征患者为研究对象,探讨了低温等离子射频消融术治疗阻塞性呼吸暂停综合征的临床疗效。

1 资料与方法

1.1 临床资料

本研究选取2014年5月~2016年5月到我院就诊的小儿阻塞性呼吸暂停综合征患者72例,按随机数字表法将72例患者随机分配为试验组与对照组。试验组36例,男女比为20/16,平均年龄 (8.26 ± 2.08) 岁,平均病程 (2.42 ± 1.63) 年;对照组36例,男女比为18/18,平均年龄 (8.33 ± 2.17) 岁,平均病程 (2.57 ± 1.55) 年。两组患者一般资料在统计学上没有明显差异($P>0.05$),组间具有可比性。所有入选患儿均有睡眠打鼾、睡眠时张口呼吸、日间嗜睡等临床表现,患儿由于深睡眠少,睡眠质量下降,很容易出现白天注意力难以集中,部分患儿颌面部生长发育出现异常,临床检查见扁桃体肥大或腺样体肥大,同时符合儿童阻塞性睡眠呼吸暂停低通气综合征诊断标准(见1.2),并排除单纯鼾症、中枢性睡眠呼吸低通气暂停综合征、喉痉挛等疾病。患儿家长知情本试验具体方案,并同意参与。

1.2 诊断标准

多导睡眠图检测是诊断阻塞性呼吸暂停综合征的最重要的手段,可以鉴定患儿病情的严重程度以及治疗方法的有效性。多导睡眠图监测通常在患儿夜间睡眠时进行,通常监测4小时以上,主要记录脑电图、眼动图、颊肌肌电图、心电图、血氧饱和度及口鼻气流等指标。通过使用红外线指血氧计检测患儿动脉血氧饱和度。通过使用压力或温度传感器检测患儿口鼻气流,从而判断患儿是否存在呼吸暂停及低通气,同时以患儿夜间睡眠时每小时出现呼吸暂停低通气的次数判断患儿病情的严重程度,记为呼吸暂停低通气指数(apnea and hypopnea index,AHI)。小儿动脉血氧饱和度下降大于4%以及AHI指数大于1诊断为小儿阻塞性呼吸暂停综合征。

1.3 治疗方法

对照组采用传统手术治疗全麻下切除患儿肥大的扁桃体及腺样体。试验组采用低温等离子射频消融术,由于儿童不能够很好的配合治疗,实施局部麻醉依从性较差,因此患儿均采用全身麻醉,行气管插管,消毒口鼻部。使用开口器暴露口咽部,使用美国Arthrocare公司生产的低温等离子射频消融手术系统及一次性Reflex55刀头,能量调节为5-7档,根据是否存在扁桃体或腺样体肥大,决定射频消融扁桃体或腺样体,若两

者均有肥大,应依次射频消融左右扁桃体及腺样体。对于扁桃体肥大者,术者通过控制脚踏板对左右扁桃体从上到下选择3个刺入点进行射频消融,如果术中出现,立即使用电凝止血,直到扁桃体明显缩小,黏膜苍白为止。对于腺样体肥大者,术者充分暴露腺样体后,在鼻内镜的辅助下,将等离子刀头从口腔伸入到鼻咽部,根据腺样体肥大程度选取几个刺入点进行射频消融,同时应使用0.9%生理盐水冲洗,及时处理出血点,直到黏膜苍白为止,注意术中切勿伤及咽鼓管圆枕、咽隐窝等周围重要组织。对于同时存在扁桃体及腺样体肥大患者依次进行射频消融。术后进行心电监护及面罩吸氧8小时,确保一切正常后送回病房,常规给予静脉注射抗生素3天,并使用氯己定漱口水常规口腔护理,同时术后3天给予流食,术后2周给予患儿半流食。所有患者均进行半年随访。

1.4 观察指标

1.4.1 临床疗效 根据中华医学会耳鼻喉科学分会制定的儿童阻塞性睡眠呼吸暂停低通气综合征的诊疗指南将临床疗效分为:治愈:动脉血氧饱和度大于92%,AHI每小时低于5次,临床症状基本消失;显效:AHI降低50%以上,临床症状明显改善;有效:AHI降低25%以上,临床症状减轻;无效:AHI降低25%以下,临床症状无改善。总有效率=治愈+显效+有效。

1.4.2 Achenbach 儿童行为量表评分 儿童行为量表(Child behavior checklist,CBCL)是针对4到16岁儿童制订的,能够反映儿童行为问题的量表,也是行为量表中最为广泛应用的量表。本研究选取家长用的CBCL量表,由家长对患儿手术前及术后半年的行为进行评定,将113项问题得分记为总得分,分数越高,说明患儿存在的行为问题越大。

1.4.3 VAS 评分 采用视觉模拟评分法(VAS),通过视觉模拟尺进行术后12小时患儿术后疼痛进行评分,该标尺从0到10,颜色从浅到深,通过患儿自身对术后疼痛的判断来指示标尺位置,从而判断术后12小时患儿疼痛程度。

1.5 统计学指标

数据处理使用SPSS13.0软件,CBCL评分、VAS评分采用均数±标准差表示,使用t检验分析有无统计学差异,临床总有效率用%表示,使用卡方检验分析有无统计学差异,均以 $P<0.05$ 为差异具有统计学意义。

2 结果

2.1 两组临床疗效比较

治疗后,对照组的总有效率为91.67%;试验组的总有效率为94.45%,两组比较无统计学差异($P>0.05$),表面试验组疗效与对照组传统治疗方法疗效相当,见表1。

2.2 两组治疗前后 CBCL 量表评分比较

治疗前,两组患者各症状评分及总评分均无明显差异($P>0.05$)。

表1 两组患者临床疗效比较 [例(%)]

Table 1 Comparison of the clinical curative effect between two groups[n(%)]

Groups	Cure	Excellence	Effective	Invalid	Clinical curative effect rate
Experimental group (n=36)	18(50.00)	11(30.56)	5(13.89)	2(5.55)	34(94.45)
Control group (n=36)	19(52.78)	9(25.00)	5(13.89)	3(8.33)	33(91.67)

05)。治疗结束后,两组患者抑郁、社交退缩、多动、违纪及攻击各项评分及总评分并无明显差异($P>0.05$),见表2。评分及总评分均明显降低($P<0.05$),但是试验组与对照组相比,

表2 两组患者治疗前后 CBCL 量表各因子评分及总分比较 ($\bar{x} \pm s$, 分)

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

Symptoms	Before treatment		After treatment	
	Control group	Experimental group	Control group	Experimental group
Depressed	5.35 $\pm$ 1.12	5.28 $\pm$ 0.91	3.07 $\pm$ 0.35*	2.78 $\pm$ 0.27*
Social withdrawal	2.12 $\pm$ 0.68	2.05 $\pm$ 0.57	1.05 $\pm$ 0.25*	0.98 $\pm$ 0.18*
Somatic complaints	3.11 $\pm$ 0.47	3.27 $\pm$ 0.38	2.80 $\pm$ 0.38	2.93 $\pm$ 0.32
Split force	1.87 $\pm$ 0.35	1.90 $\pm$ 0.38	1.52 $\pm$ 0.30	1.60 $\pm$ 0.23
Hyperactivity	4.75 $\pm$ 1.33	4.42 $\pm$ 1.21	2.16 $\pm$ 0.29*	2.23 $\pm$ 0.17*
Sexual problems	1.24 $\pm$ 0.36	1.05 $\pm$ 0.24	1.07 $\pm$ 0.13	0.97 $\pm$ 0.10
Discipline	4.64 $\pm$ 1.32	4.57 $\pm$ 1.40	2.56 $\pm$ 0.56*	2.40 $\pm$ 0.47*
Attack	11.33 $\pm$ 1.95	10.91 $\pm$ 2.13	4.30 $\pm$ 1.12*	4.56 $\pm$ 1.20*
Total score	34.55 $\pm$ 4.20	33.70 $\pm$ 4.97	18.35 $\pm$ 2.16*	18.06 $\pm$ 2.04*

Note: Compared with the control group, * $P<0.05$.

2.3 两组术后 VAS 评分比较

治疗后,试验组患儿 VAS 评分(2.23 $\pm$ 1.31)明显低于对照组(5.35 $\pm$ 1.02, $P<0.05$),表明试验组低温等离子射频消融术对患儿创伤明显小于对照组传统手术切除扁桃体及腺样体治疗。

3 讨论

小儿阻塞性呼吸暂停综合征是由于睡眠时上气道阻塞引起小儿睡眠呼吸暂停、低通气等,严重影响患儿睡眠质量,由于小儿正处于生长发育期,睡眠不足可导致小儿智力发育障碍,同时由于阻塞性呼吸暂停综合征常伴有张口呼吸,长期张口呼吸可导致颌面部发育畸形等。因此,儿童一旦诊断为阻塞性呼吸暂停综合征,家长应引起高度重视^[9-11]。

研究表明^[12-14] 儿童阻塞性呼吸暂停综合征多是由于扁桃体、腺样体肥大所致,因此目前临床上治疗儿童阻塞性呼吸暂停综合征多采用手术切除扁桃体及腺样体,但是对于儿童的创伤性较大,术后出血较多,术后护理复杂。低温等离子射频消融术作为一种微创疗法,利用双极射频产生的能量使电解液产生带电离子,利用带电离子使组织细胞溶解能够使肥大的扁桃体及腺样体缩小,从而治疗阻塞性睡眠呼吸暂停低通气综合征^[15,16]。术中使用低温等离子刀进行边切割、边止血,对组织损伤较小,能够缩短手术时间,同时由于低温可以减轻对组织的损伤,患者术后反应轻,术后伤口愈合较快,对于扁桃体肥大者,射频消融可以保留扁桃体免疫功能,在成人睡眠呼吸暂停综合征的治疗有较好的疗效^[17-19],但是对于儿童阻塞性睡眠呼吸暂停低通气综合征的疗效目前报道较少。

本研究选取 72 例小儿阻塞性呼吸暂停综合征患者,根据随机数字对照表分为对照组与试验组,对照组选取目前临床上治疗效果最好的方法作为金标准^[20],采用传统手术治疗切除患儿肥大的扁桃体及腺样体,试验组实施低温等离子射频消融术,由专业的耳鼻喉科医生操作,术中手法轻柔,减少对组织牵

拉,避免伤及周围组织,所有患者术后均无水肿等并发症,术后随访半年发现,试验组的临床效果与对照组相当;同时我们选取儿童行为量表对儿童行为问题进行评估,两组治疗后总评分及抑郁、社交退缩、多动、违纪及攻击评分均明显降低,说明治疗结束后患儿行为有明显改善,但是试验组与对照组比较无明显差异;对患儿术后 VAS 评分比较,试验组明显低于对照组,说明低温等离子射频消融术对患儿损伤较小,术后患儿疼痛减轻,较传统治疗方法有明显的优越性。

综上所述,低温等离子射频消融术能够较好治疗小儿阻塞性呼吸暂停综合征,对患儿损伤最小,术后出血风险低,患儿术后恢复时间短,可替代传统手术疗法治疗儿童阻塞性呼吸暂停综合征。

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