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鼻内镜下腺样体切除术联合鼓膜置管术对分泌性中耳炎患儿血清炎症因子和T细胞亚群的影响*

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摘要 目的：探讨鼻内镜下腺样体切除术联合鼓膜置管术对分泌性中耳炎（SOM）患儿血清炎症因子和T细胞亚群的影响。**方法：**选取2016年8月~2018年12月期间我院收治的SOM患儿113例，上述患儿根据随机数字表法分为对照组（n=56）和研究组（n=57），对照组患儿予以鼓膜置管术治疗，研究组则在对照组的基础上联合鼻内镜下腺样体切除术治疗，比较两组患儿疗效、血清炎症因子、T细胞亚群、中耳积液时间、语频区气导平均听阈及并发症。**结果：**研究组术后3个月的临床总有效率为94.74%（54/57），高于对照组的75.00%（42/56）（P<0.05）。两组术后3个月血清白介素-2（IL-2）、白介素-6（IL-6）及肿瘤坏死因子-α（TNF-α）水平均下降，且研究组低于对照组（P<0.05）。两组术后3个月$CD8^+$下降，且研究组低于对照组（P<0.05）；$CD4^+$、$CD4^+/CD8^+$升高，且研究组高于对照组（P<0.05）。研究组中耳积液时间短于对照组，语频区气导平均听阈高于对照组（P<0.05）。两组术后并发症发生率比较无差异（P>0.05）。**结论：**鼻内镜下腺样体切除术联合鼓膜置管术治疗SOM患儿，疗效显著，可有效改善血清炎症因子、T细胞亚群、中耳积液时间及语频区气导平均听阈，且安全性较好，临床应用价值较高。

关键词：鼻内镜；腺样体切除术；鼓膜置管术；分泌性中耳炎；炎症因子；T细胞亚群

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The Effect of Adenoidectomy Combined with Tympanic Intubation under Nasal Endoscopy on Serum Inflammatory Factors and T Cell Subsets in Children with Secretory Otitis Media*

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ABSTRACT Objective: To investigate the effect of adenoidectomy combined with tympanic intubation under nasal endoscopy on serum inflammatory factors and T cell subsets in children with secretory otitis media (SOM). **Methods:** From August 2016 to December 2018, 113 children with SOM in our hospital were selected. According to the random number table, the children were divided into the control group (n=56) and study group (n=57). The children in the control group were treated with tympanum catheterization, while the study group was treated with adenoidectomy under nasal endoscope on the basis of the control group. The efficacy, serum inflammatory factors and T cell subsets, time of middle ear effusion, average auditory valve in speech frequency area and complications of the two groups were compared. **Results:** The total clinical effective rate of the study group was 94.74%(54/57), which was higher than 75.00% (42/56) of the control group(P<0.05). The levels of serum interleukin-2(IL-2), interleukin-6(IL-6) and tumor necrosis factor-α (TNF-α) of the two groups decreased at 3 months after operation, and the levels of the study group were lower than those of the control group (P<0.05). 3 months after operation, $CD8^+$ decreased of the two groups, and it in the study group was lower than that in the control group (P<0.05). $CD4^+$, $CD4^+/CD8^+$ increased, and those in the study group were higher than those in the control group(P<0.05). The time of middle ear effusion in the study group was shorter than that in the control group, and the average auditory valve in the speech frequency area was higher than that in the control group(P<0.05). There was no significant difference between the two groups in postoperative complications (P>0.05). **Conclusion:** Adenoidectomy combined with tympanic intubation under nasal endoscopy is effective in the treatment of SOM children. It can effectively improve the serum inflammatory factors, T cell subsets, the time of middle ear effusion and the average auditory valve in the speech frequency area. It has good safety and high clinical application value.

Key words: Nasal endoscope; Adenoidectomy; Tympanic intubation; Secretory otitis media; Inflammatory factors; T cell subsets

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前言

分泌性中耳炎(Secretory otitis media,SOM)是耳鼻喉科的一种常见疾病,主要表现为中耳听力下降、中耳有分泌物等[1,2]。SOM好发于儿童群体,病情严重者言语能力、智力发育均会受到影响,给患儿及其家人的正常生活带来严重影响[3,4]。鼓膜置管术是SOM经保守治疗无效时最常用的外科治疗方法,但由于患儿多伴有腺样体肥大,腺样体肥大又是引起SOM发病的主要原因,鼻内镜下腺样体切除术可清晰观察腺样体位置,减少术中损伤[5,6]。但临床有关在置管同时切除腺样体是否疗效更佳尚有待探讨。本研究通过探讨鼻内镜下腺样体切除术联合鼓膜置管术对SOM患儿血清炎症因子和T细胞亚群的影响,以期为临床治疗提供参考。

1 资料与方法

1.1 一般资料

选取2016年8月~2018年12月期间我院收治的SOM患儿113例,纳入标准:(1)症状表现为:耳闭塞感、听力下降、耳鸣及耳痛及反应迟钝等,所有患儿经过多导睡眠监测及鼻内镜检测等确诊为SOM;(2)患儿家属知情本次研究且签署同意书;(3)患儿经保守治疗后效果不佳。排除标准:(1)患儿入组前参加了其他治疗方法的研究试验;(2)急慢性中耳炎;(3)耳内肉芽肿、占位性病变者;(4)慢性鼻咽炎或后鼻孔分泌物堵塞者。上述患儿根据随机数字表法分为对照组(n=56)和研究组(n=57),其中对照组男32例,女24例,年龄3~10岁,平均(6.58± 1.26)岁;病程3个月~2年,平均(1.36± 0.34)年;体质量指数20.8~26.3 kg/m^2,平均(23.91± 0.74)kg/m^2。研究组男34例,女23例,年龄4~10岁,平均(6.31± 1.14)岁;病程4个月~2年,平均(1.43± 0.42)年;体质量指数21.2~25.9 kg/m^2,平均(23.21± 0.83)kg/m2^2。两组患儿一般资料对比未见统计学差异(P>0.05),具有可比性。本次研究已获取我院伦理学委员会批准。

1.2 方法

两组入院后行常规全身检查,均符合手术指征,择期行手术治疗。两组患儿手术及麻醉操作均由同一组医护人员完成。对照组患儿给予鼓膜置管术治疗,具体如下:全麻,取平卧位,固定患儿头部,耳显微镜下切开鼓膜,吸出鼓膜积液,鼓膜积液完全吸出后,置入直径为1.14 mm哑铃型的硅胶通气管。研究组患儿则先给予鼻内镜下腺样体切除术治疗,采用70°的鼻内镜在电视监视下充分暴露患儿的腺样体,腺样体的周边采用弯头电动的切割器切除,中间部位腺样体采用腺样体刮匙切除,随后采用耳内镜辅助行鼓膜置管手术,鼓膜置管手术同对照组。两组患儿术后均常规应用1%麻黄素地塞米松液滴鼻7 d,抗生素3~5 d,术后视患儿恢复情况取管。

1.3 观察指标

(1)两组患儿均采用门诊复查的方式随访3个月,于末次随访时评价患儿临床疗效。疗效判定标准如下[7]:治愈:治疗后患儿听力下降、耳闭塞感、耳鸣及耳痛及反应迟钝等临床症状消失,听力恢复正常,鼓膜恢复正常;有效:听力得到提高但未能恢复正常水平,捏鼻鼓气耳内有胀痛感,治疗后上述临床症状得到明显减轻;无效:治疗后上述临床症状仍存在,听力未得到改善或再次下降,鼓膜的活动欠佳。总有效率=治愈率+有效率。(2)记录两组患儿中耳积液时间、语频区气导平均听阈。(3)记录两组术后并发症发生情况。(4)于术前、术后3个月抽取患儿空腹肘静脉血4 mL,经常规离心处理(离心半径8 cm,3400 r/min离心12 min)后分离上清液,置于-40℃冰箱中待测。选用深圳晶美生物科技有限公司试剂盒,参考试剂盒说明书步骤,采用酶联免疫吸附试验检测血清白介素-2(Interleukin-2,IL-2)、白介素-6(Interleukin-6,IL-6)及肿瘤坏死因子-α(Tumor necrosis factor-α,TNF-α)水平。采用日本奥林巴斯株式会社生产的OlympusAU400全自动生化分析仪检测T细胞亚群:CD4$^+$、CD8$^+$,并计算CD4$^+$/CD8$^+$。

1.4 统计学方法

采用SPSS25.0进行统计分析,计数资料以比或率的形式表示,采用卡方检验,计量资料以($\bar{x}$± s)的形式表示,采用t检验。以α=0.05为检验标准。

2 结果

2.1 两组疗效比较

研究组术后3个月的临床总有效率为94.74%(54/57),高于对照组的75.00%(42/56)(P<0.05);详见表1。

表1 两组疗效比较 例(%)

Table 1 Comparison of efficacy between the two groups n(%)

Groups	Cure	Valid	Invalid	Total effective rate
Control group(n=56)	12(21.43)	30(53.57)	14(25.00)	42(75.00)
Study group(n=57)	19(33.33)	35(61.40)	3(5.26)	54(94.74)
x^2				8.609
P				0.003

2.2 两组血清炎症因子水平比较

两组术前血清IL-2、IL-6、TNF-α水平比较差异无统计学意义(P>0.05);两组术后3个月血清IL-2、IL-6、TNF-α水平均下降,且研究组低于对照组(P<0.05);详见表2。

2.3 两组T淋巴细胞亚群比较

两组术前CD4$^+$、CD8$^+$、CD4$^+$/CD8$^+$比较差异无统计学意义(P>0.05);两组术后3个月CD8$^+$下降,且研究组低于对照组(P<0.05);CD4$^+$、CD4$^+$/CD8$^+$升高,且研究组高于对照组(P<0.05);详见表3。

2.4 两组中耳积液时间、语频区气导平均听阈比较

研究组中耳积液时间短于对照组,语频区气导平均听阈高于对照组(P<0.05);详见表4。

表 2 两组血清炎症因子水平比较($\bar{x}\pm s$)

Table 2 Comparison of serum inflammatory factors between the two groups($\bar{x}\pm s$)

Groups	IL-2(ng/L)		IL-6(ng/L)		TNF-α(μg/L)	
	Before operation	3 months after operation	Before operation	3 months after operation	Before operation	3 months after operation
Control group(n=56)	24.16± 2.23	15.17± 2.15*	37.85± 4.31	31.09± 4.94*	0.73± 0.09	0.53± 0.08*
Study group(n=57)	23.56± 2.65	10.23± 2.04*	38.24± 5.57	23.98± 5.87*	0.75± 0.07	0.32± 0.06*
t	1.301	12.531	0.416	6.960	1.320	15.804
P	0.196	0.000	0.678	0.000	0.190	0.000

Note: compared with before operation, *P<0.05.

表 3 两组 T 淋巴细胞亚群比较($\bar{x}\pm s$)

Table 3 Comparison of T lymphocyte subsets between the two groups($\bar{x}\pm s$)

Groups	$CD4^+$(%)		$CD8^+$(%)		$CD4^+/CD8^+$	
	Before operation	3 months after operation	Before operation	3 months after operation	Before operation	3 months after operation
Control group(n=56)	39.21± 5.59	45.15± 5.52*	34.16± 3.63	29.98± 3.62*	1.15± 0.13	1.51± 0.16*
Study group(n=57)	40.07± 6.61	49.03± 5.74*	33.89± 4.69	25.06± 4.37*	1.18± 0.18	1.96± 0.12*
t	0.746	3.661	0.342	6.511	1.014	16.933
P	0.457	0.000	0.733	0.000	0.313	0.000

Note: compared with before operation, *P<0.05.

表 4 两组中耳积液时间、语频区气导平均听阈比较($\bar{x}\pm s$)

Table 4 Comparison of time of middle ear effusion and average auditory valve in speech frequency area between two groups($\bar{x}\pm s$)

Groups	Time of middle ear effusion(h)	Average auditory valve in speech frequency area (dBHL)
Control group(n=56)	11.26± 1.71	19.16± 1.27
Study group(n=57)	7.95± 1.08	23.86± 1.76
t	12.325	16.254
P	0.000	0.000

2.5 两组术后并发症发生情况比较

对照组术后出现脱管 1 例、耳漏 2 例、骨膜钙化 2 例,并发症发生率为 8.93%(5/56);研究组术后出现耳漏 1 例、骨膜钙化 1 例,并发症发生率为 3.51%(2/57);两组术后并发症发生率比较差异无统计学意义(x^2=1.428,P=0.232)。

3 讨论

SOM 是儿童最为常见的耳鼻咽喉科疾病，多发于 3～12 岁儿童,该病发病率极高,临床主要表现为鼻窦炎、睡眠打鼾、扁桃体肥大、听力下降等,若未能及时予以治疗,病情严重者甚至会发生永久性失聪[8-10]。现临床有关 SOM 的发病机制尚不十分明确，不少学者认为 SOM 的形成主要是由于咽鼓管的通气功能发生障碍,逐渐形成负压,进而出现中耳黏膜中的静脉出现扩张,血清漏出并积聚于中耳形成鼓室积液[11-13]。此外,腺样体肥大也被认为是 SOM 发生的主要原因：腺样体释放的炎性介质能增加血管通透性,引起中耳黏膜和咽鼓管水肿;腺样体炎是一个感染灶,可引起咽鼓管的逆行性感染[14-16]。鼓膜置管术是治疗 SOM 的常用方法，但鼓膜置管术无法实现咽鼓管功能的全面恢复,最终导致病情的反复[17]。因腺样体在小儿 6~7 岁时达最大,10 岁以后才开始萎缩,故当腺样体出现病理性肥大时,很难在短期内改变对咽鼓管咽口的机械性压迫[18,19]。因此,以腺样体切除术辅助治疗 SOM,是一种有效的治疗途径。随着临床内镜技术的发展,鼻内镜下腺样体切除术可在内镜下清晰操作,对鼻黏膜损坏较少,近年来已逐渐应用于 SOM 的辅助治疗中。

本次研究结果显示，研究组术后 3 个月的临床总有效率,中耳积液时间、语频区气导平均听阈改善均优于对照组,可见鼻内镜下腺样体切除术联合鼓膜置管术治疗 SOM 患儿，可有效改善患儿临床症状,进一步优化治疗效果。鼓膜置管术可通过向鼓室通气,平衡气压,从而促进引流达到改善 SOM 症状的目的[20,21]。而鼻内镜下腺样体切除术可充分掌握腺样体位置及其与周围重要组织结构的关系,在彻底切除肥大腺样体同时可保护周围组织,术后可促进咽鼓管功能的全面恢复,提高治疗效果[22-24]。SOM 患儿由于局部炎性物质积聚,引起免疫抑制,故对两组患儿的全身炎症因子水平、免疫功能指标的测定也可有效判断 SOM 患儿的预后[25,26]。本研究中两组患儿免疫功能、炎性因子指标水平均有所改善,且鼻内镜下腺样体切除术联合鼓膜置管术治疗者的改善效果更为显著,这可能是因为联合治疗在解决鼓室积液问题的同时,还可解除咽鼓管的机械性阻塞与压迫,尤其在鼻内镜下进行切除操作,术野清晰,解剖结构清楚,可很好的保护好咽鼓管咽口及圆枕不被损伤,促进咽鼓管正常的生理功能恢复,减少局部炎性物质积聚,进而提高患儿

免疫功能[27-29]。另两组术后并发症发生率比较差异无统计学意义，可见本次研究联合治疗安全性较好，这主要是因为内镜下直视手术很大程度上增加了手术的准确性及安全性[30]。值得注意的是，手术时应先进行腺样体切除术再进行鼓膜置管术操作，以防止术后由于分泌物的残留而导致通气管的堵塞。

综上所述，鼻内镜下腺样体切除术联合鼓膜置管术治疗SOM患儿，疗效显著，可有效改善血清炎症因子、T细胞亚群、中耳积液时间及语频区气导平均听阈，且安全性较好，临床应用价值较高。

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