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复合式与传统小梁切除术对青光眼患者眼压、生活质量及血清细胞因子的影响*

张韞洁 李新章 赵 莉 索南措 张 琼

(青海红十字医院眼科 青海 西宁 810000)

摘要 目的:对比复合式与传统小梁切除术对青光眼患者眼压、生活质量及血清细胞因子的影响。**方法:**前瞻性选取 2014 年 1 月-2018 年 10 月期间我院收治的青光眼患者 80 例,随机分为 A 组[n=38,传统小梁切除术]和 B 组[n=42,复合式小梁切除术],比较两组患者视力、眼压、生活质量、血清细胞因子及并发症发生情况。**结果:**两组患者术后 1 个月、术后 3 个月、术后 6 个月眼压呈不断下降趋势,且 B 组低于 A 组($P<0.05$);B 组术后 3 个月、术后 6 个月视力高于 A 组($P<0.05$)。两组患者术后 6 个月生活质量表(SF-36)各维度评分均升高,且 B 组高于 A 组($P<0.05$)。两组患者术后 1 个月白介素-6(IL-6)、肿瘤坏死因子- α (TNF- α)、血管内皮生成因子(VEGF)均降低,且 B 组低于 A 组($P<0.05$);两组患者术后 1 个月色素上皮衍生因子(PEDF)升高,且 B 组高于 A 组($P<0.05$)。B 组并发症发生率低于 A 组($P<0.05$)。**结论:**与传统小梁切除术相比,复合式小梁切除术在改善青光眼患者中的视力、眼压、生活质量、血清细胞因子方面效果显著,同时还可减少并发症发生率。

关键词:复合式小梁切除术;传统小梁切除术;青光眼;眼压;生活质量;细胞因子

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Effect of Compound and Traditional Trabeculectomy on Intraocular Pressure, Quality of Life and Serum Cytokines in Patients with Glaucoma*

ZHANG Yun-jie, LI Xin-zhang, ZHAO Li, SUO Nan-cuo, ZHANG Qiong

(Department of Ophthalmology, Qinghai Red Cross Hospital, Xining, Qinghai, 810000, China)

ABSTRACT Objective: To compare the effects of compound trabeculectomy and traditional trabeculectomy on intraocular pressure, quality of life and serum cytokines in patients with glaucoma. **Methods:** The clinical data of 80 patients with glaucoma who were admitted to our hospital from January 2014 to October 2018 were selected prospectively, the patients were randomly divided into the group A [n=38, traditional trabeculectomy] and group B [n=42, compound trabeculectomy]. The visual acuity, intraocular pressure, quality of life, serum cytokines and complications condition of the two groups were compared. **Results:** The intraocular pressure of the two groups decreased at 1 month, 3 months and 6 months after operation, and those of group B were lower than those of group A ($P<0.05$). The visual acuity of group B at 3 months and 6 months after operation were higher than that of group A ($P<0.05$). The scores of all dimensions of the health survey scale-36 (SF-36) of the two groups at 6 months after operation increased, and those of group B were higher than those of group A ($P<0.05$). The interleukin-6 (IL-6), tumor necrosis factor- α (TNF- α) and vascular endothelial growth factor (VEGF) were decreased in both groups at 1 month after operation, and those of group B were lower than those of group A ($P<0.05$). Pigment epithelium-derived factor (PEDF) was elevated in both groups at 1 month after operation, and that of group B was higher than that of group A ($P<0.05$). The incidence of complications in group B was lower than that in group A ($P<0.05$). **Conclusion:** Compared with traditional trabeculectomy, compound trabeculectomy is effective in improving vision, intraocular pressure, quality of life and serum cytokines in patients with glaucoma, and it can also reduce the incidence of complications.

Key words: Compound trabeculectomy; Traditional trabeculectomy; Glaucoma; Intraocular pressure; Quality of life; Cytokines

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前言

青光眼属于眼科的常见疾病之一,以视野缺损、视乳头萎缩及凹陷及视力下降为主要特征^[1]。青光眼若眼压控制不当或治疗不及时,可出现不可逆的视功能损伤,严重者可致盲^[2]。目

前青光眼的治疗目标主要集中于降低眼压,最大程度的挽救患者视功能^[3]。传统小梁切除术是通过切除部分小梁组织的方式形成新的引流通路,从而有效的控制眼压,减少青光眼发作的几率,已被用于治疗临床各类青光眼^[4,5]。但近年来不少临床实践证实传统小梁切除术难以有效调控巩膜瓣缝合线,易出现过

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作者简介:张韞洁(1986-),女,本科,主治医师,研究方向:青光眼诊治,E-mail: Z18997289970@163.com

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松或过紧缝合现象,增加术后并发症发生率^[67]。近年来复合式小梁切除术在临床逐渐开展并普及,该术式具有恢复速度快、成功率高等优势^[8]。本研究通过对比复合式与传统小梁切除术对青光眼患者眼压、生活质量及血清细胞因子的影响,以期为临床治疗青光眼提供参考。

1 资料与方法

1.1 临床资料

前瞻性选取 2014 年 1 月-2018 年 10 月收治的青光眼患者 80 例,纳入标准:(1)均符合青光眼的相关标准^[9];(2)均经前房角镜及裂隙灯显微镜等检查确诊;(3)均具备手术指征者;(4)临床资料完整;(5)均为单眼患者。排除标准:(1)玻璃体出血、前房出血者;(2)意识障碍或语言障碍者;(3)合并免疫系统疾病、感染性疾病者;(4)因其他原因导致的视力障碍者;(5)合并心肝肾等重要脏器功能障碍者。根据入院单双号随机将患者分为 A 组($n=38$,传统小梁切除术)和 B 组($n=42$,复合式小梁切除术),其中 A 组女 16 例,男 22 例,年龄 17~52 岁,平均(38.62 ± 4.31)岁;病程 5~19 月,平均(12.43 ± 1.64)月;其中开角型青光眼 17 例,闭角型青光眼 21 例。B 组女 18 例,男 24 例,年龄 22~48 岁,平均(39.06 ± 4.27)岁;病程 7~22 月,平均(12.83 ± 2.19)月;其中闭角型青光眼 20 例,开角型青光眼 22 例。两组一般资料对比无差异($P>0.05$),具有可比性。

1.2 方法

A 组给予传统小梁切除术,术前经 2%利多卡因浸润麻醉患眼球周,盐酸丙美卡因滴眼液表面麻醉结膜,牵引上直肌,做结膜瓣,巩膜瓣大小为 $3 \times 4 \text{ mm}$,1/2 巩膜厚度。取颞侧角膜缘 0.5-1 mm 处做前房穿刺口,随后切除巩膜瓣下 $1.5 \times 2 \text{ mm}$ 小梁组织,并将虹膜周边切除,切除完毕后巩膜瓣进行整复,随后顶端 2 针褥式缝合,角膜缘侧切口加深前房,同时缝合球结膜切口,下方结膜下注射地塞米松 2.5mg。术后给予典必殊滴眼和抗菌药物。

B 组给予复合式小梁切除术,麻醉方式及药物、小梁切除术方法均同对照组。巩膜瓣制作完成后将棉片浸入丝裂霉素溶液($0.2-0.4 \text{ mg/mL}$)中,将其敷于巩膜瓣下,贴敷 2 min;于巩膜

瓣两侧各缝可调节缝线一针,术者需根据房水渗漏情况对缝线松紧进行调节,下方结膜下注射地塞米松 2.5 mg;术后给予典必殊滴眼、抗菌药物、眼球按摩,拆线时视患者具体情况分次拆除缝线。

1.3 观察指标

(1)所有患者术后采用门诊复查的方式随访 6 个月,记录两组不同时间点视力、眼压情况,包括术前、术后 1 个月、术后 3 个月、术后 6 个月等时间点。(2)记录并发症发生情况。(3)采用生活质量量表 (Health survey scale-36, SF-36)^[10]评价两组患者术前、术后 6 个月的生活质量。其中 SF-36 共 8 个维度,包括社会功能、生命活力、总体健康、精神健康、生理职能、躯体疼痛、情感功能、生活功能,每个维度均为 100 分,分数越高,提示生活质量越好。(4)采集患者术前、术后 1 个月的空腹肘静脉血 4 mL,采用德国 (Ferrum)公司生产的离心机经 4200 r/min 离心 13 min,离心半径 9cm,分离上清液,置于 -40°C 冰箱中待测。按照泉州市蓝图生物科技有限公司生产的试剂盒说明书进行操作,采用酶联免疫吸附试验检测血清白介素 -6 (Interleukin -6, IL-6)、血管内皮生成因子 (Vascular endothelial growth factor, VEGF)、肿瘤坏死因子 - α (Tumor necrosis factor- α , TNF- α) 以及色素上皮衍生因子 (Pigment epithelium-derived factor, PEDF) 水平。

1.4 统计学方法

使用 SPSS25.0 软件进行统计学分析,计量资料以($\bar{x} \pm s$)表示,实施 t 检验,计数资料以比或率表示,实施卡方检验, $P<0.05$ 为差异有统计学意义。

2 结果

2.1 视力、眼压比较

两组术前视力、眼压比较无差异($P>0.05$);两组患者术后 1 个月、术后 3 个月、术后 6 个月眼压呈不断下降趋势,且 B 组低于 A 组($P<0.05$);两组患者术后 1 个月、术后 3 个月、术后 6 个月视力呈先升高后降低趋势($P<0.05$),B 组术后 3 个月、术后 6 个月视力高于 A 组($P<0.05$);详见表 1。

表 1 两组视力、眼压比较($\bar{x} \pm s$)

Table 1 Comparison of visual acuity and intraocular pressure between the two groups($\bar{x} \pm s$)

Groups	Visual acuity				Intraocular pressure(mmHg)			
	Before operation	1 month after operation	3 month after operation	6 month after operation	Before operation	1 month after operation	3 month after operation	6 month after operation
Group A ($n=38$)	0.39 ± 0.06	1.27 ± 0.23^a	0.94 ± 0.16^{ab}	0.89 ± 0.18^{ab}	45.08 ± 3.26	40.91 ± 5.19^a	35.54 ± 4.21^{ab}	30.59 ± 3.25^{abc}
Group B ($n=42$)	0.41 ± 0.08	1.32 ± 0.31^a	1.26 ± 0.23^{ab}	1.24 ± 0.19^{ab}	44.87 ± 4.31	35.16 ± 3.14^a	29.49 ± 5.23^{ab}	23.85 ± 4.27^{ab}
t	1.254	0.812	5.710	8.435	0.244	6.060	5.661	7.880
P	0.213	0.419	0.000	0.000	0.808	0.000	0.000	0.000

Note: compared with before operation, ^a $P<0.05$; compared with 1 month after operation, ^b $P<0.05$; compared with 3 month after operation, ^c $P<0.05$.

2.2 两组生活质量比较

两组患者术前 SF-36 各维度评分比较差异无统计学意义

($P>0.05$); 两组患者术后 6 个月 SF-36 各维度评分均升高,且 B 组高于 A 组($P<0.05$);详见表 2。

表 2 两组生活质量比较($\bar{x} \pm s$, 分)Table 2 Comparison of quality of life between the two groups($\bar{x} \pm s$, score)

Groups	Point of time	Social function	Vitality	General health	Mental health	Physiological function	Somatic pain	Emotional function	Life function
Group A (n=38)	Before operation	57.15± 6.26	54.75± 5.63	53.48± 6.48	56.26± 5.91	65.35± 6.33	69.39± 7.23	62.24± 8.42	61.88± 7.78
	6 month after operation	65.46± 7.41*	63.46± 8.34*	67.43± 7.54*	66.35± 9.82*	74.48± 8.26*	76.11± 9.18*	81.53± 11.37*	72.24± 9.46*
Group B (n=42)	Before operation	56.34± 9.54	53.45± 8.26	52.51± 7.24	55.53± 8.54	64.77± 7.94	71.27± 8.40	61.81± 7.87	60.27± 8.17
	6 month after operation	77.38± 9.23*#	81.46± 10.23*#	84.60± 9.34*#	85.39± 9.27*#	83.79± 7.62*#	86.19± 8.30*#	88.95± 7.97*#	87.52± 9.46*#

Note: compared with before operation, * $P<0.05$; compared with group A, # $P<0.05$.

2.3 血清细胞因子比较

两组术前 IL-6、TNF- α 、VEGF、PEDF 比较无差异 ($P>0.05$); 两组术后 1 个月 IL-6、TNF- α 、VEGF 均降低, 且 B 组低于

A 组 ($P<0.05$); 两组患者术后 1 个月 PEDF 升高, 且 B 组高于 A 组 ($P<0.05$); 详见表 3。

表 3 两组血清细胞因子比较($\bar{x} \pm s$)Table 3 Comparison of serum cytokines between the two groups($\bar{x} \pm s$)

Groups	IL-6(pg/mL)		TNF- α (ng/mL)		VEGF(pg/mL)		PEDF(pg/mL)	
	Before operation	1 month after operation	Before operation	1 month after operation	Before operation	1 month after operation	Before operation	1 month after operation
Group A (n=38)	7.62± 0.91	4.73± 0.66*	2.14± 0.39	1.57± 0.25*	107.86± 13.65	85.80± 9.67*	13.31± 2.42	19.63± 4.33*
Group B (n=42)	7.49± 0.87	3.21± 0.72*	2.21± 0.26	0.93± 0.24*	104.67± 12.49	62.34± 8.19*	12.59± 3.38	25.64± 4.47*
t	0.653	9.808	0.953	11.677	1.092	11.744	0.897	6.095
P	0.416	0.000	0.344	0.000	0.278	0.000	0.373	0.000

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

2.4 并发症发生率比较

两组患者均顺利完成手术, 其中 A 组出现低眼压性黄斑水肿 3 例、前房出血 2 例、低眼压 4 例、恶性青光眼 1 例, 并发症发生率为 26.32%(10/38); B 组出现低眼压性黄斑水肿 2 例、前房出血 1 例、低眼压 1 例, 并发症发生率为 9.52%(4/42); B 组并发症发生率低于 A 组 ($\chi^2=3.896$, $P=0.048$)。

3 讨论

在我国, 青光眼主要以原发性青光眼为主, 青光眼作为一种慢性眼科性疾病, 因持续高眼压导致患者视神经受到压迫, 使得视神经处于不断萎缩状态, 逐渐缩小视野范围, 患者视力减退, 最终产生不可逆损伤失明, 严重影响患者日常生活^[11-13]。青光眼的治疗方案包括药物治疗、手术治疗, 其中药物治疗虽可有效阻止病情进展, 获得一定疗效, 但远期预后一般^[14-16]。为了有效抑制进行性视神经损伤的发展, 并改善视网膜萎缩情况, 手术治疗成了绝大部分患者的首选方案^[17]。但不同术式效果不尽相同, 且患者眼压控制情况差异较大, 故关于术式的选择方面尚存在一定争议。传统小梁切除术是既往临床用于治疗青光眼的主要术式之一, 但近年来有关其疗效颇受质疑^[18]。有研究显示传统小梁切除术后早期存在低眼压、浅前房风险,

术后后期滤过泡瘢痕化阻塞滤道、眼压复升发生率较高^[19], 故部分患者无法获得满意的治疗效果。复合式小梁切除术是在传统小梁切除术基础上整改而来的新型术式, 近年来逐渐受到医师及患者的广泛认可^[20]。

本次研究结果显示, 复合式小梁切除术患者的眼压、视力及生活质量改善情况均优于传统小梁切除术患者, 这与黄继琴等学者研究结果基本一致。分析其原因, 复合式小梁切除术术中加入了丝裂霉素 C、可调节缝线, 其中丝裂霉素 C 属于抗代谢药物, 可破坏 DNA 结构和功能、抑制成纤维细胞增殖, 可有效抑制滤过区瘢痕形成, 还可避免远期眼压控制不良现象^[21,22]。可调节缝线采用活结形式, 可根据患者具体情况将眼压控制在正常范围内^[23]。术后加入了眼球按摩及视患者情况分次拆除缝线等步骤, 可促进患眼术后恢复, 进而改善患者视力及生活质量^[24]。既往研究结果显示^[25], 青光眼的发病与视网膜缺血、缺氧及毛细血管无灌漑区等因素有关。VEGF、PEDF 被认为是血管形成抑制因子和诱导因子的典型代表, 若未能及时纠正视网膜缺血、缺氧情况, 新生血管会持续进展, 眼压持续升高^[26]。而 IL-6、TNF- α 是调节炎症反应的多功能细胞因子, 既往研究证实其在青光眼的发病过程中发挥重要作用^[27]。本次研究结果显示, 两组患者术后 1 个月 IL-6、TNF- α 、VEGF 均降低, 且 B 组

低于A组;PEDF升高,且B组高于A组。这可能是因为复合式小梁切除术可有效纠正视网膜缺血、缺氧现象,丝裂霉素C又可抑制新生血管生成,进而改善上述血清细胞因子水平^[28]。另B组并发症发生率低于A组,主要是因为复合式小梁切除术巩膜瓣缝线可在术中、术后进行调整,必要时行滤过泡按摩,促进房水滤过,提高手术质量,减少并发症发生率^[29,30]。

综上所述,与传统小梁切除术相比,复合式小梁切除术应用于青光眼的治疗,可更有效地改善患者生活质量、视力、眼压及血清细胞因子水平,同时还可减少并发症发生率。

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