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不同切口超声乳化术联合小梁切除术对白内障合并青光眼患者视力、角膜内皮细胞及生活质量的影响*

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摘要 目的:探讨不同切口超声乳化术联合小梁切除术对白内障合并青光眼患者视力、角膜内皮细胞及生活质量的影响。**方法:**回顾性分析 2018 年 4 月~2019 年 7 月期间我院收治的 150 例白内障合并青光眼患者的临床资料,根据手术方式的不同分为 A 组($n=75$,单切口超声乳化术联合小梁切除术)和 B 组($n=75$,双切口超声乳化术联合小梁切除术)。比较两组患者眼压、裸眼视力、最佳矫正视力、角膜内皮细胞、生活质量及并发症。**结果:**两组术后 3 个月健康调查简表(SF-36)各维度评分均升高,且 B 组高于 A 组($P<0.05$)。两组术后 3 个月眼压均降低,且 B 组低于 A 组($P<0.05$);两组术后 3 个月裸眼视力和最佳矫正视力均升高,且 B 组高于 A 组($P<0.05$)。两组术后 3 个月角膜内皮细胞面积均增加,但 B 组小于 A 组($P<0.05$);角膜内皮细胞密度均下降,但 B 组高于 A 组($P<0.05$)。B 组术后并发症总发生率低于 A 组($P<0.05$)。**结论:**与单切口超声乳化术联合小梁切除术相比,白内障合并青光眼患者采用双切口超声乳化术联合小梁切除术治疗,在改善患者眼压、裸眼视力、最佳矫正视力、角膜内皮细胞、生活质量及减少并发症发生率方面的效果更佳。

关键词:双切口;角膜内皮细胞;白内障合并青光眼;超声乳化术;小梁切除术;视力;生活质量;单切口

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Effect of Different Incision Phacoemulsification Combined with Trabeculectomy on Vision, Corneal Endothelial Cells and Quality of Life in Cataract Patients with Glaucoma*

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ABSTRACT Objective: To investigate the effect of different incision phacoemulsification combined with trabeculectomy on vision, corneal endothelial cells and quality of life in cataract patients with glaucoma. **Methods:** The clinical data of 150 patients with cataract and glaucoma who were admitted to our hospital were analyzed retrospectively from April 2018 to July 2019. They were divided into group A ($n=75$, single incision phacoemulsification combined with trabeculectomy) and group B ($n=75$, double incision phacoemulsification combined with trabeculectomy) by different operation methods. The intraocular pressure, naked vision, best corrected vision, corneal endothelial cells, quality of life and complications were compared between the two groups. **Results:** The scores of health survey form (SF-36) in the two groups were higher than those in group A ($P<0.05$). The intraocular pressure in group B was lower than that in group A ($P<0.05$), and the uncorrected visual acuity and the best corrected visual acuity in group B were higher than that in group A ($P<0.05$). The area of corneal endothelial cells in group B was smaller than that in group A ($P<0.05$), and the density of corneal endothelial cells in group B was lower than that in group A ($P<0.05$). The total incidence of postoperative complications in group B was lower than that in group A ($P<0.05$). **Conclusion:** Compared with single incision phacoemulsification combined with trabeculectomy, double incision phacoemulsification combined with trabeculectomy is more effective in improving intraocular pressure, naked eye vision, best corrected vision, corneal endothelial cells, quality of life and reducing complications.

Key words: Double incision; Corneal endothelial cells; Cataract combined with glaucoma; Phacoemulsification; Trabeculectomy; Vision; Quality of life; Single incision

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前言

白内障是指因老化、遗传、免疫与代谢异常等原因引起的

晶状体代谢紊乱,导致晶状体蛋白质变性而浑浊^[1]。青光眼为常见的致盲性眼病,以视乳头萎缩及凹陷、视力下降为共同特征^[2]。临床治疗中发现,在白内障的膨胀期和过熟期易继发青光

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眼,而在青光眼的治疗过程中往往还会加重白内障的病情^[3]。小梁切除术+超声乳化术是治疗白内障合并青光眼患者的常用方法,其中超声乳化术是治疗白内障的常用方法,而小梁切除术则是通过将房水由前房引流至球结膜下间隙由周围组织吸收,从而达到降低眼压目标的方法^[4-6]。以往临床通常采用单切口完成所有手术操作,但术中刺激,如器械操作、超声能量等,可损伤巩膜组织、滤过泡区结膜^[7,8]。对此,有学者提倡采用双切口完成手术操作,以减少术区组织损伤^[9,10]。本研究通过探讨两种切口方式对白内障合并青光眼患者视力、角膜内皮细胞及生活质量的影响,以期临床治疗白内障合并青光眼提供参考。

1 资料与方法

1.1 一般资料

回顾性分析 2018 年 4 月~2019 年 7 月期间我院收治的 150 例白内障合并青光眼患者的临床资料,纳入标准:(1)符合白内障合并青光眼诊断标准^[11];(2)临床资料完整;(3)单纯使用药物治疗效果欠佳,均具备手术指征;(4)均为单眼患者。排除标准:(1)球结膜存在大量瘢痕者;(2)既往有眼部外伤史或其他眼部手术史者;(3)顽固性浅前房、角膜浑浊、瞳孔强直者;(4)极硬度核白内障、脱位或半脱位白内障者;(5)合并眼底出血、角膜病变等其他眼部病变者。根据手术方式的不同分为 A 组(n=75,单切口超声乳化术联合小梁切除术)和 B 组(n=75,双切口超声乳化术联合小梁切除术)。其中 A 组男 44 例,女 31 例,年龄 43~71 岁,平均(51.38±3.45)岁;病程 1~6 年,平均(3.27±0.76)年;疾病类型:开角型青光眼 41 例,闭角型青光眼 34 例。B 组男 42 例,女 33 例,年龄 45~76 岁,平均(52.71±4.71)岁;病程 2~8 年,平均(3.48±0.89)年;疾病类型:开角型青光眼 39 例,闭角型青光眼 36 例。两组一般资料对比无统计学差异($P>0.05$),具有可比性。此次研究已通过我院伦理学委员会批准进行。

1.2 方法

A 组:给予单切口超声乳化术联合小梁切除术,操作如下:常规麻醉,以角膜缘为基底,选取角膜缘 2~12 点处为结膜瓣,在角膜缘后 2 mm 处做巩膜隧道切口,透明质酸钠注入。采用美国 Alcon(Laureate)超声乳化仪乳化晶状体核,吸除晶状体

皮质,人工晶体植入。随后给予小梁切除术,于 10 点至 2 点方向制作以穹窿部位为基底的结膜瓣,切除巩膜瓣下灰线部位 15 mm×10 mm 的小梁组织和板层内膜,切除巩膜瓣下的小梁组织,大小约为 1 mm×4 mm,缝合巩膜瓣。B 组:给予双切口超声乳化术联合小梁切除术,操作如下:常规麻醉,以角膜缘为基底做巩膜瓣,结膜瓣选取角膜缘 2~12 点处,再在颞上部位做透明角膜切口,应用超声乳化仪乳化晶状体核,晶状体皮质吸除,人工晶体植入。切除巩膜瓣下的小梁组织,大小约为 1 mm×4 mm,在虹膜周围实施根切,将巩膜瓣梯形切口和结膜瓣缝合,在颞下球结膜处注射地塞米松和妥布霉素。

1.3 观察指标

(1)术后以门诊复查的形式进行 3 个月的随访,观察两组患者术前、术后 3 个月的眼压、裸眼视力和最佳矫正视力情况。采用日本 NIDEK 公司生产的 NT-510 型非接触眼压计测试患者眼压,裸眼视力和最佳矫正视力采用国际通用视力表进行检测。(2)患者术前、术后 3 个月的生活质量采用健康调查简表(36-item short form, SF-36)^[12]评价,其中 SF-36 包括社会功能、躯体角色、情感角色、活力、躯体功能、总体健康、躯体疼痛以及心理健康 8 个维度。每个维度评分范围为 100 分,分值越高,生活质量越高。(3)于术前、术后 3 个月采用日本 TOPCON 公司生产的 SP-1P 型非接触角膜内皮显微镜检测患眼角膜中央区内皮细胞情况,包括角膜内皮细胞密度、角膜内皮细胞面积。(4)记录术后并发症。

1.4 统计学方法

使用 SPSS25.0 软件进行分析,以($\bar{x}\pm s$)表示计量资料,实施 t 检验,计数资料以比或率表示,实施卡方检验,检验水准为 $\alpha=0.05$ 。

2 结果

2.1 两组生活质量比较

术前两组 SF-36 各维度评分比较无差异($P>0.05$);两组术后 3 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 1。

2.2 两组眼压、裸眼视力和最佳矫正视力比较

术前两组眼压、裸眼视力、最佳矫正视力比较无差异($P>0.05$)。

表 1 两组生活质量比较($\bar{x}\pm s$, 分)

Table 1 Comparison of quality of life between the two groups($\bar{x}\pm s$, score)

Groups	Time	Emotional role	Role physical	Somatic function	Vitality	General health	Social function	Somatic pain	Mental health
Group A (n=75)	Before operation	51.71±6.32	58.14±7.25	54.68±8.79	59.75±7.94	51.84±8.22	54.59±8.25	51.66±6.35	46.79±6.31
	3months after operation	62.27±7.25*	69.28±9.20*	67.91±8.35*	70.32±8.27*	64.31±9.28*	67.89±7.36*	68.41±8.29*	62.14±7.22*
	Before operation	51.53±8.26	57.08±8.21	54.12±7.21	58.92±8.29	51.26±7.35	54.03±7.27	50.95±7.32	47.13±7.28
Group B (n=75)	3months after operation	73.17±6.18**	80.18±8.32**	78.52±8.34**	84.63±7.29**	75.71±8.32**	78.26±9.34**	76.02±8.31**	76.73±9.26**
	Before operation								
	3months after operation								

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

05);两组患者术后3个月裸眼视力和最佳矫正视力均升高,且 B 组低于 A 组($P<0.05$);详见表 2。
B 组高于 A 组($P<0.05$);两组患者术后3个月眼压均降低,且

表 2 两组患者眼压、裸眼视力和最佳矫正视力情况比较($\bar{x}\pm s$)

Table 2 Comparison of intraocular pressure, naked eye vision and best corrected vision between the two groups($\bar{x}\pm s$)

Groups	Time	Intraocular pressure(mmHg)	Naked eye	Best corrected vision
Group A(n=75)	Before operation	24.01±0.73	0.26±0.07	0.29±0.09
	3 months after operation	17.75±0.89*	0.52±0.09*	0.68±0.08*
Group B(n=75)	Before operation	23.92±0.81	0.25±0.08	0.30±0.06
	3 months after operation	13.08±0.74*#	0.71±0.12*#	0.82±0.07*#

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

2.3 两组角膜内皮细胞比较

组小于 A 组($P<0.05$);角膜内皮细胞密度均下降,但 B 组高于

术前两组角膜内皮细胞面积、角膜内皮细胞密度比较无差异($P>0.05$);两组术后3个月角膜内皮细胞面积均增大,但 B

表 3 两组患者角膜内皮细胞比较($\bar{x}\pm s$)

Table 3 Comparison of corneal endothelial cells between the two groups($\bar{x}\pm s$)

Groups	Time	Corneal endothelial cell density(cells/mm ²)	Corneal endothelial cell area(μm ²)
Group A(n=75)	Before operation	2231.45±264.38	576.38±58.36
	3 months after operation	1429.45±259.42*	597.57±62.31*
Group B(n=75)	Before operation	2239.43±285.47	477.94±61.36
	3 months after operation	1758.55±237.51*#	537.31±53.41*#

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

2.4 两组术后并发症比较

(18/75)($P<0.05$);详见表 4。

B 组术后并发症总发生率 9.33%(7/75) 低于 A 组 24.00%

表 4 两组患者术后并发症比较

Table 4 Comparison of postoperative complications between the two groups

Groups	Corneal endothelial edema	HypHEMA	Cicatriztion of filtering bleb	Fibrinous exudation of anterior chamber	Total incidence rate
Group A(n=75)	3(4.00)	6(8.00)	4(5.33)	5(6.67)	18(24.00)
Group B(n=75)	1(1.33)	2(2.67)	2(2.67)	2(2.67)	7(9.33)
χ^2					5.808
P					0.016

3 讨论

白内障患者因晶状体蛋白质变性,导致光线受阻,视网膜上无法投射视象,继而造成视力模糊,外加并发青光眼会导致眼压的持续性或间断性升高,会造成不可逆的视功能损害,故白内障合并青光眼患者视力有明显减弱现象,其生活质量受到明显影响^[13-15]。小梁切除术联合超声乳化术为目前治疗该病的常用方法,以往的单切口术式为在角巩膜处做一切口,所有手术操作均在此切口内完成,但一直存在热损伤、器械损伤及术后散光风险增加等不足,降低治疗效果^[16,17]。近年来双切口手术受到学术界广泛关注,两种手术方式在不同的切口内完成,利于减少术区损伤,促进患者恢复^[18]。但有学者提出,双切口与单切口术式,疗效相似,具有相当的改善术后视力等情况^[19]。本研究就此展开分析。

本次研究显示,双切口超声乳化术联合小梁切除术治疗白内障合并青光眼患者可使其眼压、裸眼视力、最佳矫正视力改善,较单切口效果好。究其原因,超声乳化术可促使前房加深、虹膜后移、虹膜平坦,同时解除晶状体因素引起的瞳孔阻滞作用,达到控制眼压的效果^[20,21]。小梁切除术也可通过增加小梁网通透性,诱导小梁网细胞分裂,促进房水流出,进一步降低患者眼压^[22,23]。而双切口可较好的维持前房稳定性,同时减少对玻璃体的牵拉等,同时还可减少瞳孔阻滞发生的可能、加宽眼角等,进一步稳定眼压,改善患者视力^[24,25]。既往研究结果证实^[26],白内障合并青光眼的角膜内皮细胞均存在不同程度的减少,而手术可导致内皮细胞的进一步减少甚至出现内皮功能失代偿情况。因此了解手术前后角膜内皮细胞的面积、密度可有效评估患者角膜内皮细胞的愈合储备状态。本次研究结果中 B 组术后3个月角膜内皮细胞密度高于 A 组,角膜内皮细胞面积

则小于 A 组,表明与单切口相比,双切口术式可减轻对角膜内皮细胞的损害。这主要是因为双切口增加了工作通道,避免术中操作持续性损伤同一切口,加之双切口可有效分化超声乳化中的超声能量释放,进而达到减少角膜内皮细胞丢失的作用^[27,28]。同时 B 组术后并发症总发生率低于 A 组,可见双切口术式可有效降低术后并发症发生率,安全性较好。可能是因为单切口术式对虹膜刺激性较强,而双切口术式可降低术后角膜内皮细胞损伤,减轻机械性损伤,同时也利于滤过通道成功建立,进而减少并发症发生率^[29]。另两组患者生活质量评分均明显升高,且双切口术者生活质量改善效果更佳,这可能是因为双切口术式疗效确切,其眼压、视力均可获得明显改善,同时术后并发症发生率较低,消除了患者对手术疗效的质疑,使其身心负担减轻,社会参与感提高,利于其后续正常生活^[30]。由于白内障合并青光眼的患病人群多为中老年群体,其角膜内皮细胞数量本身就相对偏少,手术过程中应注意巩膜瓣制作等方法,以期获得更好的手术治疗效果。

综上,白内障合并青光眼患者采用双切口超声乳化术联合小梁切除术治疗,在改善患者眼压、裸眼视力、最佳矫正视力、角膜内皮细胞、生活质量及减少并发症等方面优于单切口超声乳化术联合小梁切除术。

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