

不同术式白内障术后屈光状态变化规律及稳定性研究

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Retrospective study on the changes of refractive state and stability after cataract surgery

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Abstract

• **AIM:** To compare and contrast different operation after cataract patients with refractive change rules. To analyze the patients with refractive stability after cataract surgery, and to provide a reference for cataract patients with clinical surgery after visual quality.

• **METHODS:** Retrospective study. A total of 126 cases (150 eyes) were selected from Jan. 2014 to Dec. 2015 in Changzhou First People's Hospital of cataract extraction combined with foldable intraocular lens implantation for cataract patients as the research samples. According to the different operation for three groups, the first group of 42 patients (50 eyes) underwent above 3 mm clear corneal incision; 52 cases in group 2 (60 eyes) underwent temporal side 3 mm clear corneal incision. The third group, 32 cases (40 eyes) underwent 3 corner above the scleral tunnel incision. All the cases were measured at different time point in patients with naked eyes far visual acuity, best corrected visual acuity, spherical degree, the degree of astigmatism and astigmatic axial, comparative analysis of after cataract surgery in patients with refractive change regularity and stability of refraction.

• **RESULTS:** The uncorrected distance visual comparison within the group, and each time point after preoperative differences were significant ($P < 0.01$), and the early postoperative period after 1, 3mo significantly different ($P < 0.05$). Three groups of patients after surgery compared with preoperative uncorrected distance visual acuity

improved significantly, and were stable after 1mo. Compare the best corrected distance vision within the group, and each time point after preoperative differences were significant ($P < 0.01$), postoperative 1wk and after 1, 3d significantly different ($P < 0.05$), after 1wk and after 1, 3mo was not significantly different ($P > 0.05$), three groups of patients were compared with the preoperative best corrected distance visual acuity were increased significantly, and were in stable after 1wk; relatively spherical degree within the array, after 1d and 3d was not significantly different ($P > 0.05$), hyperopia drift, after 1wk and 1, 3d was significantly different ($P < 0.05$), after 1wk and 1, 3mo was not significantly different ($P > 0.05$). Three groups of patients' spherical degrees after 1wk were stabilized. Comparative degree of astigmatism within the array, postoperative compared with preoperative corneal astigmatism were increased 1d after surgery. Corneal astigmatism in each group reached the maximum, and then decreases 1wk and 1d after surgery, compared with postoperative 3d was significantly different ($P < 0.05$). After 1wk and 1, 3mo was not significantly different ($P > 0.05$). Three groups of patients were compared with preoperative astigmatism were significantly increased, and in operation after 1wk were stabilized; astigmatic axis were three groups in the preoperative astigmatism against the rule, the first and third group after 1d, three Tianshun rule astigmatism proportional were increased, and then decreased. Group 2 the - rule astigmatism proportion, after 1wk, 1 and 3mo, the first and third group gradually reduced the proportion of cis regulatory astigmatism, and compared with preoperative increased, increasing the - rule astigmatism group 2 ratio, and increased compared with preoperative.

• **CONCLUSION:** Above 3 mm the transparent corneal incision, temporal clear corneal incision and above the scleral tunnel incision different surgical postoperative visual acuity are good. It can be used as a routine surgical procedure in treatment of cataract; phacoemulsification in cataract patients with former majority against the rule astigmatism. After cataract surgery, early refractive state is a state of mild hyperopia and stabilized about 1wk, combined with clinical guide glasses.

• **KEYWORDS:** cataract; refraction; refractive stability

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摘要

目的:研究不同术式白内障术后患者的屈光状态变化规律,分析白内障术后患者屈光稳定性,为白内障患者术后视觉质量获得提供参考。

方法:回顾性研究。选取2014-01/2015-12常州市第一人民医院行白内障摘除联合人工晶状体植入术的患者126例150眼作为研究对象,按照手术方式不同分为3组,第1组行上方3mm透明角膜切口42例50眼;第2组行颞侧3mm透明角膜切口52例60眼,第3组行3mm上方角膜隧道切口32例40眼。分别测量患者不同时间点的裸眼远视力、最佳矫正远视力、球镜度数及散光度数,对比分析术后患者的屈光状态变化规律及屈光稳定性。

结果:裸眼远视力组内比较,术前与术后各时间点均差异具有统计学意义($P<0.01$),术后早期(术后1、3d)与术后1、3mo差异具有统计学意义($P<0.05$),三组患者术后裸眼远视力较术前均提高明显,且均在术后1mo趋于稳定;最佳矫正远视力组内比较,术前与术后各时间点均差异具有统计学意义($P<0.01$),术后1wk与术后1、3d差异具有统计学意义($P<0.05$),术后1wk与术后1、3mo差异无统计学意义($P>0.05$),三组患者最佳矫正远视力术后较术前均提高明显,且均在术后1wk趋于稳定;球镜度数组内比较,术后1、3d差异无统计学意义($P>0.05$),出现远视漂移,术后1wk与术后1、3d比较差异具有统计学意义($P<0.05$),术后1wk与术后1、3mo比较差异无统计学意义($P>0.05$),三组患者球镜度数在术后1wk趋于稳定;散光度数组内比较,术后较术前角膜散光度数均增加,术后1d,各组术后角膜散光达到最大,随后逐渐减小;术后1wk与术后1、3d比较差异具有统计学意义($P<0.05$),术后1wk与术后1、3mo差异无统计学意义($P>0.05$),三组患者术后较术前散光度数均增加明显,且均在术后1wk趋于稳定。

结论:白内障手术中3mm左右上方透明角膜切口、颞侧透明角膜切口及上方巩膜隧道切口不同术式术后视力恢复均良好,均可作治疗白内障的常规手术术式;白内障术后早期屈光状态呈轻度远视状态,且在术后1wk左右稳定,结合临床可指导配镜。

关键词:白内障;屈光状态;屈光稳定性

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0 引言

目前,白内障是我国视力损害主要疾病,严重时致盲,每年世界上视力丧失患者有一半左右是由白内障导致的,但目前没有药物可有效预防或延缓白内障,以手术治疗为主^[1]。美国Stephen Brint在1994年率先提出“屈光性白内障手术”的概念,经过20a的不断演变与改进,小切口白内障超声乳化联合人工晶状体植入术不仅能防盲复明,术后还能有效改善视觉质量^[2]。球镜度数和散光度数反映了白内障术后的屈光状态,术后球镜度数常受术前测量、术后囊膜改变等因素影响,探讨术后屈光状态的变化

规律,对临床术后屈光误差提供参考^[3]。目前对于术后1wk、1、3mo的研究较多,术后1d与术后3d定义为术后早期,而对于术后1、3d的早期屈光状态的研究较少^[4]。本研究通过比较不同术式白内障术后患者的屈光状态变化规律,分析白内障术后患者屈光稳定性,以期能为白内障患者临床术后视觉质量获得提供参考。

1 对象和方法

1.1 对象 回顾性研究。选取2014-01/2015-12常州市第一人民医院行白内障摘除联合人工晶状体植入术的患者126例150眼,其中男61例72眼、女65例78眼,年龄51~85(平均62.74±6.89)岁。根据不同手术方式分为3组,第1组行上方3mm透明角膜切口42例50眼;第2组行颞侧3mm透明角膜切口52例60眼,第3组行3mm上方角膜隧道切口32例40眼。入选标准:手术前后随访资料完整;排除患有基础疾病、其他眼部疾病及术后发生并发症的患者。术前各组间的年龄、性别构成比差异均无统计学意义($P>0.05$),各组间具有可比性。

1.2 方法 所有患者术前1d,给予盐酸左氧氟沙星滴眼液点术眼,3次/d,预防感染;于术前30min,予盐酸奥布卡因滴眼液行表面麻醉点术眼。第1组:在11:00~12:00位角膜缘内约1mm做一宽约3mm三平面透明角膜切口,注入适量透明质酸钠稳定前房,然后行直径约5mm连续环形撕囊,采用单纯劈核技术吸出晶状体核,再然后注入适量透明质酸钠至囊袋内,植入人工晶状体,抽吸剩余黏弹剂,术毕涂妥布霉素地塞米松眼膏,包扎术眼。第2组:在颞侧角膜缘内约1mm做一宽约3mm三平面透明角膜切口,注入适量透明质酸钠稳定前房,然后行直径约5mm连续环形撕囊,采用单纯劈核技术吸出晶状体核,再然后注入适量透明质酸钠至囊袋内,植入人工晶状体,抽吸剩余黏弹剂,术毕涂妥布霉素地塞米松眼膏,包扎术眼。第3组:在11:00~12:00位角膜缘后约1mm做一宽约3mm带结膜瓣的角膜隧道式切口,注入适量透明质酸钠稳定前房,然后行直径约5mm连续环形撕囊,拨动晶状体核至前房,在其表面注入适量透明质酸钠,将晶状体手法碎核乳化后取出,再然后注入适量透明质酸钠至囊袋内,植入人工晶状体,抽吸剩余黏弹剂,术毕涂妥布霉素地塞米松眼膏,包扎术眼。术后随访3mo。手术前后采用标准视力对数表测定裸眼远视力;先用综合验光仪测量,再经主观验光测定,同时记录球镜度数;采用ZeissATLAS9000角膜地形图仪进行不少于5次的测量散光度数,取其中一次最好的测量作为测定结果^[5-6]。

统计学分析:采用SPSS 20.0软件,计量资料用 t 检验,计数资料采用 χ^2 检验,重复测量数据采用方差分析,组间均数两两比较采用LSD- t 法。以 $P<0.05$ 为差异具有统计学意义。

2 结果

2.1 手术前后裸眼远视力情况 三组患者术后较术前裸眼远视力均提高明显,且均在术后1mo趋于稳定。不同组间各相同时间点两两之间差异均无统计学意义($F=1.17, P>0.05$);组内比较,三组均术后1d与术后3d差异无统计学意义($P>0.05$),术后1mo与术后3mo差异无统计学意义($P>0.05$),但术后早期(1、3d)与术后1、3mo均

表1 三组患者手术前后裸眼远视力比较

组别	眼数	术前	术后 1d	术后 3d	术后 1wk	术后 1mo	术后 3mo
1 组	50	0.12±0.10	0.39±0.07	0.42±0.09	0.52±0.10	0.61±0.08	0.63±0.08
2 组	60	0.11±0.09	0.38±0.08	0.43±0.10	0.52±0.07	0.62±0.08	0.63±0.09
3 组	40	0.13±0.08	0.38±0.10	0.43±0.08	0.52±0.09	0.61±0.07	0.61±0.08

注:1 组行上方 3mm 透明角膜切口;2 组行颞侧 3mm 透明角膜切口;3 组行 3mm 上方角巩膜隧道切口。

表2 三组患者手术前后最佳矫正远视力比较

组别	眼数	术前	术后 1d	术后 3d	术后 1wk	术后 1mo	术后 3mo
1 组	50	0.12±0.10	0.46±0.07	0.53±0.09	0.72±0.12	0.75±0.13	0.77±0.11
2 组	60	0.11±0.09	0.47±0.08	0.53±0.10	0.72±0.12	0.75±0.14	0.77±0.11
3 组	40	0.13±0.08	0.49±0.10	0.54±0.08	0.73±0.13	0.75±0.15	0.76±0.14

注:1 组行上方 3mm 透明角膜切口;2 组行颞侧 3mm 透明角膜切口;3 组行 3mm 上方角巩膜隧道切口。

表3 三组患者手术前后球镜度数比较

组别	眼数	术前	术后 1d	术后 3d	术后 1wk	术后 1mo	术后 3mo
1 组	50	-0.17±0.22	1.15±0.87	0.99±0.79	0.58±0.75	0.33±0.82	0.34±0.68
2 组	60	-0.17±0.23	1.07±0.98	0.88±0.90	0.52±0.84	0.31±0.88	0.30±0.71
3 组	40	-0.18±0.22	1.03±0.96	0.87±0.78	0.49±0.83	0.38±0.85	0.40±0.74

注:1 组行上方 3mm 透明角膜切口;2 组行颞侧 3mm 透明角膜切口;3 组行 3mm 上方角巩膜隧道切口。

表4 三组患者手术前后散光度数比较

组别	眼数	术前	术后 1d	术后 3d	术后 1wk	术后 1mo	术后 3mo
1 组	50	0.77±0.42	1.75±0.45	1.74±0.44	1.38±0.43	1.13±0.42	1.10±0.44
2 组	60	0.83±0.43	1.37±0.44	1.35±0.42	1.09±0.43	0.97±0.45	0.94±0.44
3 组	40	0.89±0.44	1.38±0.46	1.37±0.48	1.09±0.47	1.04±0.45	1.02±0.47

注:1 组行上方 3mm 透明角膜切口;2 组行颞侧 3mm 透明角膜切口;3 组行 3mm 上方角巩膜隧道切口。

差异有统计学意义($F=19.02, P<0.05$),术前与术后各时间点均差异有统计学意义($P<0.01$),见表 1。

2.2 手术前后最佳矫正远视力情况 三组患者术后较术前最佳矫正远视力均提高明显,且均在术后 1wk 趋于稳定。不同组间各相同时间点两两之间差异均无统计学意义($F=1.22, P>0.05$);组内比较,三组均术后 1d 与术后 3d 差异均无统计学意义($F=19.11, P>0.05$),术后 1wk 与术后 1,3d 差异有统计学意义($P<0.05$),术后 1wk 与术后 1,3mo 差异无统计学意义($P>0.05$),术前与术后各时间点均差异有统计学意义($P<0.01$),见表 2。

2.3 手术前后球镜度数情况 三组患者球镜度数在术后 1wk 趋于稳定。不同组间各相同时间点两两之间差异均无统计学意义($F=1.75, P>0.05$);组内比较,三组均术后 1d 与术后 3d 差异均无统计学意义($P>0.05$),出现远视漂移,术后 1wk 与术后 1,3d 差异有统计学意义($P<0.05$),术后 1wk 与术后 1,3mo 差异无统计学意义($P>0.05$),见表 3。

2.4 手术前后散光度数情况 三组患者术后较术前散光度数均增加明显,且均在术后 1wk 趋于稳定。不同组间各相同时间点两两之间差异均无统计学意义($F=1.66, P>0.05$);组内比较,三组均术后较术前角膜散光度数均增加,术后 1d,各组术后角膜散光达到最大,随后逐渐减小;术后 1d 与术后 3d 差异无统计学意义($P>0.05$),术后 1wk 与术后 1,3d 差异有统计学意义($P<0.05$),术后 1wk

与术后 1,3mo 差异无统计学意义($P>0.05$),表 4。

3 讨论

白内障术后裸眼视力及最佳矫正视力的恢复在临床上往往存在波动,有研究报道,术后早期与前房深度的变化、角膜水肿及角膜散光有一定关系^[7]。在视力稳定的术后晚期波动与后发性白内障关系密切,受术前状况、手术方式、人工晶状体、术后炎症等因素影响,术中连续环形撕囊、术后抗炎药物应用对降低后发性白内障有积极作用^[8]。本研究中,测量并记录患者术后 1,3d,1wk,1,3mo 的裸眼视力及最佳矫正视力,探究白内障术后的视力变化。术前与术后比较,三组的视力较术前均有明显提高,术后早期视力的恢复与前房深度的变化、前房炎症反应有关,术后 1wk 以后,视力逐渐上升;组间进行比较,三组之间无明显差异,不同手术方式对术后视力的恢复无明显影响,表明三种手术方式均可作为常规治疗方法。

白内障术后球镜度数是衡量术后改善视觉质量的重要参数,它受术中撕囊口的直径、术后人工晶状体的位置偏差等因素影响^[9]。术后屈光状态受术中撕囊的大小影响,撕囊直径刚好覆盖光学部边缘约 0.5mm 为宜,过大或过小均会导致屈光改变^[10];白内障术后人工晶状体的位置偏差也会导致患者术后的屈光误差,严重可能要置换人工晶状体^[11]。本研究中,三组间比较,各相同时间点两两之间差异均无统计学意义($P>0.05$),表明不同术式对白内障术后的球镜度数无明显影响。组内比较,早期术后

1d与术后3d差异无统计学意义($P>0.05$),出现远视漂移,可能是患者术后房角组织水肿损伤以致眼压升高,人工晶状体后移,出现远视;术后1wk与术后1、3d差异有统计学意义($P<0.05$),与术后1、3mo差异均无统计学意义($P>0.05$),表明三组患者球镜度数在术后1wk趋于稳定,可能随着房角功能的恢复,人工晶状体前移,远视消失^[12]。白内障术后球镜度数受多因素影响,根据临床情况,把握好术前、术中及术后各个环节,最大限度降低术后屈光偏差^[13]。

白内障术后散光是术后改善视觉质量的另一重要方面。本研究中,大部分患者术前低度散光,且随年龄增加而增大,可能与老年人眼球张力变化有关^[14]。术后早期三组角膜散光度数最大,可能与角膜水肿有关,约术后1wk稳定^[15]。另外,颞侧切口出现了由逆规向顺规的漂移,而其他两个术式切口的散光轴向均出现了由顺规向逆规的漂移。可能是由于切口处角膜水肿,增加了切口散光,而后,随着切口的愈合,又降低了切口散光^[16]。白内障术后屈光状态的稳定与切口愈合密切相关。本研究中,屈光稳定时间为1wk。有研究报道,术后1wk屈光已稳定,但眼内各部分并未稳固,约术后3mo才达到充分稳定,所以,建议术后3mo后配镜^[17]。

综上所述,3mm左右上方透明角膜切口、颞侧透明角膜切口及上方巩膜隧道切口不同术式术后视力恢复均良好,均可作为治疗白内障的常规手术术式;白内障术后早期屈光状态呈轻度远视状态,且在1wk左右稳定,结合临床可指导配镜。

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