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超声乳化术与小切口囊外摘除术治疗白内障患者的疗效及对角膜内皮细胞及生存质量的影响*

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摘要 目的:探讨超声乳化术与小切口囊外摘除术治疗白内障患者的疗效及对角膜内皮细胞及生存质量的影响。**方法:**选取 2015 年 3 月到 2017 年 6 月在我院接受治疗的白内障患者 203 例,根据随机数字表法将患者分为对照组 100 例和观察组 103 例。对照组患者给予小切口囊外摘除术进行治疗,观察组给予超声乳化术进行治疗。于术前、术后 1 周、术后 1 个月、术后 3 个月对所有患者的视力进行检测。于术前、术后 2 周检测患者的眼角膜内皮细胞数量,并计算细胞密度和六角形细胞比率。于术前和术后 1 个月采用生活质量评定量表对患者的生活质量进行评测,记录患者术后出现的并发症。**结果:**术前、术后 1 个月、术后 3 个月,两组患者的视力比较差异无统计学意义($P>0.05$),术后 1 周观察组患者的视力明显高于对照组($P<0.05$);术后 2 周两组患者的细胞密度、六角形细胞比率均降低,对照组的细胞密度低于观察组($P<0.05$)。术前、术后 1 个月两组患者的自理能力、活动能力、社交能力、心理情绪得分比较差异无统计学意义($P>0.05$),术后 1 个月两组患者的自理能力、活动能力、社交能力、心理情绪得分均高于术前($P<0.05$)。两组患者的并发症发生率比较差异无统计学意义($P>0.05$)。**结论:**与小切口囊外摘除术相比,超声乳化术能在短期内更快的提升患者视力,且对患者的眼角膜内皮细胞损伤较小,但两种手术近期疗效和并发症情况基本一致,且对患者生活质量的影响无差异。

关键词:白内障;超声乳化术;小切口囊外摘除术;疗效;角膜内皮细胞;生活质量

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Efficacy of Phacoemulsification and Small Incision Extracapsular Cataract Extraction in the Treatment of Cataract and Their Effects on Corneal Endothelial Cells and Quality of Life*

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ABSTRACT Objective: To investigate the efficacy of phacoemulsification and small incision extracapsular cataract extraction in the treatment of cataract and their effects on corneal endothelial cells and quality of life. **Methods:** 203 patients with cataract who were treated in our hospital from March 2015 to June 2017 were selected, according to the random number table method, the patients were divided into the control group with 103 cases and the observation group with 100 cases. The control group was treated with small incision extracapsular cataract extraction, and the observation group was treated with phacoemulsification. The visual acuity of all patients was measured before operation, 1 weeks after operation, 1 months after operation and 3 months after operation. The number of corneal endothelial cells was measured before and 2 weeks after operation, and the cell density and hexagonal cell ratio were calculated. The quality of life was evaluated before and 1 months after operation, and the complications were recorded. **Results:** There was no significant difference in visual acuity between the two groups before operation, 1 months after operation and 3 months after operation ($P>0.05$), the visual acuity of the observation group was significantly higher than that of the control group 1 week after the operation ($P<0.05$). At 2 weeks after operation, the cell density and hexagonal cell ratio of the two groups were decreased, and the cell density of the control group was lower than that of the observation group ($P<0.05$). There was no significant difference in scores of self-care ability, activity ability, social ability and psychological emotion between the two groups before and 1 months after operation ($P>0.05$), the scores of self-care ability, activity ability, social ability and psychological emotion in the two groups 1 months after operation were higher than those before operation ($P<0.05$). There was no significant difference in the incidence of complications between the two groups ($P>0.05$). **Conclusion:** Compared with small incision extracapsular cataract extraction, phacoemulsification can improve the vision of patients faster in the short term, and it has less damage to the corneal endothelial cells, however, the short-term effects and complications of the two operations are basically the same, and there is

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no difference in the quality of life of the patients.

Key words: Cataract; Phacoemulsification; Small incision extracapsular cataract extraction; Efficacy; Corneal endothelial cells; Quality of life

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前言

白内障是由于遗传、老化等原因导致眼睛的晶状体蛋白质变性而发生混浊的眼科疾病,是我国首位致盲性眼病^[12]。白内障多发于40岁以上的中老年人,患者主要表现为渐进性视力下降、眩光感、单眼复视、近视度数增加等^[3,4],当疾病发展到一定程度时会出现眼脸肿胀、角膜水肿、瞳孔与晶状体粘连等并发症^[5],若未能得到及时有效的治疗,可导致患者失明^[6]。目前白内障的主要治疗方法有药物治疗和手术治疗,其中药物治疗只能针对早期白内障患者,可有效延缓病情发展,改善患者视力,然而对于成熟期的白内障,药物治疗已无明显作用,此时手术治疗才是最直接有效的方法^[7,8]。超声乳化术是通过超声波将晶状体核粉碎,然后连同皮质一起吸出,其优点为手术时间较短、切口较小,并且术后患者可在较短时间内恢复视力,因此在治疗白内障时应用较广^[9,10]。小切口囊外摘除术是通过刺破并撕去前囊中央部分,将晶体核和皮质吸出,保留了晶体后囊,便于植入人工晶体,具有较好的临床疗效^[11,12]。目前关于超声乳化术与小切口囊外摘除术治疗白内障的优劣性尚无统一论,鉴于此,本研究旨在对比超声乳化术与小切口囊外摘除术治疗白内障患者的疗效及对角膜内皮细胞及生存质量的影响,现报道如下。

1 资料与方法

1.1 一般资料

选取2015年3月到2017年6月在我院接受治疗的白内障患者203例,纳入标准:(1)所有患者均经临床检查,确诊为白内障患者;(2)均为首次接受眼部手术治疗;(3)均为单眼接受手术治疗;(4)均符合相关的手术适应症;(5)晶状体核硬度处于III-IV级;(6)患者及其家属均已知晓本次研究内容,并已签署知情同意书。排除标准:(1)合并有青光眼、病毒性角膜炎等其他眼科疾病者;(2)合并有恶性肿瘤、严重器质性疾病、免疫系统疾病者;(3)存在认知障碍者;(4)高度近视者;(5)随访失联者。随机将患者分为对照组100例和观察组103例。对照组男54例,女46例,年龄33-79岁,平均年龄 (56.34 ± 8.24) 岁,晶状体核硬度:III级65例,IV级35例,文化程度:大学及以上20例,高中29例,初中及以下51例,病程1-8年,平均病程 (2.66 ± 0.34) 年。观察组男56例,女47例,年龄36-76岁,平均年龄 (54.62 ± 8.96) 岁,晶状体核硬度:III级72例,IV级31例,文化程度:大学及以上22例,高中33例,初中及以下48例,病程1-7年,平均病程 (2.43 ± 0.31) 年。两组患者临床基线资料相比较差异无统计学意义($P > 0.05$),提示分组均衡,组间具有可比性。

1.2 治疗方法

所有患者术前均行常规检查,排除手术禁忌症,术前3 d

点抗生素滴眼液(盐酸左氧氟沙星滴眼液),术前1 h术眼常规点复方托吡卡胺滴眼液4-6次进行散瞳。观察组患者给予超声乳化术进行治疗,患者呈平卧位,表麻联合2%利多卡因球周浸润麻醉,无菌贴膜粘贴,剪开,开睑器开睑,聚维酮碘冲洗结膜囊,0.9%氯化钠冲洗。切口方式为巩膜隧道切口,操作如下:在10:30-1:00处沿患眼角膜缘剪开球结膜,做以穹窿为基底的结膜瓣,分离结膜下组织,巩膜表面烧烙止血。在11:00处沿角膜缘后0.5 mm做板层切口,月形刀潜行分离至透明角膜缘前,3.2 mm隧道刀穿刺入前房,注入粘弹剂,圆形撕囊,水化分离晶体核。3:00处用15°刀做透明角膜缘辅助切口。超乳头入前房,劈核器辅助下超声乳化晶体核,吸出,然后注吸晶体皮质,皮质吸净后,前房注入粘弹剂,人工晶体1枚注入囊袋内,调位正,结膜囊涂典必殊眼膏,无菌敷料包扎,术毕。对照组给予小切口囊外摘除术进行治疗,患者呈平卧位,表麻联合2%利多卡因球周浸润麻醉,无菌贴膜粘贴,剪开,开睑器开睑,将上面部分作为结膜瓣,切口选择巩膜隧道切口,具体步骤参考观察组。采用穿刺针进行穿刺,同时将粘弹剂注入,形成圆形撕囊,实现水分离后仔细分离囊膜和晶体皮质、晶体软核和晶体硬核,注入粘弹剂,检查分离成功后将晶状体核旋入前房,用晶体圈套器将晶状体核娩出,吸出晶体皮质,注入粘弹剂,将人工晶体植入,调位正,结膜囊涂典必殊眼膏,无菌敷料包扎,术毕。

1.3 检测指标

术后对所有患者进行3个月的随访,随访方式为门诊复诊。于术前、术后1周、术后1个月、术后3个月采用国际标准视力表对所有患者的视力进行检测。于术前、术后2周(需无角膜水肿)采用角膜内皮细胞计数仪(日本拓普康,SP-3000P)检测眼角膜内皮细胞数量,并计算细胞密度和六角形细胞比率。于术前和术后1个月,采用生活质量评定量表(QOL)对患者的生活质量进行评测,该量表总共由12个条目组成,从自理能力、活动能力、社交能力、心理情绪四个项目进行评定,分数越高代表该项目的状况越好。记录患者并发症发生情况。

1.4 统计学方法

采用SPSS20.0进行统计分析,并发症等计数资料以率(%)的形式表示,采用 χ^2 检验,计量资料以 $(\bar{x} \pm s)$ 的形式表示,采用t检验。将 $\alpha = 0.05$ 作为检验标准。

2 结果

2.1 两组患者的视力比较

两组患者术后的视力均高于术前,术后1个月、3个月的视力均高于术后1周($P < 0.05$),两组患者术前、术后1个月、3个月的视力比较无统计学差异($P > 0.05$),但术后1周观察组患者的视力明显高于对照组($P < 0.05$),具体见表1。

2.2 两组患者的角膜内皮细胞情况比较

术前两组患者的细胞密度、六角形细胞比率比较差异无统

计学意义($P>0.05$),术后 2 周两组患者的细胞密度、六角形细胞比率均降低,对照组的细胞密度低于观察组($P<0.05$),但两组患者的六角形细胞比率比较无统计学差异($P>0.05$),具体见表 2。

表 1 两组患者的视力比较

Table 1 Comparison of visual acuity between the two groups

Groups	n	Before operation	1 week after operation	1 month after operation	3 months after operation
Observation group	103	0.12± 0.05	0.68± 0.14*	0.79± 0.15* [#]	0.82± 0.13* [#]
Control group	100	0.13± 0.04	0.51± 0.12*	0.80± 0.16* [#]	0.83± 0.14* [#]
t		1.571	9.298	0.323	0.528
P		0.118	0.000	0.646	0.598

Note: compared with before operation, * $P<0.05$, compared with 1 week after operation, [#] $P<0.05$.

表 2 两组患者的角膜内皮细胞情况比较

Table 2 Comparison of corneal endothelial cells between the two groups

Groups	n	Time	Cell density(cells/mm ²)	Hexagonal cell ratio(%)
Observation group	103	Before operation	2821.65± 209.64	59.67± 8.34
		2 weeks after operation	2235.98± 223.77* [#]	47.26± 7.66*
Control group	100	Before operation	2853.71± 212.74	58.12± 8.57
		2 weeks after operation	1858.66± 249.34*	48.48± 8.32*

Note: compared with before operation, * $P<0.05$, compared with the control group, [#] $P<0.05$.

2.3 两组患者的生活质量比较

术前、术后 1 个月两组患者的自理能力、活动能力、社交能力、心理情绪得分比较差异无统计学意义($P>0.05$),术后 1 个

月两组患者的自理能力、活动能力、社交能力、心理情绪得分均高于术前($P<0.05$),具体见表 3。

表 3 两组患者的生活质量比较(分)

Table 3 Comparison of quality of life between the two groups(scores)

Groups	n	Time	Self-care ability	Activity ability	Social competence	Psychological emotion
Observation group	103	Before operation	50.36± 12.57	51.36± 10.68	30.68± 8.64	52.66± 13.45
		1 month after operation	80.23± 10.36*	76.26± 9.25*	65.34± 9.88*	75.61± 11.44*
Control group	100	Before operation	49.61± 13.14	51.69± 10.75	31.03± 8.56	53.14± 12.98
		1 month after operation	81.06± 11.12*	74.78± 9.63*	66.12± 9.79*	76.14± 12.12*

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

2.4 两组患者的并发症比较

对照组出现瞳孔轻微上移 4 例,角膜水肿 8 例,晶状体后囊膜破裂 3 例,并发症发生率为 15.00%(15/100);观察组出现瞳孔轻微上移 4 例,角膜水肿 6 例,晶状体后囊膜破裂 2 例,并发症发生率为 11.65%(12/103),两组的并发症发生率比较差异无统计学意义($\chi^2=0.494$, $P=0.482$)。

3 讨论

白内障是眼科最常见的疾病之一,具有病程长、致盲率高等特点,可单、双眼发病,且随着年龄的增长,其发病率也逐渐升高^[13,14]。随着我国人口老龄化问题的凸显,近年来白内障的发病率呈逐年递增的趋势,严重影响了人们的生活质量^[15]。白内障的危险因素较多,如遗传、老化、代谢紊乱、外伤、营养障碍、强辐射等,这些因素可破坏晶状体囊膜的完整性,导致囊膜渗透性增加,使得晶状体蛋白发生变性混浊,最终出现白内障^[16-18]。目前临床上尚无治疗白内障的特异性药物,因此手术治疗仍是

白内障患者的主要治疗方法^[19,20]。超声乳化术与小切口囊外摘除术均是临床上常用于治疗白内障的手术方法,均具有较好的疗效,且患者视力恢复情况较好^[21,22],但关于两种手术方法的优劣性尚无统一定论。王娜等人的研究结果显示^[23],与超声乳化术相比,小切口囊外摘除术治疗白内障患者能更快的提升患者的视力,并可减少并发症发生率。孙根柱等人的研究显示^[24],采用超声乳化术与小切口囊外摘除术治疗的两种患者的术后视力恢复情况及并发症均无明显差异,提示两种手术方式的疗效相当。

在本研究中,两组患者术后的视力均高于术前($P<0.05$),术前、术后 1 个月、3 个月的视力比较无统计学差异($P>0.05$),但观察组患者的视力在术后 1 周时明显高于对照组($P<0.05$),这说明超声乳化术与小切口囊外摘除术均能有效的治疗白内障,提升患者的视力,且两组手术的近期疗效一致,但在短时间内,超声乳化术能更快的提升白内障患者的视力。在角膜内皮细胞情况方面,术后 2 周两组的细胞密度、六角形细胞比率均

降低,对照组的细胞密度低于观察组($P<0.05$),这说明手术后两组患者的细胞密度、六角形细胞比率均降低,提示手术会对患者的角膜内皮细胞造成一定的影响,但超声乳化术造成的影响更小。分析其中原因,超声乳化术的手术切口相对较小,且操作流程更为简便,对患者造成的机械性损伤较小,并且该术式对角膜内皮细胞损伤的主要受到超声能量的大小和乳化时间的长短的影响^[25,26]。晶状体核硬度是制约超声能量和乳化时间的关键因素^[27],而本研究中绝大部分患者的晶状体核硬度处于III期,因此对超声的能量和乳化时间的需求量较低,进而降低了对角膜内皮细胞的损伤。而小切口囊外摘除术切口稍大于超声乳化术,且需要在前房内进行脱核、碎核、娩核等操作,对患者造成的机械性损伤更大,因此在术后短时间内患者视力恢复较慢,角膜内皮细胞密度较低^[28-30]。另外,本研究结果显示,术前、术后1个月两组患者的自理能力、活动能力、社交能力、心理情绪得分比较差异无统计学意义($P>0.05$),术后1个月两组患者的自理能力、活动能力、社交能力、心理情绪得分均高于术前($P<0.05$),这说明术后两组患者的生活质量均得到明显的提升,但效果无差别,这可能是由于在术后1个月后,两组的视力恢复情况相当,因此对生活质量造成的影响也几乎一致。另外,对照组的并发症发生率为15.00%,和观察组的11.65%比较无统计学差异($P>0.05$),说明两种手术方法术后的并发症情况无明显差别。另外,值得注意的是,超声乳化术涉及到的设备昂贵,导致手术费用普遍较高,而小切口囊外摘除术则无需昂贵的仪器设备,患者花费较少,较适合在基层医药使用。

综上所述,超声乳化术与小切口囊外摘除术均能有效的治疗白内障,提升患者的视力,改善患者生活质量,且并发症少,但超声乳化术的短期效果更好,更有效地降低对患者角膜内皮细胞的损伤,缓解角膜内皮细胞密度下降。

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