

白内障超声乳化手术不同切口对泪膜的影响

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Long-term effect of different incisions on the tear film after phacoemulsification

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Abstract

• AIM: To investigate the long-term effect of different incisions on the tear film after phacoemulsification.

• METHODS: Sixty-four patients (76 eyes) without dry eyes were selected and received phacoemulsification. The patients were divided into two groups randomly. Group A 30 patients (38 eyes) was performed with a 2.5mm mini-incision coaxial phacoemulsification and group B 34 patients (38 eyes) was performed with a sub 1.8mm micro-incision cataract surgery (MICS). Schirmer I test (S I t), tear break-up time (BUT), corneal fluorescein staining (CFS) and tear osmolarity were observed at 3d preoperatively and 1wk, 1, 3, 6mo and 1a postoperatively. The results were analyzed using a chi-square test and *t*-test with SPSS 19.0.

• RESULTS: (1) Schirmer I test (S I t): there was a significant increase in S I t at 1wk postoperatively. The difference between group A and group B was significant ($P < 0.01$) at 1wk postoperatively, but it was insignificant at other postoperative time points ($P > 0.05$). (2) Tear break-up time (BUT): there was a large reduction in BUT at 1wk, 1, 3mo postoperatively. The difference between group A and group B was significant ($P < 0.05$). However, there were no significant differences between the two groups at other times ($P > 0.05$). (3) CFS score: there was a large increase in CFS at 1wk, 1, 3mo

postoperatively. The difference between group A and group B was significant ($P < 0.05$). However, there were no significant differences between the two groups at other times ($P > 0.05$). (4) Tear osmolarity: there was a large increase in tear osmolarity at 1wk, 1mo postoperatively. The difference between group A and group B was significant ($P < 0.01$). However, there were no significant differences between the two groups at other times ($P > 0.05$).

• CONCLUSION: The stability of tear film in patients underwent sub 1.8mm micro-incision cataract surgery (MICS) is much better than in patients received 2.5mm mini-incision coaxial phacoemulsification, but symptoms of dry eye in patients operated with MICS are much more serious during the early postoperative period. There is no significant difference in the long-term effects on tear film between the two types of incision.

• KEYWORDS: phacoemulsification; micro-incision; mini-incision coaxial; tear film; old people

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摘要

目的: 探讨白内障超声乳化手术不同切口对泪膜长期的影响。

方法: 选取64例76眼的非干眼患者, 对其行白内障超声乳化吸除术。随机分为两组: A组30例38眼, 行2.5mm同轴小切口白内障超声乳化术; B组34例38眼, 行1.8mm以下双轴微切口白内障超声乳化术(MICS)。分别于术前, 术后1wk, 1, 3, 6mo, 1a对患者行基础泪液分泌试验(S I t)、泪膜破裂时间(BUT)、角膜荧光素染色(CFS)和泪膜渗透压检查。采用SPSS 19.0统计软件, 对数据进行卡方检验和配对*t*检验分析。

结果: (1) S I t试验: A组和B组在术后1wk时明显增加, 其差异具有统计学意义($P < 0.01$), 而其他各时间点差异均无统计学意义($P > 0.05$); (2) BUT: A组和B组在术后1wk, 1, 3mo时明显缩短, 其差异具有统计学意义($P < 0.05$), 其余各点差异均无统计学意义($P > 0.05$); (3) CFS评分: A组和B组在术后1wk, 1, 3mo时增加, 其差异均有统计学意义($P < 0.05$), 其余各点差异无统计学意义($P > 0.05$); (4) 泪液渗透压: A组和B组术后1wk和1mo时明显增高, 其差异有统计学意义($P < 0.01$), 其余各点均无统计学意义($P > 0.05$)。

结论: 术后早期, 行1.8mm以下双轴微切口白内障超声乳

2 结果

2.1 S I t 检查 两组其差异性明显增加,与术前相比均具有统计学意义($P<0.01$)。A组与B组在术后1wk时其差异有统计学意义($P<0.01$),而在其他各时间点则均无统计学意义($P>0.05$)

2.2 BUT 检查 两组 BUT 在术后1wk;1,3mo;1a时明显缩短,与术前相比其差异均有统计学意义($P<0.01$)。A组 BUT 在术后6mo时差异性具有统计学意义($P<0.01$),而B组则无统计学意义($P>0.05$);两组比较:两组术后1wk;1,3mo时其差异有统计学意义($P<0.05$),而其余各时间点均无统计学意义($P>0.05$)。

2.3 CFS 检查 两组在术后1wk;1,3mo增加,与术前相比均具有统计学意义($P<0.01$),而在6mo;1a时则无统计学意义($P>0.05$);两组在术后1wk;1,3mo时差异均有统计学意义($P<0.05$),其余各点均无统计学意义($P>0.05$)。

2.4 泪液渗透压 两组在术后1wk;1,3mo时明显增高,与术前相比有统计学意义($P<0.01$),但在术后6mo;1a时无统计学意义($P>0.05$)。两组比较在术后1wk;1mo时具有统计学意义($P<0.01$),而在3,6mo;1a则无统计学意义($P>0.05$)。

3 讨论

据不完全统计,中国现有白内障患者约700万人,每年进行超过几百万例白内障手术,估计每年的费用超过数十亿元^[9]。白内障超声乳化吸除术虽然具有操作时间短、对眼部组织损伤小、术后恢复效果好等优点在临床上得到广泛的应用,但是其手术也会导致一些角膜神经和角膜知觉受损,角膜知觉减退可能使泪腺生成泪液的减少,这反过来又可以导致干眼症状的出现^[10]。经临床上观察发现,术后部分术眼会出现眼部干涩感、异物感、发痒或烧灼感、畏光、眼红、视力疲劳等不适症状^[9]。如何才能有效地降低白内障超声乳化术后干眼的发生,有重要的临床研究意义^[11,18,19]。

目前有报道证实,关于白内障不同手术切口对术后泪膜的影响相关报道较多,或为白内障超声乳化手术切口与白内障囊外摘除手术切口进行比较^[20-23],或为小切口白内障囊外摘除术不同手术切口之间进行比较^[22,24]。本研究观察了1.8mm以下双轴微切口白内障超声乳化和2.5mm同轴小切口白内障超声乳化和非干眼患者行超声乳化和术后眼表泪膜功能的长期影响。

本研究结果显示,两组在平均年龄、性别比例等情况差异均无统计学意义,但其具有可比性。术后1wk;1,3mo,两组 S I t, BUT, CFS, 泪液渗透压差异均有统计学意义($P<0.01$);术后1wk;1mo, A组 BUT 和泪液渗透压小于 B组, A组 CFS 评分大于 B组, 差异具有统计学意义。分析可能原因为2.5mm同轴小切口白内障超声乳化和术切口造成结膜上皮损伤而水肿导致术后眼部不适症状的加重,同时也反射性引起泪液分泌量的增加。2.5mm同轴小切口白内障超声乳化和术切口在术后早期对泪膜稳定性的影响小于1.8mm以下双轴微切口白内障超声乳化和术切口。

总之,手术对眼表泪膜稳定性的影响因素主要包括:(1)术前应用表面麻醉眼药水过于频繁。(2)2.5mm同轴小切口白内障超声乳化和术切口可造成神经反射的完整性,术后角膜知觉随之降低,瞬目间歇延长,致使眼表泪膜分布不均匀,泪膜不能维持其稳定性^[18,24]。(3)术中表面麻醉眼药水以及术后滴眼液中的防腐剂对眼表面上皮组织的毒性反应,使角膜上皮损伤,易导致眼部不适症状^[19,25]。

在此之前的研究报道为白内障手术后泪膜参数的结果和泪液功能的短期中断。Ram等^[12]报道23例25眼白内障手术后的受试者表现出术前数值与术后2mo在不同时间点的 S I t 和 BUT 下降。Li等证实37例50眼白内障手术后的受试者术前数值与术后 S I t 和 BUT 在1wk;1,3mo的时间点有相应的下降^[4]。这些研究遵循着受试者手术后在有限的时间内,虽然有正常化的趋势,但短期随访限制了其确定泪膜参数是否返回基线值。因此,我们研究的目的是评估患有白内障手术受试者至少3mo前的测试在手术眼和非手术眼泪膜参数之间的是否具有相似性。事实上,我们的数据表明,术后泪膜参数得以恢复,所有研究参数均有统计学相似性。

本研究不仅对 S I t, BUT, CFS 进行评估,而且对其他较少确定的客观泪液功能测定包括白内障手术后长期的泪液渗透压进行评估。这是一个重要的研究,因为它可以开始对患有白内障手术后眼睛长期变化等方面的知识奠定了基础。

对结果解释要考虑的一个问题是小样本的大小。像这样一小规模研究中没有显著性差异的发现并不意味着不存在区别。与其他研究一样,我们的结论必须解释而且有研究的局限性。此外,我们的研究不能以个别年龄和性别等泪膜功能进行评估。然而,这些因素得到有效控制,如设计的性质不依赖于任何人口统计参数的影响。最后,这项研究无法评估泪膜参数和患者症状之间的影响,DES的发病率主要来源于其症状以及在此之前的研究表明其症状和临床试验之间的相关性较差^[11]。因此,剩余的知识是否增加患者手术后眼表症状并最终降低术前不适感。

我们的研究表明,尽管有这些限制,但可以预测接受白内障手术的患者术眼术后长短期的泪膜功能。增加患者对此的了解,并给予切合实际的预期效果,这可以提高患者整体的满意度和改善医患关系。我们希望这些发现为今后的研究打开大门,以确认我们的研究结果,并进一步研究白内障术后泪膜的破坏和变化的机制,包括症状和角膜敏感度的手术效果,而在这项研究中没有对其进行专门研究。

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