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玻璃体切割联合白内障手术治疗增殖性糖尿病视网膜病变中的疗效*

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摘要 目的:探讨玻璃体切割联合白内障手术治疗增殖性糖尿病视网膜病变的疗效。**方法:**选择 2013 年 1 月至 2016 年 6 月我院接诊的 90 例增殖性糖尿病视网膜病变患者,通过随机数表法分为观察组(n=45)和对照组(n=45)。对照组使用玻璃体切割术+晶状体切除术,观察组使用玻璃体切割术+超声乳化吸除术。比较两组最佳矫正视力、泪液白介素(IL)-2、角膜荧光素染色(FL)、泪膜破裂时间(BUT)以及泪液分泌试验(SIt)的结果以及并发症的发生情况。**结果:**手术后,观察组最佳矫正视力明显优于对照组($P<0.05$),泪液 IL-2 水平明显高于对照组($P<0.05$),FL 显著低于对照组,BUT、SIt 明显高于对照组($P<0.05$),囊膜浑浊、虹膜新生血管、角膜水肿、干眼症的发生率均显著低于对照组($P<0.05$)。**结论:**玻璃体切割联合超声乳化吸除术治疗增殖性糖尿病视网膜病变患者的效果显著,可促进术后视力恢复,改善泪液分泌,并减少并发症。

关键词:糖尿病;视网膜病变;玻璃体切割;白内障手术

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Clinical Efficacy of Vitrectomy Combined with Cataract Surgery in Treatment of Proliferative Diabetic Retinopathy*

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ABSTRACT Objective: To study the clinical efficacy of vitrectomy combined with cataract surgery in the treatment of proliferative diabetic retinopathy. **Methods:** 90 patients of proliferative diabetic retinopathy who were treated from January 2013 to June 2016 in our hospital were selected. According to random number table, those patients were divided into the observation group (n=45) and the control group (n=45). The control group was treated with vitrectomy+lentectomy, while the observation group was treated with vitrectomy+ phacoemulsification. Then the best corrected visual acuity, tear interleukin (IL)-2, fluorescein (FL), breakup time of tear film (BUT) and Schirmer test(SIt) and incidence of complications were compared. **Results:** After operation, the best corrected visual acuity of observation group was better than that of the control group($P<0.05$); the tear IL-2 level in the observation group was significantly higher than that of the control group ($P<0.05$); the FL in the observation group was significantly lower than that of the control group, the BUT and SIt were significantly higher than those of the control group ($P<0.05$); the incidence rate of capsular opacity, iris neovascularization, corneal edema, xerophthalmia in the observation group was significantly lower than that of the control group ($P<0.05$). **Conclusion:** Vitrectomy combined with phacoemulsification was effective for proliferative diabetic retinopathy, which could promote the recovery of visual acuity after surgery, improvement of tear secretion and decrease the complications.

Key words: Diabetes; Retinopathy; Vitrectomy; Cataract surgery

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前言

随着目前生活、饮食的不断改变,糖尿病的患病率也呈日趋增长趋势,而长期的高血糖易引发多种眼部并发症,例如视神经病变、屈光不正、白内障、视网膜病变等^[1]。其中最常见且十分严重的眼部并发症是增殖性糖尿病视网膜病变,也是导致患者失明的主要原因。增殖性糖尿病视网膜病变的手术治疗多以玻璃体切除术为主,其主要目的是将浑浊或积血的玻璃体切

除,将增生膜牵拉解除,恢复屈光介质透明,从而改善视力。但由于此类患者多存在不同程度的白内障,玻璃体切割术会影响手术效果^[2,3]。有研究显示玻璃体切割术极易增加白内障的发生率,或使已有的白内障严重程度加重,增加手术风险^[4,5]。玻璃体切割术联合白内障手术已成为该病治疗中的首要措施,联合手术具有创伤小、视野好、价格低、效果显著等特点,但国内外对不同的联合术式所产生的疗效仍存在着较大争议^[6,7]。本研究分别采用玻璃体切割联合不同白内障术式治疗增殖性糖尿病视

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网膜病变患者,并对其治疗效果进行分析。

1 资料与方法

1.1 一般资料

选择 2013 年 1 月至 2016 年 6 月我院接诊的增殖性糖尿病视网膜病变患者 90 例。纳入标准^[9]:① 确诊为增殖性糖尿病视网膜病变患者;② 近 3 周内无眼部活动性炎症;③ 眼压正常;④ 同意参与此次研究。排除标准^[9]:① 眼部外伤史、眼部手术史;② 存在影响泪液分泌的全身性疾病;③ 结膜病史;④ 明显晶状体浑浊对手术存在影响的患者。通过随机数表法分为两组。观察组 45 例(52 眼),男 23 例,女 22 例;年龄 35~73 岁,平均(54.75± 3.59)岁;糖尿病病程 3~24 年,平均(14.38± 2.15)年。对照组 45 例(53 眼),男 25 例,女 20 例,年龄 37~75 岁,平均(54.93± 3.34)岁;糖尿病病程 3~21 年,平均(14.31± 2.17)年。本次研究已获得我院伦理学批准,两组一般资料比较差异无统计学意义($P>0.05$),具有可比性。

1.2 治疗方法

对照组:局部麻醉后,在角膜缘后,作一个约 4.00 mm 的巩膜切口,建立标准睫状体平坦部三通道切口;经巩膜切口,在晶状体核中插入两把巩膜穿刺刀,搅碎晶状体核,使用玻璃体切除头将晶状体核、皮质切除,并吸出,再将前囊基部玻璃体以及后囊膜切除干净后,保留前囊完整;刮净前囊膜下上皮细胞层,直至囊清亮透明,然后实施玻璃体切割以及视网膜手术。手术结束时根据病情决定是否使用硅油填充,一期不进行人工晶状体的植入。观察组:局麻后,先行颞下方角巩缘 3.5~4.0 mm 进水针固

定,建立眼内灌注,在角巩膜缘处作隧道切口,实施超声乳化术,吸除晶体核、皮质,抛光后囊及囊袋,将粘弹剂注入囊袋内,之后使用 10-0 尼龙线缝合角巩膜切口,以保持前后房压力平衡,然后实施玻璃体切割以及视网膜手术,方法和对照组相同,手术结束时根据病情决定是否使用硅油填充,一期不进行人工晶状体的植入。两组患者在术后均给予常规抗炎治疗,滴用同种抗炎滴眼液,并将控制眼压在正常范围。

1.3 观察指标

① 最佳矫正视力;② 用毛细玻璃管法收集患者泪液,测定白介素(IL)-2 水平,方式使用双抗体夹心酶联免疫吸附法;③ 角膜荧光素染色(FL)(日本 TOPCON 公司,裂隙灯显微镜)、泪膜破裂时间(BUT)以及泪液分泌试验(SIt),其中 FL 反映角膜上皮损害程度,BUT 反映泪膜稳定性,SIt 反映泪液基础分泌情况;④ 并发症的发生情况。

1.4 统计学分析

使用 SPSS18.0 软件包,计量资料以均数± 标准差($\bar{x} \pm s$)表示,采用 t 检验,计数资料采用 χ^2 检验,以 $P<0.05$ 表示差异具有统计学意义。

2 结果

2.1 两组手术前后最佳矫正视力的比较

手术前,两组最佳矫正视力比较差异无统计学意义 ($P>0.05$);手术后,两组最佳矫正视力较治疗前均显著提高 ($P<0.05$),且观察组最佳矫正视力均优于对照组($P<0.05$),见表 1。

表 1 两组手术前后最佳矫正视力比较($\bar{x} \pm s, D$)

Table 1 Comparison of the best corrected visual acuity between two groups before and after operation ($\bar{x} \pm s, D$)

Groups		Best corrected visual acuity
Observation group(n=45)	Before operation	0.28± 0.05
	After operation	0.75± 0.12* [#]
Control group(n=45)	Before operation	0.26± 0.06
	After operation	0.57± 0.09*

Note: Compared with the same group, * $P<0.05$; compared with the control group, [#] $P<0.05$.

2.2 两组手术前后泪液 IL-2 水平的比较

手术前,两组泪液 IL-2 水平比较差异无统计学意义 ($P>$

0.05);手术后,两组泪液 IL-2 水平均较治疗前比较均升高($P<0.05$),且观察组泪液 IL-2 水平明显高于对照组($P<0.05$),见表2。

表 2 两组手术前后泪液 IL-2 水平的比较($\bar{x} \pm s, \mu g/L$)

Table 2 Comparison of the tear IL-2 level between two groups before and after operation ($\bar{x} \pm s, \mu g/L$)

Groups		IL-2
Observation group(n=45)	Before operation	3.28± 0.54
	After operation	6.23± 0.95* [#]
Control group(n=45)	Before operation	3.31± 0.52
	After operation	4.77± 0.69*

Note: Compared with the same group, * $P<0.05$; compared with the control group, [#] $P<0.05$.

2.3 两组手术前后 FL、BUT、SIt 结果的比较

手术前,两组 FL、BUT、SIt 比较差异无统计学意义 ($P>0.05$);手术后,两组 FL、BUT、SIt 结果较治疗前比较均显著改善($P<0.05$),观察组 FL 低于对照组,BUT、SIt 高于对照组($P<$

0.05),见表 3。

2.4 两组并发症的发生情况比较

观察组在囊膜浑浊、虹膜新生血管、角膜水肿、干眼症的发生率均显著低于对照组($P<0.05$),见表 4。

表 3 两组手术前后 FL、BUT、SIt 比较($\bar{x} \pm s$)Table 3 Comparison of the FL, BUT and SIt between two groups before and after operation ($\bar{x} \pm s$)

Groups		FL	BUT(s)	SIt(mm)
Observation group(n=45)	Before operation	1.58 $\pm$ 0.42	6.15 $\pm$ 1.30	4.42 $\pm$ 0.84
	After operation	0.98 $\pm$ 0.20* [#]	7.59 $\pm$ 1.73* [#]	7.97 $\pm$ 1.46* [#]
Control group(n=45)	Before operation	1.60 $\pm$ 0.41	6.12 $\pm$ 1.35	4.45 $\pm$ 0.81
	After operation	1.26 $\pm$ 0.31*	6.78 $\pm$ 1.54*	5.29 $\pm$ 1.16*

Note: Compared with the same group, *P<0.05; compared with the control group, [#]P<0.05.

表 4 两组并发症的发生情况比较(例,%)

Table 4 Comparison of the incidence of complications between two groups (n, %)

Groups	Capsular opacity	Iris neovascularization	Vitreous hemorrhage	Corneal edema	Xerophthalmia
Observation group(n=45)	2(4.44)*	1(2.22)*	1(2.22)*	2(4.44)*	2(4.44)*
Control group(n=45)	9(2.00)	7(15.56)	3(6.67)	8(17.78)	9(2.00)

Note: Compared with the control group, *P<0.05.

3 讨论

玻璃体切割术是治疗增殖性糖尿病视网膜病变的常用术式,主要是切除积血或浑浊的玻璃体,使增生膜牵拉解除,恢复屈光介质的透明,并使全视网膜光凝得以完成^[10,11]。但由于患者年龄以及糖尿病的影响,实施该术式常会增加白内障的发生率或加重已有的白内障严重程度。有研究显示此类患者在实施玻璃体切割术后白内障的发生率高达 85%,且由于失去玻璃体的支撑,增加了二次手术的难度及风险^[12]。随着晶状体切除、超声乳化、玻璃体切割术的不断完善,联合手术的方式也已广泛应用于治疗该病^[13,14]。Wahab S 等^[15]证实联合手术中,没有白内障的干扰,眼底图像更清楚,可更加准确的进行剥膜,术后眼底检查及补充视网膜光凝治疗也更便捷,可提高远期疗效。Sano M^[16]等也证实联合手术在改善术后视力中效果更具有优势。但玻璃体切割术联合晶状体切除术或超声乳化吸除术哪种效果更令人满意,临床上仍鲜有报道。

本研究显示联合手术患者术后视力均得到改善,但联合超声乳化吸除术的患者改善程度明显更优异,联合超声乳化吸除术的患者囊膜浑浊、虹膜新生血管、角膜水肿、干眼症的发生率均显著低于对照组。虹膜新生血管主要是由于视网膜缺血所致,晶状体具有抑制新生血管形成的效果^[17]。可能是由于在晶状体切除术使患者丧失晶状体屏障,进而提高了虹膜新生血管的发生率;且术中瞳孔难以充分散大,致使残留的晶状体上皮细胞增生,导致囊膜浑浊^[18,19]。超声乳化吸除术中则可减少对周围组织的损伤,安全性更高。Browning DJ^[20]报道显示在实施晶状体切除术时将后囊膜一起切除使玻璃体出血的发生率增加。虽然本研究中两组玻璃体出血发生率差异不明显,但联合晶状体切除术的患者发生率仍略高。

而对于干眼症的评价,临床上多采用 FL、BUT、SIt 诊断,其中 FL 可反应角膜上皮损害程度,BUT 反映泪膜稳定性,而 SIt 则可反映泪液基础分泌情况。Ishibazawa A 等^[21]实验证实增殖性糖尿病视网膜病变患者实施手术后,角膜上皮会发生不同程度的损伤,角膜知觉降低,致使泪腺蒸发过快,而角膜知觉的衰退,造成眼部表面干燥,影响泪液分泌,增加干眼症的发生率,进而影响术后恢复。本研究结果显示联合超声乳化吸除术

的患者 FL 降低,BUT、SIt 更高,提示该方式对患者的泪液分泌功能影响、角膜上皮的损伤较小,安全性更高,这也是患者干眼症发生率更低的内在原因之一。

虽然对增殖性糖尿病视网膜病变的发生机制仍不明确,但较多研究表明炎症因子在该病的发生、发展过程中发挥了十分重要的作用^[22,23]。IL-2 作为人体免疫应答中的重要细胞因子,是淋巴细胞活性的敏感指标,主要是由特异性抗原刺激淋巴细胞后发生合成及释放,并表达其受体,其不仅可参与炎症反应,且具有抗肿瘤、移植免疫排斥反应的作用。Afzal N 等^[24]研究显示糖尿病视网膜病变患者眼玻璃体中 IL-2 浓度明显低于健康人,提示 IL-2 和糖尿病视网膜病变的发生、发展之间存在着密切的关系。Yan F 等^[25]报道在增殖性视网膜病变患者中,玻璃体内 IL-2 水平明显降低,且降低程度和眼底视网膜病变严重程度呈负相关。本研究显示联合超声乳化吸除术的患者术后泪液 IL-2 的表达更高,分析和该方式术中周围组织的伤害较轻,有利于维持血-房水屏障功能等相关,有利于促进术后视力恢复^[26]。

综上所述,玻璃体切割联合超声乳化吸除术治疗增殖性糖尿病视网膜病变患者的效果显著,可促进术后视力恢复,改善泪液分泌,并减少并发症。

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