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Ahmed 青光眼阀植入术治疗眼外伤继发性青光眼临床疗效 *

董晓飞¹ 刘伟² 刑悦¹ 高髻云³ 赵永亮¹

(1 秦皇岛市第一医院眼科 河北 秦皇岛 066000; 2 天津医科大学眼科医院青光眼科 天津 300070;

3 青岛大学医学院附属医院眼科 山东 青岛 266400)

摘要 目的:探讨 Ahmed 青光眼阀植入术治疗眼外伤继发性青光眼患者的临床效果。**方法:**回顾性分析 2013 年 3 月至 2018 年 3 月我院接诊的 103 例眼外伤继发性青光眼患者临床资料, 根据手术方法不同分为观察组 53 例和对照组 50 例。观察组给予 Ahmed 青光眼阀植入术治疗, 对照组给予小梁切除术治疗。比较两组手术疗效、治疗前后眼压、视力的变化、滤过泡、并发症的发生情况。**结果:**经随访显示, 观察组手术完全成功率为 52.83%, 明显高于对照组(32.00%, $P<0.05$); 两组术后眼压较术前均降低, 视力均较术前升高, 组间、不同时间点比较差异有统计学意义 ($P<0.05$); 观察组功能性滤过泡率为 71.70%, 明显高于对照组(50.00%, $P<0.05$); 两组术后浅前房、前房出血、虹膜阻塞总发生率分别为 7.55% 和 18.00%, 组间差异无统计学意义($P>0.05$)。**结论:**Ahmed 青光眼阀植入术治疗眼外伤继发性青光眼的疗效显著, 有助于控制眼压, 改善视力。

关键词:眼外伤; 青光眼; 小梁切除术; Ahmed 青光眼阀植入术; 眼压

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Clinical Effect of Ahmed Glaucoma Valve Implantation on the Glaucoma Secondary to Ocular Trauma*

DONG Xiao-fei¹, LIU Wei², XING Yue¹, GAO Ji-yun³, ZHAO Yong-liang¹

(1 Department of Ophthalmology, the First Hospital of Qinhuangdao City, Qinhuangdao, Hebei, 066000, China;

2 Department of Glaucoma, Tianjin Medical University, Tianjin, 300070, China;

3 Department of Ophthalmology, Affiliated Hospital of Qingdao University Medical College, Qingdao, Shandong, 266400, China)

ABSTRACT Objective: To study the clinical effect of Ahmed glaucoma valve implantation on the glaucoma secondary to ocular trauma. **Methods:** The clinical data of 103 patients with glaucoma secondary to ocular trauma in our hospital from March 2013 to March 2018 were retrospectively analyzed, the patients were divided into 53 cases in the observation group and 50 cases in the control group by the different surgical methods. The observation group was treated with Ahmed glaucoma valve implantation, while the control group was treated with trabeculectomy. The operative efficacy, the changes of the intraocular pressure, visual acuity, filtering bleb before and after treatment, and complications were compared between the two groups. **Results:** The follow-up showed that the complete success rate of operation in the observation group was 52.83%, which was significantly higher than that in the control group(32.00%, $P<0.05$); the post-operative intraocular pressure in both groups were lower than those before operation, the visual acuity were higher than those before operation, and there were significant differences at interblock and different time points ($P<0.05$); the functional filtering bleb rate in the observation group was 71.70%, which was significantly higher than those in the control group (50.00%, $P<0.05$); the total incidence of shallow anterior chamber, anterior chamber hemorrhage and iris obstruction in the two groups were 7.55% and 18.00% respectively, there was no significant difference between groups ($P>0.05$). **Conclusion:** Ahmed glaucoma valve implantation is effective in the treatment of glaucoma secondary to ocular trauma, it's helpful to control intraocular pressure and improve visual acuity, the success rate of operation is high, and it is worth popularizing.

Key words: Ocular trauma; Glaucoma; Trabeculectomy; Ahmed glaucoma valve implantation; Intraocular pressure

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前言

眼外伤继发青光眼的患者在临床上约占 5%~8%, 属于继发性疾病, 多由于挫裂伤、钝器击打伤、穿透伤、化学刺激伤等。

和原发性青光眼不同的是此类患者还需面对短期内眼压的痛苦, 部分患者可能还伴有视神经损伤, 若未得到有效的处理, 极易造成不可逆的视觉功能障碍, 严重者甚至失明^[1,2]。眼外伤继发性青光眼的发病机制十分复杂, 临床表现、病理改变多种

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作者简介: 董晓飞(1976-), 男, 本科, 主治医师, 研究方向: 青光眼的诊治, 电话: 13930326073, E-mail: jzelav@163.com

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多样,在治疗上也比原发性青光眼更加困难^[3,4]。常规的抗炎、降眼压药物的通常无法取得满意效果,多数患者需及时实施手术治疗^[5,6]。

Ahmed 青光眼阀植入术是目前临床上治疗难治性青光眼的一种有效术式,控制各类顽固性高眼压疗效明显,但其在眼外伤继发性青光眼患者中的疗效仍处于探讨阶段^[7,8]。本研究旨在分析 Ahmed 青光眼阀植入术在眼外伤继发性青光眼患者中的应用效果和安全性,现报道如下。

1 资料与方法

表 1 两组一般资料比较 $[\bar{x} \pm s, n(\%)]$

Table 1 Comparison of the general information between two groups $[\bar{x} \pm s, n(\%)]$

Item	Observation group(n=53)	Control group(n=50)	χ^2/t value	P value
Gender (male/female)	29/24	28/22	0.465	0.495
Age (years)	29.27 $\pm$ 5.40	28.83 $\pm$ 5.77		
Preoperative course (d)	8.56 $\pm$ 2.41	5.20 $\pm$ 2.65		
Injured part	Left eye	25(47.17)	0.240	0.624
	Right eye	28(52.83)	24(56.00)	
Cause of injury	Contusion injury of eyeball	32(60.38)	0.002	0.969
	Perforating injury of eyeball	16(30.19)	0.060	0.807
	Chemical damage	5(9.43)	0.178	0.673

1.2 手术方法

对照组给予小梁切除术治疗,步骤如下:①常规球后阻滞麻醉,药物为 3%利多卡因 +0.5%布比卡因混合液,置上直肌牵引缝线,以角膜缘为基底,作结膜瓣结膜瓣,大小为 3 mm $\times$ 3 mm,厚度为 1/2 巩膜厚度;②作前房穿刺口,位置选择鼻侧角膜缘,并将浸有 0.4 g/L 丝裂霉素 C 的棉片,于巩膜瓣置入,保持时间 2~4 min,取出;③切除小梁组织,范围 1 mm $\times$ 2 mm,切除周围虹膜,缝合巩膜瓣,于鼻侧侧切口给予平衡盐液注入,重建前房,缝合结膜;④术后在球结膜下给予抗生素注射,预防感染。

观察组给予 Ahmed 青光眼阀植入术治疗,步骤如下:①常规球后阻滞麻醉,药物为 3%利多卡因 +0.5%布比卡因混合液,置上直肌牵引缝线,以穹窿部为基底,于在颞上象限作结膜瓣,钝性分离球结膜,令巩膜赤道得到充分暴露;②将浸有 0.4 g/L 丝裂霉素 C 的棉片,于巩膜赤道部结膜瓣下置入,保持时间 5 min,取出;③于巩膜上固定引流阀前缘,距离和角膜缘相隔 8~10 mm,作一个以角膜缘为基底的巩膜瓣,大小为 3 mm $\times$ 3 mm,厚度为 1/2 巩膜厚度;④于巩膜瓣下方实施前房穿刺,修剪引流管至合适大小,斜面角度 30°,于前房插入引流管,位置深度 2~3 mm,固定引流管,巩膜瓣的缝合使用 10-0 尼龙缝线,结膜的缝合使用 8-0 可吸收缝线;⑤术后在球结膜下给予抗生素注射,预防感染。

1.3 观察指标

对所有患者进行为期 12 个月的随访,评价手术成功率,参照文献^[9],完全成功:无需使用抗青光眼药物,眼压保持在 0.8~2.8 kPa;相对成功:仍需使用抗青光眼药物,眼压保持在

1.1 一般资料

回顾性分析 2013 年 3 月至 2018 年 3 月我院接诊的 103 例眼外伤继发性青光眼患者临床资料。纳入标准^[9]:①眼部外伤史,经过视力、眼压、眼生物测量等检查确诊为眼外伤继发性青光眼;②经过常规的抗炎、降眼压药物治疗后症状无明显感染;③单眼发病;④临床资料完整,完成随访调查。排除标准^[10]:①合并晶状体移位、玻璃体损伤等;②合并其余眼部创伤;③身体机能弱,无法耐受手术;④具有相关手术禁忌症;⑤原发性青光眼。通过手术方法不同分为观察组 53 例和对照组 50 例,两组一般资料见表 1,差异无统计学意义($P>0.05$)。

0.8~2.8 kPa;失败:仍需使用抗青光眼药物,但眼压仍 >2.8 kPa,控制效果不佳,或出现眼内炎、眼球萎缩、视网膜脱离、恶性青光眼等严重并发症。并记录两组术前、术后 3 个月、6 个月、12 个月时眼压、视力的变化情况、滤过泡情况及并发症,其中滤过泡情况按照 Kronfeld 标准^[12],I 型表示微小囊泡型,II 型表示弥漫扁平型,III 型为瘢痕型、巩膜和球结膜之间相互有连接,IV 型表示失败滤泡型、滤过泡缺或呈包裹,其中 I 型和 II 型表示功能性滤过泡,III 型和 IV 型表示非功能性滤过泡。

1.4 统计学分析

以 spss18.0 软件包处理,正态分布计量资料用均数 $\pm$ 标准差 $(\bar{x} \pm s)$ 表示,组间比较使用独立样本 t 检验,不同时间点使用重复测量分析,计数资料以率表示,组间比较采用 χ^2 检验, $P<0.05$ 表示差异具有统计学意义。

2 结果

2.1 两组手术疗效的比较

观察组手术完全成功率明显高于对照组($P<0.05$),两组手术相对成功率、失败率比较差异无统计学意义($P>0.05$),见表 2。

2.2 两组不同时间点眼压比较

两组术后眼压较术前均降低,观察组均低于对照组,组间、不同时间点比较差异有统计学意义($P<0.05$),且两组眼压比较具有交互作用($P<0.05$),见表 3。

2.3 两组不同时间点视力比较

两组术后眼压较术前均升高,观察组均高于对照组,组间、不同时间点比较差异有统计学意义($P<0.05$),且两组眼压比较具有交互作用($P<0.05$),见表 4。

表 2 两组手术疗效比较[n(%)]

Table 2 Comparison of the general information between two groups[n(%)]

Groups	n	Complete success	Relative success	Fail
Observation group	53	28(52.83)	22(41.51)	3(5.66)
Control group	50	16(32.00)	27(54.00)	7(14.00)
χ^2 value		4.562	1.609	2.041
P value		0.033	0.205	0.153

表 3 两组不同时间点眼压比较($\bar{x} \pm s$, kPa)

Table 3 Comparison of the intraocular pressure between two groups at different time points($\bar{x} \pm s$, kPa)

Groups	n	Preoperative	Postoperative 3 months	Postoperative 6 months	Postoperative 12 months
Observation group	53	4.73 $\pm$ 0.70	1.67 $\pm$ 0.52	2.16 $\pm$ 0.49	2.49 $\pm$ 0.42
Control group	50	4.65 $\pm$ 0.78	1.81 $\pm$ 0.57	2.48 $\pm$ 0.55	3.11 $\pm$ 0.34
Interblock		F=21.720, P <0.05			
Different time points		F=75.834, P <0.05			
Interaction		F=25.405, P <0.05			

表 4 两组不同时间点视力比较($\bar{x} \pm s$)

Table 4 Comparison of the vision between two groups at different time points($\bar{x} \pm s$)

Groups	n	Preoperative	Postoperative 3 months	Postoperative 6 months	Postoperative 12 months
Observation group	53	0.26 $\pm$ 0.06	0.59 $\pm$ 0.07	0.53 $\pm$ 0.06	0.51 $\pm$ 0.07
Control group	50	0.27 $\pm$ 0.06	0.52 $\pm$ 0.06	0.50 $\pm$ 0.05	0.47 $\pm$ 0.8
Interblock		F=8.851, P <0.05			
Different time points		F=25.605, P <0.05			
Interaction		F=9.043, P <0.05			

2.4 两组滤过泡情况比较

观察组功能性滤过率明显高于对照组(P <0.05),见表 5。

表 5 两组滤过泡情况比较[n(%)]

Table 5 Comparison of the filtering bleb between two groups[n(%)]

Groups	n	I	II	III	IV	I+II
Observation group	53	20(37.74)	18(33.96)	12(22.64)	3(5.66)	38(71.70)
Control group	50	12(24.00)	13(26.00)	19(38.00)	6(12.00)	25(50.00)
χ^2 value						5.100
P value						0.024

3 讨论

眼外伤继发性青光眼属难治性青光眼的一类,发生在眼部遭受到创伤后,可导致眼部出现炎症反应、眼内出血、房角损伤、小梁网损伤等,上述因素均可令患者出现高眼压,在外伤和高眼压的共同影响下,增加了致盲率^[13,14]。因此,及时采取有效的治疗措施在挽救患者预后极为重要。

目前,临床上对于药物治疗不满意的眼外伤继发性青光眼患者需选择手术治疗,而不同的表现类型所选择的手术方案也不同^[15,16]。小梁切除术是难治性青光眼患者较为常用的一种基础手术方案,该方式主要在角膜缘进行一条新的房水引流通道

的建立,促进房水可通过引流通道的,由前房引流到球结膜下间隙,并被周围组织所吸收,达到降低眼压效果^[17,18]。但也有较多报道指出,小梁切除术后并发症较多,且随着时间的延长,滤过泡功能可能会丧失,导致患者出现眼压反跳等情况,降低预后^[19,20]。Ahmed 青光眼阀植入术是由 Ahmed 所发明,该引流装置中,房水可通过引流管流至引流盘,并形成功能性滤过泡,而引流阀是一种单向开放的压力阀门,可通过眼压的变化情况,控制房水的引流速度,不仅可达到引流房水的效果,还可避免房水过度引流的现象产生^[21,22]。目前,国外所报道的 Ahmed 青光眼阀植入术用于难治性青光眼手术成功率约为35%~90%,具有较好的控制眼压效果,且和先前的较多引流阀相比,并发症

更少,安全性更好^[23,24]。但 Ahmed 青光眼阀植入术是否可作为常规的抗青光眼手术方式在我国仍存在着争议,且临床上关于该方式的远期疗效、安全性方面等相关研究均较少。

本研究结果显示使用 Ahmed 青光眼阀植入术的患者手术完全成功率比小梁切除术患者的更高,在随访过程中,两组术后 6 个月、12 个月时眼压均有一定升高趋势,但使用 Ahmed 青光眼阀植入术仍更低,通过分析是由于 Ahmed 青光眼阀是一种具有压力变化敏感的阀门,可通过眼压的变化调整房水引流情况,可避免引流过度、眼压反跳性增高的现象,提高手术成功率。此外,通过对功能性滤过率的观察,我们发现使用 Ahmed 青光眼阀植入术的患者明显更高,分析是由于小梁切除术后滤过道容易出现瘢痕增生、组织粘连等机率,也同样增加了滤过泡瘢痕化等发生率,而 Ahmed 青光眼阀植入术对眼内组织的损伤更小,加上压力敏感阀门的优势,也避免了对滤过泡的损伤^[25,26]。关于并发症的发生率,使用 Ahmed 青光眼阀植入术的患者更低,但两组比较差异无统计学意义,可能与样本量过少相关。

但需注意的是,对于临床上眼外伤继发性青光眼的治疗,通常仍首选药物治疗,给予局部或全身降眼压药物降低眼压,抗菌、糖皮质激素等缓解眼内炎症,对于药物控制效果不满意的患者,可选择手术治疗,并根据患者不同损伤类型选择合适的手术^[27,28]。此外,在手术过程中给予丝裂霉素 C 的使用也极为关键,其具有长时、有效的抗纤维增殖效果,可保持滤过道通畅,对引流阀周围组织瘢痕化的产生有抑制作用^[29,30]。但本研究未纳入合并晶状体脱位、玻璃体损伤的患者,且作为回顾性分析,结果上可能存在部分偏倚,因此,未来仍需要更多前瞻性、大样本研究持续探讨。

综上所述,Ahmed 青光眼阀植入术在眼外伤继发性青光眼患者中的疗效显著,有助于控制眼压,改善视力。

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