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血塞通在 23G 微创玻切手术治疗糖尿病性玻璃体积血的作用 *

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摘要 目的：探讨注射用血塞通（冻干粉）在 23G 微创玻切手术治疗糖尿病性玻璃体积血中的作用。**方法：**选取我院收治的 2 型糖尿病性玻璃体积血 70 例，将其随机分为两组，均给予常规血糖控制及 23G 微创玻切手术治疗，实验组于手术前给予注射用血塞通。对比两组患者的手术时间、术后并发症的发生率以及视力恢复情况。**结果：**实验组的平均手术时间明显短于对照组，术后出血、房性炎症、视网膜脱离、新生血管性青光眼并发症的发生率均明显低于对照组，差异有统计学意义（P＜0.05）；实验组视力恢复的总有效率显著高于与对照组，差异有统计学意义（P＜0.05）。**结论：**术前应用注射用血塞通能够明显提高 23G 微创玻切手术治疗糖尿病性玻璃体积血的临床疗效，值得临床推广。

关键词：糖尿病；玻璃体积血；注射用血塞通；23G 微创玻切手术

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Effect of Xuesaitong on 23G Minimally Invasive Vitrectomy Operation in the Treatment of Diabetic Vitreous Hemorrhage*

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ABSTRACT Objective: To explore the effect of Xuesaitong(lyophilized power) on 23G minimally invasive vitrectomy operation in the treatment of diabetic vitreous hemorrhage. **Methods:** 70 cases of patients with type 2 diabetic vitreous hemorrhage who were treated in our hospital were selected and randomly divided into two groups. The patients in both groups were treated with normal blood glucose control and 23 g minimally invasive phaco surgical treatment. Besides, the patients in the experimental group were given blood flux injection before the surgery. Then the operation time, the incidence of postoperative complications and visual acuity of patients in the two groups were observed and compared. **Results:** The operation time of experimental group was significantly shorter than that of the control group, the incidence rates of hemorrhage, realinflammation, retinal detachment and neovascular glaucoma of experimental group were significantly lower than those of the control group, and the differences were statistically significant (P<0.05). The visual acuity of experimental group was better than that of the control group with statistically significant difference (P<0.05). **Conclusions:** Preoperative application of Xuesaitong injection could significantly improve the curative effect of 23G minimally invasive vitrectomy operation in the treatment of diabetic vitreous hemorrhage, which was worthy of clinical promotion.

Key words: Diabetes mellitus; Vitreous hemorrhage; Xuesaitong; 23G minimally invasive vitrectomy operation

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糖尿病性玻璃体积血(diabetic vitreous hemorrhage)是由于高血糖引起的一种视网膜微血管增殖性疾病，属于糖尿病视网膜病变增殖期[1]。本病临床表现与自发性出血量有关，少量出血可表现为＂飞蚊症＂，大量出血可出现眼前红影、暗影、＂冒烟＂，视力下降[2]，中医属＂云雾移睛＂、＂血灌瞳神＂、＂暴盲＂等范畴[3]。据调查统计[4]，我国糖尿病患者的发病率为 3%-4%，视网膜病变占糖尿病患者的 44%-51.3%，并有逐年上升趋势。随着微创技术的发展，人们更加重视糖尿病并发症的防治及预后，现代医学多采取微创玻璃体切割手术等疗法[5]，但由于患者平时血糖较高，微血管条件不好，容易出现手术时间延长、术后出血、新生血管性青光眼、视力恢复较慢等[6]。研究发现[7]，中药三七能够调理气血、通络益肾，改善视网膜血管的缺血缺氧状态，促进视力恢复。血塞通为三七提取物，本研究通过对糖尿病视网膜病变患者术前应用血塞通来探讨注射用血塞通在 23G 微创玻切手术治疗糖尿病性玻璃体积血中的的作用，现将结果报道如下。

1 资料与方法

1.1 一般资料

选取 2012 年 1 月至 2014 年 1 月于我院以 2 型糖尿病为

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诊断而收入院的患者 70 例，共 83 眼患玻璃体积血，拟行 23G 微创玻切手术治疗。采用随机数字表分为实验组和对照组。实验组 35 例 42 眼，其中男 18 例 23 眼，女 17 例 19 眼，平均年龄 51.4± 7.2 岁；对照组 35 例 41 眼，其中男 19 例 23 眼，女 14 例 18 眼，平均年龄 53.9± 6.7 岁。患者玻璃体积血病程＞3 个月。两组患者的一般临床资料相仿，差异无统计学意义(P＞0.05)。患者均自愿参与本实验，并签署知情同意书。研究方案获得我院伦理委员会批准并全过程跟踪。

1.2 纳入标准

参照 2013 年美国糖尿病协会提出的诊断标准[8]患者空腹血糖＞7.1 mol/L，餐后 2 小时血糖＞11.1 mol/L，糖化血红蛋白(HbA1c)＞7%，随机血糖＞11.1 mol/L，符合其中一条，即可诊断为 2 型糖尿病；患者出现视物异常症状 3 个月以上；经眼底检查确定为玻璃体积血。

1.3 排除标准

非首次治疗；存在凝血障碍；心、脑、肝、胆严重疾病；恶性肿瘤；神志异常；由于各种原因不能完成实验的患者。

1.4 治疗方法

两组患者均计划 2 周后行 23G 微创玻切手术治疗，患者术前常规使用降糖药物，将血糖控制在空腹＜7.0 mmol/L，餐后 2h＜11.1 mmol/L，实验组在此基础上使用注射用血塞通(冻干粉，昆明制药集团股份限公司，国药准字 Z20026438) 400 mg 溶于 0.9%氯化钠注射液中静点，滴速 60 d/ 分，7 天为一个治疗疗程，连续治疗两个疗程后行 23G 微创玻切手术。手术方法：常规消毒、局部麻醉，利用 23G 穿刺刀接上套管，经过巩膜缘 - 睫状体 - 玻璃体，固定套管并取出穿刺刀，灌入灌注液，同种方式在鼻、颞上方分别置入套管。术中 23G 光导、激光纤维、玻璃体切割器等器械通过套管进入玻璃体进行玻璃体切割操作。手术后取出套管，穿刺点用棉签压迫闭合。注意事项：用药期间禁食生冷辛辣等刺激性食物，戒烟酒，保持患者情绪稳定。

1.5 观察指标及检测方法

手术时间：术中采用计时器记录统计手术完成所用时间。术后并发症：统计两组患者术后出血、房性炎症、视网膜脱离、新生血管性青光眼等并发症的发生情况，计算其发生率。

术后视力恢复情况：参照国际标准对数视力表[9]，观察两组患者手术前及术后 6 个月的视力情况，并进行比较，根据比较结果将恢复情况分为显效、有效和无效。显效：视力与术前相比提高≥ 2 行；有效：视力与术前相比有提高，但小于 2 行；无效：视力视力与术前相比无变化甚至下降。

1.6 统计学方法

采用统计学软件 SPSS19.0 进行统计学分析，计量资料采用 t 检验，计数资料采用卡方检验处理，以 P＜0.05 为有显著性差异。

2 结果

2.1 两组患者手术时间的比较

实验组的手术时间为 40.1～140.6 min，对照组的手术时间为 52～163 min，实验组的平均手术时间明显短于对照组，差异有统计学意义(P＜0.05)，见表 1。

表 1 两组患者的手术时间比较(均数± 标准差，分钟)

Table1 Comparison of the operation time between two groups($\bar{x}$± s，min)

Group	Operation time	Mean
Experimental group	40.1～140.7	82.56± 23.11△
Control group	52.5～163.4	98.67± 25.38

Note: △P＜0.05, compared with control group.

2.2 两组患者术后并发症发生情况的比较

手术后，实验组患者术后出血、房性炎症、视网膜脱离、新生血管性青光眼并发症的发生率均明显低于对照组，差异有统计学意义(P＜0.05)，见表 2。

表 2 两组患者术后并发症发生情况的比较(眼，%)

Table 2 Comparison of the incidence of postoperative complications after treatment between two groups (Eyes, %)

Group	Postoperative bleeding	Atrial inflammation	Retinal detachment	Neovascular glaucoma
Experimental group	3(2.3)△	1(0.8)△	0(0)△	2(1.6)△
Control group	7(5.6)	3(2.4)	2(1.6)	5(4.0)

Note : △P＜0.05, compared with control group.

2.3 两组患者术后视力恢复情况的比较

实验组视力恢复的总有效率显著高于与对照组，差异有统计学意义(P＜0.05)，如表 3。

3 讨论

糖尿病视网膜病变是糖尿病眼底微血管病变的一种表现，包括非增殖性和增殖性病变[10]。玻璃体积血即是由于眼底新生血管产生，长入玻璃体内，导致玻璃体出血、积血，影响患者视力，严重者会导致失明。随着人们生活方式的转变，糖尿病的发病率逐年增高，玻璃体积血的发生率亦不断上升，严重影响人们的生活质量[11]。目前，对于玻璃体积血，主要的治疗方式为玻璃体切割术，但由于糖尿病患者体内高糖状态，血管内皮细胞

表 3 两组患者术后视力恢复情况的比较(眼,%)

Table3 Comparison of the visual acuity after treatment between two groups (Eyes, %)

Group	The number of cases	Markedly	Effective	Invalid	Total efficiency
Experimental group	35(42)	32(76.1)	9(21.4)	1(2.38)	97.6△
Control group	35(41)	23(56.0)	11(26.8)	7(17.0)	82.9

Note : △P＜0.05, compared with control group.

功能受影响,小血管脆弱,容易渗漏,手术难度较大,且易出现术后出血、房性炎症等并发症,影响治疗效果[12]。糖尿病视网膜病变中医属消渴目病范畴,主要因气阴两虚、瘀血阻络所致,治宜益气养阴,活血通络[14]。三七为活血化瘀的代表药物,血塞通为三七的有效成分,研究发现中药三七及三七提取物对于糖尿病视网膜病变的治疗效果明显[13],但其对于糖尿病性玻璃体积血经 23G 微创玻切手术效果的影响尚不明确。

高血糖能够使血红蛋白被糖化,形成结合血红蛋白,而血红蛋白的高低程度与糖尿病并发大血管、微血管病变相一致[15]。糖尿病患者血糖异常导致患者血液中红细胞变形性变差,集聚性增加,血小板聚集率和黏附率增加,血液处于高凝状态,因而导致血流缓慢,甚至发生阻塞[16]。糖尿病患者的眼底毛细血管组织形态紊乱,周细胞数量减少,血管通透性增强,而且视网膜神经细胞凋亡加速。动物实验表明糖尿病大鼠眼底血小板聚集率和黏附率明显高于正常大鼠[18]。而三七可降低血小板聚集率,抑制血小板粘附率和血栓的形成,并且能够使已经形成的血栓分解[17]。本研究结果显示:术前经血塞通预处理的患者手术时间明显短于单纯接受 23G 微创玻切手术治疗的患者,提示血塞通能够缩短 23G 微创玻切手术的时间,这可能与其改善血管条件,降低手术难度的作用有关;术前经血塞通预处理的患者术后出血、房性炎症、视网膜脱离、新生血管性青光眼并发症的发生率均明显低于单纯接受 23G 微创玻切手术治疗的患者,提示血塞通能够明显降低 23G 微创玻切手术术后并发症的发生率;此外,术前经血塞通预处理的患者视力恢复总有效率较单纯接受 23G 微创玻切手术治疗的患者更高,提示血塞通能够明显促进 23G 微创玻切手术术后患者的视力恢复。我们推测血塞通的治疗机制是改善患者的血液流变学指标,使血液粘稠度下降,加速视网膜血液流速,增加视网膜的供血量与供氧量,减少视网膜因缺血而代偿性生成新血管,进而保护了视网膜[19,20]。

总之,本研究结果表明术前应用血塞通能够明显提高 23G 微创玻切手术治疗糖尿病性玻璃体积血的临床疗效,并减少并发症的发生,值得临床推广。

参 考 文 献(References)

[1] Geraissate JC, Yamamoto RE, Isaac DL, et al. Hemorrhagic retinopathy in an infant with hemolytic-uremic syndrome[J]. Arq Bras Oftalmol, 2014, 77(6): 397-399

[2] Saeki K, Obayashi K, Nishi T, et al. Short-term influence of cataract surgery on circadian biological rhythm and related health outcomes (CLOCK-IOL trial): study protocol for a randomized controlled trial [J]. Trials, 2014, 29(15): 514

[3] Manusow JS, Khoja L, Pesin N, et al. Retinal vasculitis and ocular vitreous metastasis following complete response to PD-1 inhibition in a patient with metastatic cutaneous melanoma [J]. J Immunother Cancer, 2014, 16, 2(1): 41

[4] AlHarkan DH, Kahtani ES, Gikandi PW, et al. Vitreous hemorrhage in pediatric age group[J]. J Ophthalmol, 2014, 2014: 497083

[5] Djougarian A, Kodsi S, Naysan J, et al. Presumed ocular juvenilexanthogranuloma and biopsy-proven cutaneous mastocytosis occurring sequentially in a young boy [J]. J Pediatr Ophthalmol Strabismus, 2014, 12(51): e89-91

[6] Al Rubaie K, Espinoza JV, Lasave AF, et al. Pneumatic displacement with perfluoropropane gas and intravitreal tissue plasminogen activator for subretinal subfoveal hemorrhage after focal laser photocoagulation in central serous chorioretinopathy [J]. Case Rep Ophthalmol Med, 2014, 2014: 592746

[7] Pakzad VK, Albiani DA, Kirker AW, et al A randomized study comparing the efficacy of bevacizumab and ranibizumab as pre-treatment for pars plana vitrectomy in proliferative diabetic retinopathy[J]. Ophthalmic Surg Lasers Imaging Retina, 2014, 45(6): 521-524

[8] Tuleutaeva S, Ashirbekova Z. Periodontal disease in children with diabetes mellitus type 1[J]. Georgian Med News, 2014, (235): 25-29

[9] Lee SM, Park HS, Choi JH. Location and characteristics of warfarin associated intracranial hemorrhage [J]. J Cerebrovasc Endovasc Neurosurg, 2014, 16(3): 184-192

[10] Dogan M, Agca A, Turna F, et al. Intraocular intrusion of suture material that was used as scleral buckling material [J]. Retin Cases Brief Rep, 2014, 8(3): 227-229

[11] Kozhimannil KB, Arcaya MC. Maternal clinical diagnoses and hospital variation in the risk of cesarean delivery: analyses of a National US Hospital Discharge Database [J]. PLoS Med, 2014, 11 (10): e1001745

[12] Arevalo JF, Serrano MA, Arias JD. Perfluorocarbon in vitreoretinal surgery and preoperative bevacizumab in diabetic tractional retinal detachment[J]. World J Diabetes, 2014, 5(5): 724-729

[13] Fan X, Jiang Y, Yu Z. Combination approaches to attenuate hemorrhagic transformation after tPA thrombolytic therapy in patients with poststroke hyperglycemia/diabetes[J]. Adv Pharmacol, 2014, 71: 391-410

[14] Kasimov ÉM, Alieva NI, Mamedzade AN. Results of YAG-laser vitreolysis in proliferative diabetic retinopathy complicated by vitreous hemorrhage[J]. Vestn Oftalmol, 2014, 130(4): 22-26

[15] Broder HL, Tormeti D, Kurtz AL. Type II diabetes and oral health: perceptions among adults with diabetes and oral/health care providers in Ghana[J]. Community Dent Health, 2014, 31(3): 158-162

[16] Kim DY, Kim JG, Kim YJ. Ultra-widefield fluorescein angiographic findings in patients with recurrent vitreous hemorrhage after diabetic vitrectomy[J]. Invest Ophthalmol Vis Sci, 2014, 55(11): 7040-7046

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[1] Asonuma K, Yamamoto H, Okumura K, et al. Liver transplant from an ABO-incompatible and hepatitis C antibody-positive but an HCV-RNA negative living donor in a familial amyloid polyneuropathy patient[J]. Exp Clin Transplant, 2013, 11(2): 182-185

[2] Bialleck H, Fursch A J, Scharrer I, et al. Frequencies of GB virus C/hepatitis G virus genomes and of specific antibodies in German risk and non-risk populations[J]. J Med Virol, 2011, 53(3): 218-224

[3] Zhai J, Zeng J, Tian C, et al. Comparative evaluation of a triplex nucleic acid test for detection of HBV DNA,HCV RNA, and HIV-1 RNA,with the Procleix Tigris System [J]. J Virol Methods, 2013, 187 (2): 357-361

[4] Carrella A V, Gutekunst K, Sun C A. Clinical characterization of a competitive PCR assay for quantitative testing of hepatitis C virus[J]. J Clin Microbiol, 2010, 34(8): 1975-1979

[5] Laperche S. Multinational assessment of blood-borne virus testing and transfusion safety on the African continent [J]. Transfusion, 2013, 53 (4): 816-826

[6] Duskova D, Darebnicek L. Nucleic acid testing of hepatitis B virus, hepatitis C virus,and human immunodeficiency virus 1,2 in blood donors in the General University Hospital[J]. Acta Virol, 2014, 58(2): 146-151

[7] Almario CV, Vega M, Trooskin SB. Examining hepatitis C virus testing practices in primary care clinics[J]. J Viral Hepat, 2012, 19(2): e163-169

[8] Stockman, Lauren J, Guilfoye SM, et al. Rapid hepatitis C testing among persons at increased risk for infection--Wisconsin,2012-2013 [J]. MMWR Morb Mortal Wkly Rep, 2014, 63(14): 309-311

[9] Mandrekar JN, Bendel JL, Mitchell PS, et al. Hepatitis C virus genotypes in clinical specimens tested at a national reference testing laboratory in the United States [J]. J Clin Microbiol, 2011, 49 (8): 3040-3043

[10] Moiz B, Moatter T, Shaikh U, et al. Estimating window period blood donations for human immunodeficiency virus Type 1,hepatitis C virus,and hepatitis B virus by nucleic acid amplification testing in Southern Pakistan[J]. Transfusion, 2014, 54(6): 1652-1659

[11] Jarvis LM, Mulligan K, Dunsford TH, et al. Suitability of an automated nucleic acid extractor (easy MAG) for use with hepatitis C virus and human immunodeficiency virus type 1 nucleic acid amplification testing[J]. J Virol Methods, 2011, 171(2): 364-368

[12] 韦筱斌,许燕,黎建源,等.荧光定量 PCR 测定 HCV RNA 对分片段 ELISA 法检测抗 HCV 可疑样本的分析[J].广西医学, 2007, 29(2): 190-191
Wei Xiao-bin, Xu Yan, Li Jian-yuan, et al. Analysis of Fluorescent quantitative PCR in determination of HCV RNA on Fragment ELISA assay Anti HCV suspicious samples [J]. Guangxi medical, 2007, 29 (2): 190-191

[13] Racz J. Human immunodeficiency virus (HIV) and Hepatitis C virus (HCV) testing among injecting drug users[J]. Orv Hetil, 2011, 152(4): 124-130

[14] Gygli N, Huber AR. Detection limit of architect hepatitis C core antigen assay in correlation with HCV RNA, and renewed confirmation algorithm for reactive anti-HCV samples [J]. J Clin Virol, 2013, 58(3): 535-540

[15] Wulff B, Schroder AS, Wilkemeyer I, et al. A prospective time-course study on serological testing for human immunodeficiency virus,hepatitis B virus and hepatitis C virus with blood samples taken up to 48h after death[J]. J Med Microbiol, 2011, 60(7): 920-926

[16] Ross RS, Stambouli O, Gruner N, et al. Detection of infections with hepatitis B virus,hepatitis C virus,and human immunodeficiency virus by analyses of dried blood spots-performance characteristics of the ARCHITECT system and two commercial assays for nucleic acid amplification[J]. Virol J, 2013, 10: 72

[17] Ward JW. Testing for HCV: the first step in preventing disease transmission and improving health outcomes for HCV-infected individuals[J]. Antivir Ther, 2012, 17(7 B): 1397-1401

[18] Woldeamanuel Y, Pietsch C, Maier M, et al. Genotypes and viral load of hepatitis C virus among persons attending a voluntary counseling and testing center in Ethiopia[J]. J Med Virol, 2011, 83(5): 776-782

[19] Lambers FA, Urbanus AT, Schinkel J, et al. Hepatitis C testing and treatment among active drug users in Amsterdam:results from the DUTCH-C project[J]. Eur J Gastroenterol Hepatol, 2011, 23(1): 23-31

[20] Coshic P, Borgohain M, Thapliyal RM, et al. Individual donor nucleic acid testing for blood safety against HIV-1 and hepatitis B and C viruses in a tertiary care hospital[J]. Natl Med J India, 2012, 25(4): 207-209

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[17] Ch'ng SW, Brent A, Banerjee S. Cytomegalovirus retinitis: an unusual presentation as vitreous hemorrhage [J]. Retin Cases Brief Rep, 2014, 8(1): 50-51

[18] Gowda D, Shenoy V. Bilateral adrenal gland haemorrhage: an unusual cause [J]. Endocrinol Diabetes Metab Case Rep, 2014, 2014: 140058

[19] Cancarini A, Costagliola C, Dell'omo R, et al. Effect of intravitreal bevacizumab on serum, aqueous, and vitreous humor levels of erythropoietin in patients with proliferative diabetic retinopathy [J]. Minerva Endocrino, 2014, 39(4): 305-311

[20] Yang Y, Zhang J, Yan H. Comparison of combined and sequential surgery for proliferative diabetic retinopathy: a single surgeon study [J]. PLoS One, 2014, 9(9): e108933