

糖尿病患者外科手术麻醉的相关多态性及 Logistic 分析

魏 军¹ 李昌祁^{2△} 张 晶³ 张宝华³ 李 俊⁴ 阴慧清⁵

(1 大庆糖尿病医院东院(大庆市龙凤区人民医院) 黑龙江 大庆 163711 2 大庆糖尿病医院 黑龙江 大庆 163458;
3 大庆龙南医院 黑龙江 大庆 163453 ;4 大庆油田总医院麻醉科 黑龙江 大庆 163001 ;
5 哈尔滨医科大学附属一院 黑龙江 哈尔滨 150001)

摘要 目的 :研究与探讨糖尿病患者外科手术麻醉的安全性和有效性。方法 :糖尿病外科手术患者 262 例,采用腰 - 硬联合麻醉 146 例 ,全身麻醉 116 例。结果 :表明腰 - 硬联合麻醉组在术中血糖均值水平、胰岛素的平均使用剂量均少于全身麻醉组 ,有统计学意义($P < 0.05$)。腰 - 硬联合麻醉组麻醉后空腹血糖、餐后血糖、糖化血红蛋白水平增高幅度均小于全身麻醉组 ($P < 0.05$)。通过用 Logistic 回归方程分析影响糖尿病患者麻醉效果的因素除性别无显著相关性 ,年龄、糖尿病病程、吸烟、饮酒、体重指数均与麻醉效果有高度相关性(正相关)。结论 :糖尿病手术患者采用腰 - 硬联合麻醉效果较好。
关键词 :糖尿病 ;手术 ;麻醉
中图分类号 :R587.1 ,R614 文献标识码 :A 文章编号 :1673-6273(2011)19-3721-03

Related Polymorphism and Logistic Analysis of Surgical Anesthesia in Diabetes Patients

WEI Jun¹, LI Chang-q^{2△}, ZHANG Jing³, ZHANG Bao-hua³, LI Jun⁴, YIN Hui-qing⁵

(1 The hospital in daqing diabetes [daqing city longfeng district people's hospital 163711; 2 163458,3 daqing quannan daqing diabetes hospital pharmacy department 163453; 4 Daqing oil field anesthesiology heilongjiang general hospital of daqing 163001;
5 Harbin medical university Affiliated First hospital, Heilongjiang, Harbin 150001)

ABSTRACT Objective: To study and investigate the safety and effectiveness of different ways of anesthesia on the diabetes patients undergoing surgery. **Methods:** A total of 262 cases of surgical patients with diabetes were selected. Among the patients, 146 cases were performed waist and epidural anesthesia and 116 cases , general anesthesia. **Results:** The perioperative blood sugar level and mean insulin doses were less in combined spinal and epidural anesthesia group than in general anesthesia group, with statistical significance ($P < 0.05$). In combined spinal and epidural anesthesia group, the increased extent of fasting and postprandial blood glucose, glycated hemoglobin levels were less than those in general anesthesia group ($P < 0.05$). Through Logistic regression analysis, factors such as age, smoking, drinking and body mass index, except for gender, were highly correlated with the anesthesia effect on diabetes patients (positive). **Conclusion:** Waist and epidural anesthesia is better for patients with diabetes.
Key words: Diabetes; Surgery; Anesthesia
Chinese Library Classification(CLC): R587.1, R614 **Document code:** A
Article ID:1673-6273(2011)19-3721-03

有关糖尿病患者外科麻醉研究报告 , 在国内文献仍属鲜见。我们所属医院自 2000 年 1 月至 2008 年 12 月手术患者中有糖尿病史患者 260 例 现就此类患者外科手术的麻醉安全性和有效性分析如下。

1 资料与方法

1.1 一般资料

262 例患者均为作者所属医院收治的合并有糖尿病的外科手术患者 ,男 138 例 ,女 124 例;年龄 36~74 岁 ,平均 50.4 岁;ASA II~III 级;糖尿病史最长者 25 年 ,最短者 3 月余。所有

患者在家均自服降糖药或用胰岛素治疗。

1.2 治疗及方法

所有患者空腹血糖控制于 8.5 mmol/L 以下 ,尿酮阴性后方可进行手术。术前禁食 12 h ,禁饮 6 h ,全程监测不同时段的血糖值。本组采用腰 - 硬联合麻醉 146 例 ,全身麻醉 116 例。

1.3 统计学方法

采用 SPSS1010 软件包进行统计学处理。所有计量资料均进行正态性和方差齐性检验。计量资料以 $\bar{x} \pm s$ 表示,两组间比较采用 t 检验;呈偏态分布的计量资料以中位数表示,两组间比较采用 Mann2Whitney U 检验。计数资料比较采用 χ^2 检验。以多因素分析筛选。

2 结果

本组所有患者均手术顺利 ,麻醉平稳 ,术毕均及时清醒 ,顺利拔管 ,血糖水平较平稳 ,安全返回病房。
本研究观察表明采用腰 - 硬联合麻醉组(A 组 $n=146$ 例)

作者简介 :魏军 (1976-),男,主治医师 ,从事外科麻醉临床工作 ,现任大庆市龙凤区人民医院 [大庆糖尿病医院东院]院长。
电话 :13836722123
△通讯作者 李昌祁 (1948-)男,主任医师 ,教授 ,
E-mail: lcq89111@163.com
(收稿日期 2011-06-06 接受日期 2011-06-30)

较全身麻醉组(B组 n=116例)在术中血糖均值水平、胰岛素的平均使用剂量均少于全身麻醉组,有统计学意义(P<0.001)。

表 1 二组血糖均值水平、胰岛素的平均使用剂量
Table 1 Mean intraoperative blood glucose and average dose of insulin in the two groups

	腰 - 硬联合麻醉组 The combined Spinal and Epidural anesthesia group (A 组 n= 146 例)	全身麻醉组 General anesthesia group (B 组 n=116)	P
术中血糖均值 Intraoperative blood sugar mean	7.8± 3.2	10.4± 2.34	<0.001
使用胰岛素的平均剂量 The average use insulin dose	36± 4.8	41± 5.1	<0.001

注 在 α=0.01 的水准上,认为 B 组的数据高于 A 组数据,故 A 组优于 B 组
Note: in a= 0.01 level, group A was considered better than group B for its lower data

表 2 麻醉前、后多项相关生化指标水平动态变化
Table 2 Changes of related biochemical indicators before and after anesthesia

	Anesthesia before 麻醉前			After anesthesia 麻醉后		
	A 组	B 组	P	A 组	B 组	P
空腹血糖(mmol/L) Fasting blood sugar	7.4± 3.2	6.8± 2.2	P>0.05	8.6± 3.8	9.8± 4.2	0.05<P<0.1
餐后血糖(mmol/L) Postprandial blood sugar	8.8± 3.6	8.1± 3.4	P>0.2	9.8± 2.2	11.8± 1.2	P<0.001
糖化血红蛋白(%) Glycated hemoglobin	6.5± 3.5	6.0± 3.7	P>0.2	8.8± 2.8	9.7± 2.3	0.02<P<0.05
胰岛素(mU/l) insulin	6.2± 3.7	6.1± 3.8	P>0.5	6.3± 3.9	6.4± 4.0	P>0.5

注 麻醉前,AB 两组数据无差异,麻醉后,A 组麻醉后空腹血糖、餐后血糖、糖化血红蛋白优于 B 组。胰岛素二组无显著差异
Note: Before anesthesia, no difference between group A and B;After anesthesia, the fasting blood glucose, Postprandial blood glucose and glycated hemoglobin were better in group A than group B. Insulin showed no significant difference between two groups.

表 3 Logistic 回归分析影响糖尿病患者麻醉效果的因素
Table 3 Analysis of factors affecting anesthetic effect of diabetic patients by Logistic regression

变量名 Variable names	变量代码 Variable code	变量赋值 Variable assignment
性别 Gender	X ₁	男 male =0 ,女 female =1
年龄 Age	X ₂	<30=1 ,31~45=2 ,46~60=3 ,61~=4
糖尿病病程 Duration of diabetes	X ₃	<10 年 years =1 ;11~20=2 ,21~=3
吸烟 Smoking	X ₄	有 have =1 无 no =0
饮酒 Drinking	X ₅	有 have =1 无 no =0
体重指数 Body mass index	X ₆	<24=1 ,24~26=2 ,26~=3
糖尿病 Diabetes	Y	对照 control =0 ,病例 cases =1

3 讨论

糖尿病患者的麻醉和手术创伤导致了应激反应增强^[1-3],同时因禁食,水电解质紊乱等,加重糖代谢失调,进而导致围手术期并发症和死亡率都大大增加,所以糖尿病患者围术期血糖(Glu)的控制是临床麻醉管理的重要内容^[4-6]。

本组临床观察表明腰 - 硬联合麻醉组在术中血糖均值水平、胰岛素的平均使用剂量均少于全身麻醉组,有统计学意义(P< 0.05)。
本组对麻醉前、后多项相关生化指标水平动态变化观察表明:腰 - 硬联合麻醉组麻醉后空腹血糖、餐后血糖、糖化血红蛋白水平增高幅度均小于全身麻醉组 (P<0.05)。

表 4 影响糖尿病患者麻醉效果的因素的 Logistic 逐步回归分析结果
Table 4 Logistic regression analysis of factors affecting anesthetic effect of diabetic patients

变量 Variables	B	SE	X2	df	P	OR	95.0%CIforExp(B)	
							Lower	Upper
年龄 Age(x_2)	1.066	0.518	6.492	1	0.0064	2.903	1.888	3.919
糖尿病病程 Duration of diabetes(x_3)	3.786	2.094	9.8089	1	0.0017	44.17	0.723	2694.82
吸烟 Smoking(x_4)	0.052	0.024	5.5487	1	0.0143	1053	1.006	1.100
饮酒 Drinking(x_5)	0.6225	0.2643	7.8931	1	0.0053	1.864	1.110	3.128
体重指数 Body mass index(x_6)	0.104	0.053	4.3202	1	0.0341	1.110	1.006	1.213

注 :影响糖尿病患者麻醉效果的因素使用 Logistic 逐步回归分析将性别因素排除在方程外 ,除性别无显著相关性 ,与其他指标都有高度相关性 (正相关)

Note: Logistic regression analysis excluded the factor of gender. Except the gender has no obvious correlation with the anesthesia effect, other factors showed highly correlation with anesthesia effect (positive)

我们的临床观察研究还表明 影响糖尿病患者麻醉效果的因素使用 Logistic 逐步回归分析将性别因素排除在方程外 除性别无显著相关性 与其他指标都有高度相关性(正相关)。

对于糖尿病手术的患者,应该选择使机体的应激状态降到最低的麻醉方法的承受力,如腰-硬联合麻醉以保证围手术期的血流动力学及血糖的稳定^[7-8]。全麻只抑制大脑皮层边缘系统或下丘脑到大脑皮层的投射系统,但不能有效阻断手术区域伤害性刺激向中枢的传导,从而使交感神经系统兴奋,导致儿茶酚胺分泌增加^[9-10],故建议糖尿病人外科手术麻醉时条件容许时选用腰-硬联合麻醉比较适宜。

参 考 文 献(References)

[1] 李昌祁、霍立光、张永昌(主编). 中西医结合治疗糖尿病并发症[M]. 第1版, 北京: 人民卫生出版社,2010; 49: 100
Li Changqi, Huo Liguang, Zhang Yongchang (Ed.). Combine traditional Chinese and western medicine in the treatment of diabetes complications[M]. Beijing: people's medical publishing house, 2010; 49:100

[2] Flatt PR.Effective surgical treatment of obesity may be mediated by ablation of the lipogenic gut hormone gastric inhibitory polypeptide (GIP): evidence and clinical oppor tunity for development of new obesity-diabetes drugs?[J]. Diab Vasc Dis Res,2007,4(2):151-153

[3] Rubino F.Is type 2 diabetes an operable intestinal disease?Aprovocative yet reasonable hypothesis [J]. Diabetes Care, 2008,31 (Suppl 2):

S290-296

[4] Sato H, Carvalho G, Sato T. The association of preoperative glycemic control, intraoperative insulin sensitivity, and outcomes after cardiac surgery[J]. J Clin Endocrinol Metab, 2010 Sep;95(9):4338-4344

[5] Szabó Z, Andersson RG, Arnqvist HJ. Intraoperative muscle and fat metabolism in diabetic patients during coronary artery bypass grafting surgery: a parallel microdialysis and organ balance study [J]. Br J Anaesth, 2009,103(2):166-172

[6] Gustafsson UO, Nygren J, Thorell A. Pre-operative carbohydrate loading may be used in type 2 diabetes patients [J]. Acta Anaesthesiol Scand, 2008,52(7):946-951

[7] Wallin MK, Selldé n E, Eksborg S, Brismar K.Amino acid infusion during anesthesia attenuates the surgery induced decline in IGF-1 and diminishes the "diabetes of injury"[J]. Nutr Metab (Lond), 2007, 9;4:2

[8] Al-Shawaf E, Ayed A, Vislocky I.Levosimendan or milrinone in the type 2 diabetic patient with low ejection fraction undergoing elective coronary artery surgery [J]. J Cardiothorac Vasc Anesth, 2006,20(3): 353-357

[9] Orudzheva SA, Zviagin AA, Kurochkina AI.Central hemodynamics during conduction anesthesia in patients with pyonecrotic forms of the diabetic foot[J]. Anesteziol Reanimatol, 2005, May-Jun;(3):15-17 Russian

[10] Paiva I. Diabetes mellitus and surgery. Preparing the diabetic patient to surgery[J]. Acta Med Port, 2004,17(1):94-99