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老年骨科全麻患者术后麻醉恢复室谵妄的影响因素分析及防范措施*

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摘要 目的:分析老年骨科全麻患者术后麻醉恢复室谵妄的影响因素,并探讨相关防范措施。**方法:**选取2018年7月-2020年6月期间我院收治的200例老年骨科全麻患者,收集患者的临床资料。根据其术后麻醉恢复室是否出现谵妄分为观察组(术后发生谵妄)和对照组(术后未发生谵妄),分析术后麻醉恢复室谵妄的影响因素。**结果:**200例老年骨科全麻患者中,发生术后谵妄的患者83例,发生率为41.50%(83/200)。单因素分析结果显示,老年骨科全麻患者术后麻醉恢复室谵妄与年龄、合并其它基础疾病、吸烟史、术前血糖、术前血红蛋白、术前红细胞压积、手术类型、术中失血量、电解质紊乱有关($P<0.05$),而与性别、体质指数(BMI)、Zung焦虑自评量表(SAS)评分、术前总蛋白、抑郁自评量表(SDS)评分、血钾、手术时间无关($P>0.05$)。多因素Logistic回归分析结果显示:年龄 >75 岁、合并其它基础疾病、术前血红蛋白 $<12\text{g/dl}$ 、术中失血量 $\geq 200\text{mL}$ 、电解质紊乱均为老年骨科全麻患者术后发生谵妄的危险因素($P<0.05$)。**结论:**引起老年骨科全麻患者术后麻醉恢复室谵妄的危险因素较多,包括年龄、合并其它基础疾病、术前血红蛋白、术中失血量、电解质紊乱等,临床应采取必要的防范措施,合理制定手术方案,以降低患者术后谵妄的发生率。

关键词:老年;骨科;全麻;谵妄;影响因素;防范措施

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Analysis of Influencing Factors and Preventive Measures of Postoperative Delirium in Anesthesia Recovery Room of Elderly Patients with Orthopedic General Anesthesia*

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ABSTRACT Objective: To analyze the influencing factors of postoperative delirium in anesthesia recovery room of elderly orthopedic patients under general anesthesia, and to discuss the relevant preventive measures. **Methods:** From July 2018 to June 2020, 200 elderly patients with general anesthesia in orthopedics department in our hospital were selected, and the clinical data of patients were collected. The patients were divided into observation group (postoperative delirium) and control group (postoperative delirium) according to the postoperative anesthesia recovery room delirium. The influencing factors of postoperative delirium in anesthesia recovery room were analyzed by Multivariate logistic regression analysis. **Results:** There were 83 cases of postoperative delirium in 200 cases of elderly orthopedic general anesthesia patients, the incidence rate was 41.50% (83 / 200). Univariate analysis showed that Delirium in the recovery room of elderly orthopedic patients after general anesthesia was associated with age, other basic diseases, smoking history, preoperative blood glucose, preoperative hemoglobin, preoperative hematocrit, type of operation, intraoperative blood loss and electrolyte disorder ($P<0.05$), while it was associated with gender, body mass index (BMI), Zung There was no correlation between SAS score, preoperative total protein, SDS score, serum potassium and operation time ($P>0.05$). Multivariate logistic regression analysis showed that age >75 years old, complicated with other basic diseases, preoperative hemoglobin $<12\text{g/dl}$, intraoperative blood loss $\geq 200\text{mL}$, electrolyte disturbance were the risk factors of postoperative delirium in elderly orthopedic patients under general anesthesia ($P<0.05$). **Conclusion:** There are many risk factors causing delirium in the anesthesia recovery room of elderly orthopedic patients after general anesthesia, including age, other basic diseases, preoperative hemoglobin, intraoperative blood loss, electrolyte disorder and so on. We should take necessary preventive measures and formulate reasonable operation plan in order to reduce the incidence of postoperative delirium.

Key words: Elderly; Orthopedics; General anesthesia; Delirium; Influencing factors; Preventive measures**Chinese Library Classification(CLC):** R68; R614 **Document code:** A**Article ID:** 1673-6273(2021)04-724-04

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前言

术后谵妄是一种因围手术期应激而导致的急性精神错乱状态,临床表现为术后非特异性和/或急性的意识水平、精神行为、知觉等紊乱^[1]。已有研究证实^[2-4],老年患者因机体各方面功能退化在麻醉过程中易受麻醉药物刺激而加快心率,加上老年患者呼吸功能下降,易发生术中缺氧,从而提高了患者术后谵妄的发生风险,若未能得到及时处理,可导致患者延迟康复、延长住院时间、增加住院费用等,并可导致其他并发症的发生,如褥疮、肺部感染等,严重者可引起死亡^[5,6]。随着我国人口老龄化的形势加剧,老年人群骨折的发生也随之增加,骨科手术虽可对骨折患者进行有效复位,但由于老年患者多采取全麻,且手术时间较长,易发生术后谵妄^[7,8]。鉴于此,本研究分析老年骨科全麻患者术后麻醉恢复室谵妄的影响因素,并进行相关防范措施的探讨,以期降低术后谵妄发生风险提供数据支持。

1 资料与方法

1.1 一般资料

选取2018年7月-2020年6月期间我院收治的200例老年骨科全麻患者,纳入标准:(1)均证实为髋部骨折患者,包括股骨颈骨折或转子间骨折,符合手术指征,择期行手术治疗者;(2)年龄 ≥ 60 岁;(3)临床资料完整者;(4)麻醉方式均为全麻,并顺利完成手术。排除标准:(1)术前存在痴呆或认知功能异常者;(2)合并心肝肾等脏器功能不全者;(3)既往有精神病史或癫痫病史者;(4)合并有急性脑血管意外者;(5)以往有长期精神药物使用及酗酒史者。研究对象签署知情同意书。

1.2 研究方法

1.2.1 资料的收集 收集其临床资料,包括:性别、体质指数(BMI)、年龄、合并其它基础疾病情况(如高血压、高血脂、糖尿病等)、吸烟史、焦虑情绪评分、抑郁情绪评分、术前血糖水平、

术前总蛋白水平、血钾水平、术前血红蛋白水平、术前红细胞压积、电解质紊乱情况、手术时间、手术类型、术中失血量等。焦虑情绪评分、抑郁情绪评分采用 Zung 焦虑自评量表(SAS)^[9]评分和抑郁自评量表(SDS)^[9]评价,两个量表均20个条目,采用4级评分法,总分为20个条目得分 $\times 1.25$,分数越高表示焦虑、抑郁越严重。

1.2.2 谵妄评判标准 具体为:(1)意识状态反复波动或急性改变;(2)注意力集中障碍或改变注意力能力低下;(3)患者存在主题变化无常、逻辑不清等情况;(4)完全清醒意外的任何意识改变,如警惕、清晰、嗜睡、昏迷、昏睡等。其中(1)、(2)同时存在,(3)或(4)出现一项即可诊断为术后谵妄^[10]。根据术后麻醉恢复室是否出现谵妄将患者分为观察组(术后发生谵妄)和对照组(术后未发生谵妄)。

1.3 统计学方法

采用SPSS25.0统计软件进行分析。采用 $(\bar{x} \pm s)$ 表示计量资料,组间比较采用t检验;计数资料采用%表示,组间比较采用卡方检验。采用多因素 Logistic 回归分析老年骨科全麻患者术后麻醉恢复室谵妄的危险因素。检验标准设置为 $\alpha=0.05$ 。

2 结果

2.1 老年骨科全麻患者术后麻醉恢复室谵妄的发生率

200例老年骨科全麻患者中,术后麻醉恢复室发生谵妄的患者83例,发生率为41.50%(83/200)。

2.2 谵妄影响因素的单因素分析

单因素分析结果显示,老年骨科全麻患者术后谵妄与年龄、合并其它基础疾病、吸烟史、术前血糖、术前血红蛋白、术前红细胞压积、手术类型、术中失血量、电解质紊乱有关($P<0.05$),而与性别、BMI、SAS评分、术前总蛋白、SDS评分、血钾、手术时间无关($P>0.05$),详见表1。

表1 老年骨科全麻患者术后麻醉恢复室谵妄影响因素的单因素分析

Table 1 Univariate analysis of influencing factors of delirium in anesthesia recovery room of elderly patients with general anesthesia

Factors	Control group(n=117)	Observation group(n=83)	t/χ^2	P
Gender				
Male	45(38.46%)	36(43.37%)	0.129	0.731
Female	72(61.54%)	47(56.62%)		
Age(years)	72.48 $\pm$ 5.05	80.14 $\pm$ 6.13	9.664	0.000
BMI(kg/m ²)	23.93 $\pm$ 2.87	24.01 $\pm$ 2.57	0.203	0.804
Combined with other basic diseases				
Yes	48(41.03%)	59(71.08%)	17.639	0.000
No	69(58.97%)	24(28.92%)		
Smoking history				
Yes	49(41.88%)	54(65.06%)	10.445	0.000
No	68(58.12%)	29(34.94%)		
SAS score(score)	39.01 $\pm$ 8.30	38.48 $\pm$ 6.52	0.485	0.628
SDS score(score)	24.39 $\pm$ 4.34	24.98 $\pm$ 5.43	0.860	0.391
Preoperative total protein(g/L)	68.69 $\pm$ 8.47	68.32 $\pm$ 7.51	0.319	0.750

Preoperative blood glucose(mmol/L)	6.25± 0.52	7.91± 0.64	20.196	0.000
Preoperative hemoglobin(g/dl)	13.39± 2.27	10.64± 2.14	8.643	0.000
Blood potassium(mmol/L)	4.41± 0.23	4.45± 0.28	1.106	0.270
Preoperative hematocrit(%)	32.12± 3.19	28.92± 3.21	6.972	0.000
Operation time(min)	87.03± 7.16	87.73± 8.29	0.638	0.524
Operation type				
Fixation	68(58.12%)	22(26.51%)	19.617	0.000
Replacement	49(41.88%)	61(73.49%)		
Intraoperative blood loss(mL)	153.98± 18.03	254.29± 19.23	37.708	0.000
Electrolyte disorder				
Yes	43(36.75%)	58(69.88%)	5.697	0.017
No	74(63.25%)	25(30.12%)		

2.3 谵妄影响因素的多因素 Logistic 回归分析

以老年骨科全麻患者是否发生术后谵妄为因变量(否=0,是=1),以表1单因素分析中有统计学意义的指标为自变量,赋值为年龄:≤75岁=0,>75岁=1;合并其它基础疾病:未合并=0,合并=1;吸烟史:无=0,有=1;术前血糖:≤7 mmol/L=0,>7 mmol/L=1;术前血红蛋白:≥12 g/dl=0,<

12 g/dl=1;术前红细胞压积:≥30%=0,<30%=1;手术类型:固定术=0,置换术=1;术中失血量:<200 mL=0,≥200 mL=1;电解质紊乱:无=0,有=1。多因素 Logistic 回归分析结果显示:年龄>75岁、合并其它基础疾病、术前血红蛋白<12 g/dl、术中失血量≥200 mL、电解质紊乱均为老年骨科全麻患者术后谵妄的危险因素($P<0.05$),详见表2。

表2 老年骨科全麻患者术后麻醉恢复室谵妄影响因素的多因素 Logistic 回归分析

Table 2 Multivariate logistic regression analysis of influencing factors of postoperative delirium in elderly orthopedic patients undergoing general anesthesia

Factors	β	Wald χ^2	SE	P	OR	95%CI
Age > 75 years old	2.052	6.713	0.326	0.000	7.092	3.285~9.834
Combined with other basic disease	3.381	7.736	0.312	0.000	6.251	2.837~8.298
Preoperative hemoglobin < 12 g/dl	2.674	7.489	0.372	0.000	5.491	2.387~7.179
Intraoperative blood loss ≥ 200 mL	2.338	9.429	0.365	0.000	4.938	2.386~6.139
Electrolyte disorder	2.832	6.183	0.357	0.000	4.138	3.124~5.527

3 讨论

谵妄的发病机制尚不明确,目前多认为与病理、环境等多因素相互作用,其学说众多,包括中枢炎性假说、应激反应学说、神经递质学说等^[11,12]。老年人运动机能退化,反应迟钝,极易受伤导致骨折^[13,14],且伴随麻醉技术的发展和术中监测设备的完善,全身麻醉不再是老年人和高龄患者的手术绝对禁忌^[15,16],但老年骨折全麻患者又具备诸多与术后谵妄发生的相关因素,如年龄、术前合并多种系统性疾病、疼痛、血红蛋白水平过低、麻醉时间延长等^[17,18]。因此,了解谵妄的有关高危因素,对可控因素全程监测和干预,对于降低骨科术后谵妄发生风险和改善预后具有积极的促进意义。

以往文献中骨折患者术后谵妄的发生率为13%~48.6%^[19]。本研究中200例老年骨科全麻患者中,术后谵妄的发生率为41.50%,可见老年骨科患者发生谵妄的风险普遍较高。多因素 Logistic 回归分析结果显示:年龄>75岁、合并其它基础疾病、术前血红蛋白<12 g/dl、术中失血量≥200 mL、电解质紊乱均为老年骨科全麻患者术后发生谵妄的危险因素。高龄是术后谵妄的高危因素已得到共识,随着年龄的增加,退行性改变在患

者脑组织中逐渐出现,同时大量减少的中枢神经递质含量也是发生谵妄的一个重要原因^[20,21],而合并其它基础疾病的患者存在器官退行性病变,导致患者在全麻诱导期血流波动较大,长时间的血流波动易致低灌注,而缺血缺氧易损伤脑组织,减退脑功能,引起幻觉、烦躁等谵妄症状^[22-24]。有研究显示^[25,26],合并低蛋白血症、肺部感染、冠心病、糖尿病、贫血等疾病是谵妄的危险因素。同时也有研究表明^[27],长时间的血流波动或脑低灌注对术后远期精神功能有一定的影响。术前血红蛋白偏低者可导致患者脑组织水肿、缺血、缺氧,引起神经系统性症状,如烦躁易怒、幻觉等。电解质紊乱包括钾、钠及钙等离子异常,电解质紊乱是导致水肿的根本原因^[28],因此也会增加脑组织水肿进而引起谵妄的风险。术中失血量越多,意味着患者接受异体输血量也相对更多,异体输血易增加患者术后免疫抑制作用,出现排斥反应,导致机体的代谢出现障碍,继而使得脑组织损伤,造成患者生理等功能反应失衡,使得谵妄的发生风险升高^[29,30]。

基于上述高危因素,可见谵妄是一种急性发展、波动紊乱的临床状态,受多种因素影响。应对患者采取前瞻性风险评估及预防措施,主要包括:(1)建立多学科协作模式,包括骨科、老年科、麻醉科等的协作,系统全面地评估患者,对于合并基础疾

病、术前血红蛋白偏低的患者应先进行一定时间的调养,尽量改善上述指标,同时强化手术医师的操作精度训练,降低术中失血量,减少电解质紊乱发生风险。(2)术中应采取预防措施,包括维持水电解质平衡及血流动力学稳定,给予充足的氧供,尽量避免患者发生缺氧和水电解质平衡紊乱。(3)术后尽量消除呼吸机、监护仪等发出的声音,改善患者环境,提高睡眠,并且尽可能增加家属陪伴的时间。

综上所述,引起老年骨科全麻患者术后麻醉恢复室谵妄的危险因素较多,包括年龄>75岁、合并其它基础疾病、术前血红蛋白<12 g/dl、术中失血量≥200 mL、电解质紊乱,临床应采取防范措施,合理制定手术方案,以降低老年骨科全麻患者术后麻醉恢复室谵妄的发生率。

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