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老年骨关节置换术围术期发生脑梗死的危险因素分析及预防对策研究 *

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摘要 目的:分析老年骨关节置换术围术期发生脑梗死的危险因素并研究其预防对策。**方法:**选择 2015 年 1 月-2016 年 6 月我院收治的 200 例行关节置换术患者,对所有患者的性别、年龄、体重、身高、患病情况、置入假体类型、手术时间、术中出血量、术后引流流量、切口长度、住院时间、下地时间及高血压、糖尿病、冠心病等合并症情况进行回归分析,明确患者围术期发生脑梗死的危险因素,并提出针对性预防措施。**结果:**入组 200 例行骨关节置换术患者,围术期发生脑梗死患者 53 例。单因素分析结果显示年龄是否超过 65 岁、吸烟与否、疾病类型、麻醉方式、有无冠心病、糖尿病、高血压等合并症的骨关节置换术患者围术期脑梗死的发生率存在显著性差异($P<0.05$)。而进一步 logistics 回归分析显示年龄超过 65 岁、吸烟、患者股骨颈骨折、手术麻醉为全麻、有冠心病、糖尿病、高血压等合并症是影响行骨关节置换术患者围术期发生脑梗死的独立危险因素($P<0.05$)。**结论:**年龄超过 65 岁、吸烟、患者股骨颈骨折、手术麻醉为全麻、有冠心病、糖尿病、高血压等合并症的骨关节置换术患者围术期更易发生脑梗死,对有上述特点患者应密切注意预后情况,给予精细的护理措施,防止脑梗死的发生。

关键词:老年骨关节置换术;围术期脑梗死;危险因素;预防对策

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Risk Factors of Perioperative Cerebral Infarction in Elderly Patients with Bone and Joint Replacement and Preventive Measures*

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ABSTRACT Objective: To analyze the risk factors of perioperative cerebral infarction in elderly patients with bone and joint replacement and to study its prevention strategies. **Methods:** 200 cases of patients undergoing arthroplasty in our hospital from January 2015 to June 2016 were selected, the gender, age, weight, height, prevalence, implantation, operation time, intraoperative blood loss, postoperative drainage, length of incision, hospital stay, time of getting out of bed, and past medical history of hypertension, diabetes, coronary heart disease, etc were retrospectively analyzed to indentify the risk factors of cerebral infarction in the perioperational period, and provide corresponding measures. **Results:** Of the 200 patients treated with osteoarthroplasty, 53 patients suffered from cerebral infarction during perioperative period. Single factor analysis results showed that there were distinctive differences among patients treated with osteoarthroplasty but suffering from cerebral infarction during perioperative period ($P<0.05$). Such differences lay in whether they were over 65 years old and smoking, and diseases like coronary heart disease, diabetes and hypertension. Differences were associated with the way of anesthesia as well. Furthermore, logistics regression analysis demonstrates there were numerous sole dangerous factors that influence patients treated with osteoarthroplasty but suffering from cerebral infarction during perioperative period. Patients who were over 65-year-old and had a habit of smoking with general anesthesia, femoral neck fracture, coronary heart disease, diabetes and hypertension were more likely to suffer from cerebral infarction ($P<0.05$). **Conclusion:** Patients with age>65-year-old, smoking, fracture of neck of femur, general anesthesia, past medical history of hypertension, diabetes, coronary heart disease were more easily to suffer from cerebral infarction. To avoid cerebral infarction, these patients are supposed to deserve careful nursing, and much attention should be paid to the prognosis.

Key words: Elderly bone and joint replacement surgery; Perioperative cerebral infarction; Risk factors; Prevention measures

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前言

人工骨关节置换术是将人工关节假体通过外科手术方式

植入患者体内,假体能代替患者受损关节,缓解患者关节疼痛,恢复患者受损部位功能,是当今治疗骨关节疾病的常见方式^[1]。但人工关节置换术属开放式手术,术后感染风险高,不利于患

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者预后,影响患者术后关节的恢复,严重者还会导致关节处坏死。近年来,研究显示骨关节置换术患者术后发生脑梗死问题较为严重,其原因尚不明确,患者一旦发病将导致患者出现肢体活动及意识障碍,语言表达能力丧失,严重者还会导致死亡,降低患者生活质量^[23]。因此,本研究旨在明确骨关节置换术患者围术期发生脑梗死的危险因素,对患者术后进行相应的干预,以防止术后脑梗死的发生,结果报道如下。

1 资料与方法

1.1 临床资料

选择 2015 年 1 月 -2016 年 6 月我院收治的 200 例行关节置换术的老年患者作为研究对象,入组患者中男性 121 例,女性 79 例,患者年龄 54~93 岁,平均年龄(62.5±6.8)岁,患者病情主要为股骨头坏死 47 例,类风湿性关节炎 58 例,股骨颈骨折 45 例,强制性脊柱炎 32 例,其他 18 例。患者中,合并高血压 35 例,冠心病 9 例,糖尿病 28 例。排除标准:①患者有既往脑梗死病史;②患者首次骨关节置换术出现植入假体松动等情况再次手术;③患者患有其他部位恶性肿瘤或严重心脑血管疾病;④患者依从性差或不能完成随访工作。整个研究过程均经得患者知情并同意下进行,经我院伦理委员会批准实施。

1.2 观察指标

收集入组患者病历资料,包括性别、年龄、体重、吸烟史、饮酒史及高血压、糖尿病、冠心病等一般临床资料,同时收集患者疾病类型、植入假体类型、麻醉方式、手术时间、术中出血量、术后引流量、切口长度、住院时间、下地时间等围术期指标,对上

述因素进行统计分析,明确骨关节置换术患者围术期发生脑梗死的危险因素。

患者术前均经头部 CT 及 MRI 检查未发现脑梗死现象,双下肢静脉彩超检查也显示未发现深静脉血栓症状,患者围术期出现的脑梗死症状经检查证实为新发病灶,且患者存在肌肉力量明显降低、吞咽困难、口齿不清晰、肌肉及四肢等部位麻木等临床表现。

1.3 统计学方法

本次实验数据处理选择 SPSS11.5 软件包进行,用均数±标准差($\bar{x} \pm s$)来表示计量资料,组间比较采用 t 检验,计数资料采用[例(%)]表示,组间比较采用 χ^2 检验,多因素分析采用 logistic 回归分析,以 $P < 0.05$ 表明差异具有统计学意义。

2 结果

2.1 患者围术期指标

入组 200 例行骨关节置换术患者平均手术时间 95 min,术中平均出血量 385 mL,术后平均引流量 328 mL,围术期发生脑梗死患者 53 例,其中,股骨头坏死 7 例,类风湿性关节炎 11 例,股骨颈骨折 29 例,强制性脊柱炎 4 例,其他 2 例,患者脑梗死时间详见下表 1。患者确诊发生脑梗死后均及时给予调节血糖及血压、扩容改善血管微循环、血小板抗凝、清除体内过量自由基等相应治疗,41 例患者症状得到明显改善,5 例患者症状仍未得到明显好转,家属自愿放弃治疗出院,7 例患者死亡,死亡患者均发生大面积脑梗死,循环系统、呼吸系统严重衰竭。

表 1 患者术后脑梗死时间
Table 1 Postoperative cerebral infarction time

Cerebral infarction time	Number of cases(n)	Proportion(%)
On the day after surgery	7	13.21
1 day Postoperation	3	5.66
2 day Postoperation	2	3.77
3 day Postoperation	5	9.43
4 day Postoperation	4	7.55
5 days and more than 5 days after surgery	32	60.38

2.2 骨关节置换术患者围术期发生脑梗死的影响因素

统计分析结果显示:年龄是否超过 65 岁、吸烟与否、疾病类型、麻醉方式、有无冠心病、糖尿病、高血压等合并症均会对行骨关节置换术患者的预后产生一定影响,是患者围术期发生脑梗死相关因素($P < 0.05$),详见表 2。

2.3 骨关节置换术患者围术期发生脑梗死的独立相关因素分析

统计分析结果显示:年龄超过 65 岁、吸烟、患者股骨颈骨折、手术麻醉为全麻、有冠心病、糖尿病、高血压等合并症是影响行骨关节置换术患者围术期发生脑梗死的独立危险因素($P < 0.05$),详见表 3。

3 讨论

脑梗死又称缺血性脑卒中,是因脑部血液供应不足导致的人体局部脑组织出现不可逆性的损伤,脑组织由于缺氧、缺氧

导致坏死^[45]。骨科手术围术期发生脑梗死通常发生于术后阶段,曾有统计数据示术后脑梗死发生率在 0.5%左右。随着近年来医学技术的不断发展,脑梗死的发生率较之前有所降低,但其对患者造成的损伤仍较大,即使得到及时治疗,多数患者均存在不同程度的瘫痪,严重影响了患者的生活质量,患者将承担巨大的精神和经济负担^[6-8]。

关节置换术后继发性脑梗死的发生主要与脑组织内血管的栓塞或其他栓子的形成密切相关,患者血液流动速度缓慢、黏滞度高等均易造成血管的栓塞,脑组织血液流量灌注不足,造成脑组织的缺血缺氧,脑组织出现坏死,进而发生脑梗死^[9-11]。术后患者机体将产生大量的脂肪颗粒,形成微血栓。动物实验结果显示形成的栓子可通过肺部血管进入全身的循环系统中,进而导致脑梗死的发生。一旦发生脑梗死,患者将出现肢体活动障碍、语言表达障碍、意识障碍等症状,严重者导致死亡^[12-14]。

表 2 骨关节置换术患者围术期发生脑梗死的影响因素
Table 2 Factors affecting perioperative cerebral infarction in patients undergoing total hip arthroplasty

Relevant factor		Number of investigations	Number of cerebral infarction cases	Statistics	P
Gender	Male	121	30	0.2643	0.6072
	Female	79	23		
Age	< 65	136	11	38.4167	0.0000
	≥ 65	64	42		
BMI	< 25	113	29	0.0541	0.8161
	≥ 25	87	24		
Smoking	是	49	41	51.0770	0.0000
	否	151	12		
Drink alcohol	是	58	10	0.1732	0.6773
	否	142	43		
Operation time(min)	< 95	116	33	0.3147	0.5748
	≥ 95	84	20		
Intraoperative blood loss(ml)	< 385	139	42	1.9544	0.1621
	≥ 385	61	11		
Postoperative drainage (ml)	< 328	122	39	2.8676	0.0904
	≥ 328	78	14		
Cutting length(mm)	< 80	125	38	1.3477	0.2457
	≥ 80	73	15		
Hospital stay(d)	< 8	120	37	1.7128	0.1906
	≥ 8	80	16		
Time to the ground(d)	< 5	122	40	3.8099	0.0510
	≥ 5	78	13		
Disease type	Femoral head necrosis	47	7	21.5431	0.0002
	Rheumatoid arthritis	58	11		
	Femoral neck fracture	45	29		
	Forced spondylitis	32	4		
	Other	18	2		
Anesthesia	Anesthesia	87	48	37.2929	0.0000
	Local anesthesia	113	5		
Implant type	Cement prosthesis	88	25	0.1703	0.6798
	Bioprosthesis	112	28		
Complications					
Diabetes	Yes	62	42	40.2825	0.0000
	No	138	11		
Hypertension	Yes	76	45	36.9418	0.0000
	No	124	8		
Coronary heart disease	Yes	59	44	49.7178	0.0000
	No	141	9		

本研究结果显示年龄是否超过 65 岁、吸烟与否、疾病类型、麻醉方式、有无冠心病、糖尿病、高血压等合并症均会对行骨关节置换术患者的预后情况产生一定影响。高龄患者机体功能衰退,代谢能力、自愈能力及恢复能力均较差,且患者大多合

并多种内科疾病,这些疾病也是造成脑梗死发生的危险因素,一旦出现低血容量问题,机体将受到严重影响^[15-17]。吸烟会严重影响患者预后,烟草的降解物尼古丁会致肺癌类似的刺激,在脑梗死病变的发生中起重要作用^[18,19]。股骨颈骨折患者围术期

易发生脑梗死,这主要与手术造成创面的大小及麻醉方式有关,高龄患者机体功能严重衰退,全麻状态下的大创面手术将对患者造成重大影响,术中患者血压较低,导致脑灌注量不足,

若患者存在一定程度高血压、糖尿病及心脑血管疾病,患者血流量不足,血液粘度高,脑部血管组织对小血栓的自我清除能力严重不足,更易导致血栓的形成及脑梗死的发生^[20-22]。

表 3 骨关节置换术患者围术期发生脑梗死的独立相关因素分析

Table 3 Independent factors affecting Perioperative Cerebral Infarction in Bone and Joint Replacement Patients

Relevant factor	Regression coefficients	wald	P	OR
Age over 65	2.15	1.77	0.01	1.81
Smoking	2.14	1.68	0.02	1.85
Femoral neck fracture	2.01	1.66	0.02	1.59
Surgery anesthesia	1.83	1.48	0.03	1.89
Coronary heart disease	1.99	1.63	0.02	1.57
Diabetes	2.02	1.55	0.03	1.68
Hypertension	1.98	1.65	0.03	1.88

为避免术后脑梗死的发生,针对具有上述特点的患者应通过一定的针对性护理措施进行干预:①维持患者有效的循环血容量,增加患者脑灌注压,稳定患者血压水平,避免患者出现脑低灌注的现象,能有效防止行骨关节置换术的老年患者术后发生脑梗死。②患者术后早期进行肢体功能的恢复性训练能有效降低脑梗死发生的概率,早期下床活动能有效促进血液流动,改善机体血液循环,降低血液的黏度,减少因血液流动缓慢导致脑梗死发生的概率。对高龄患者来说,心理问题通常较大,对早期下床活动较为担心,可采取一定的镇痛措施,或通过气压治疗仪、弹力袜等辅助措施帮助患者进行肢体的恢复性训练,加强小腿肌肉及股四头肌的力量。③股骨颈骨折的高龄患者术前即开始进行血小板抗凝治疗,能有效减少术后出现深静脉血栓及脑梗死的概率,术后密切注意患者各项生命体征,严密监控患者术后引流量,检测凝血酶原时间,给予一定量的利伐沙班及低分子肝素辅助治疗。④对围术期发生脑梗死患者应密切观察其生命体征的变化,确定患者肌瘫时间、部位及瘫痪程度,掌握患者肌肉的力量情况,同时做好相应护理措施,防止患者出现并发症,如吸入性肺炎、严重吞咽困难、尿路感染等。⑤发生脑梗死患者通常存在一定的瘫痪症状,部分患者意识不清,语言表达能力丧失,且该病病程较长,恢复难度较大,老年患者面对此类问题时常产生严重的恐惧焦虑感,对治疗的信心不足,依从性较差,后期治疗时应注意对患者进行一定的心理干预和疏导,耐心对患者及其家属讲解患者病情,普及康复知识,为患者建立信心,配合治疗。⑥对出现肢体瘫痪的脑梗死患者应在其生命体征平稳后辅助其进行肢体力量的恢复性训练,保证患者关节的活动能力,协助其进行适当的活动,防止关节部位僵硬、肌肉萎缩,减轻肌肉痉挛。

综上,年龄超过 65 岁、吸烟、患者股骨颈骨折、手术麻醉为全麻、有冠心病、糖尿病、高血压等合并症是影响行骨关节置换术患者围术期发生脑梗死的独立危险因素,属于发生脑梗死的高危人群,对有上述特点患者应密切注意预后情况,同时给予精细的护理措施,有助于预防围术期脑梗死的发生。

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