·临床研究·

老年急性肠梗阻患者术后并发症发生情况及影响因素研究

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【摘 要】 **目的** 探讨老年急性肠梗阻患者术后并发症发生情况及影响因素。**方法** 选取2023年1月至2025年1月在琼海市人民医院行急性肠梗阻手术的187例老年患者为研究对象。收集患者临床资料及术后并发症发生情况。根据患者并发症类型,分为肺部并发症组(n=35)、其他并发症组(n=28)及对照组(无并发症,n=124)。采用SPSS 26.0统计软件进行数据分析。采用无序多分类logistic回归分析老年急性肠梗阻患者术后并发症的影响因素。**结果** 187例行手术治疗的老年急性肠梗阻患者中,消化道肿瘤引起的肠梗阻65例(34.76%),粘连性肠梗阻39例(20.86%),肠扭转20例(10.70%),肠套叠26例(13.90%),腹外疝19例(10.16%),腹股沟嵌顿疝18例(9.63%);肺部感染35例(18.72%)、切口感染18例(9.63%)、肠粘连11例(5.88%)、腹腔感染2例(1.07%)、泌尿系统感染3例(1.60%)、肠瘘1例(0.53%);并发症总发生率为33.69%(63/187),其中出现1种并发症者56例,出现2种并发症者7例。无序多分类logistic回归分析提示,肺部疾病(OR=1.670,95%CI 1.037~2.689)、吸烟史(OR=1.404,95%CI 1.163~1.694)、术前血清白蛋白<35 g/L(OR=1.250,95%CI 1.144~1.365)以及术前血红蛋白<110 g/L(OR=1.365,95%CI 1.089~1.710)是术后肺部并发症发生的危险因素;消化道肿瘤引起的肠梗阻(OR=1.328,95%CI 1.149~1.536)、发病至手术时间≥48 h(OR=1.575,95%CI 1.287~1.927)、术前急性生理与慢性健康评价Ⅱ(APACHEⅡ)评分>14分(OR=1.476,95%CI 1.182~1.841)、术前血清白蛋白<35 g/L(OR=1.319,95%CI 1.112~1.564)以及手术时间>2h(OR=1.573,95%CI 1.125~2.199)是术后其他并发症发生的危险因素(P<0.05)。**结论** 老年急性肠梗阻患者术后并发症多,最常见的并发症为肺部感染。临床可通过积极纠正低蛋白血症、改善低血红蛋白、发病后尽早开始手术、选择合适的手术方式缩短手术时间等方法,降低老年急性肠梗阻患者术后并发症;同时应注重对具有肺部疾病、吸烟史、消化道肿瘤引起的肠梗阻、术前APACHEⅡ评分>14分等特征患者的术后并发症预防与筛查。

【关键词】 老年人;急性肠梗阻;手术;术后并发症;肺部并发症;危险因素
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Incidence of postoperative complications and its influencing factors in elderly patients with acute intestinal obstruction

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【**Abstract**】 **Objective** To investigate the incidence and influencing factors of postoperative complications in elderly patients undergoing surgical treatment for acute intestinal obstruction. **Methods** A total of 187 elderly patients who underwent acute intestinal obstruction surgery in our hospital from January 2023 to January 2025 were enrolled in this study. Based on the occurrence and types of postoperative complication, the patients were divided into pulmonary complications group (n=35), other complications group (n=28), and control group (no complications, n=124). SPSS 26.0 statistical software was used for data analysis. Multinomial logistic regression analysis was applied to identify the influencing factors of postoperative complications in elderly patients with acute intestinal obstruction. **Results** Among the 187 elderly patients, the causes of obstruction included intestinal obstruction caused by gastrointestinal tumor (65 cases, 34.76%), adhesive obstruction (39 cases, 20.86%), intestinal torsion (20 cases, 10.70%), intussusception (26 cases, 13.90%), external abdominal hernia (19 cases, 10.16%), and incarcerated inguinal hernia (18 cases, 9.63%). Postoperative complications comprised pulmonary infection (35 cases, 18.72%), incisional infection (18 cases, 9.63%), adhesion (11 cases, 5.88%), intra-abdominal infection (2 cases, 1.07%), urinary tract infection (3 cases, 1.60%), and enteric fistula (1 case, 0.53%). The overall rate of postoperative complications was 33.69% (63/187), with 56 patients developing a single complication and 7 patients experiencing 2 complications. Multinomial logistic regression revealed that pulmonary disease (OR=1.670, 95%CI 1.037-2.689), smoking history (OR=1.404, 95%CI 1.163-1.694), preoperative serum albumin <35 g/L (OR=1.250, 95%CI 1.144-1.365), and preoperative hemoglobin <110 g/L (OR=1.365, 95%CI 1.089-1.710) were risk factors for postoperative pulmonary complications. Intestinal obstruction caused by gastrointestinal tumor (OR=1.328, 95%CI 1.149-1.536), time from onset to surgery ≥48 h (OR=1.575, 95%CI 1.287-1.927),

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preoperative acute physiology and chronic health evaluation Ⅱ (APACHE Ⅱ) score >14 points (*OR*=1.476, 95%*CI* 1.182-1.841), preoperative serum albumin <35 g/L (*OR*=1.319, 95%*CI* 1.112-1.564), and surgical time >2 h (*OR*=1.573, 95%*CI* 1.125-2.199) were risk factors for other complications. **Conclusion** In elderly patients with acute intestinal obstruction, postoperative complications are quite common, and pulmonary infection is the most common. Clinical measures, such as active correction of hypoproteinemia, improvement of low hemoglobin, early surgical intervention after onset, and selection of appropriate surgical procedures to shorten surgical time, may effectively reduce postoperative complications in elderly patients with acute intestinal infarction. Meanwhile, prevention and screening of postoperative complications should be emphasized in patients with pulmonary diseases, smoking history, intestinal obstruction caused by gastrointestinal tumor, and preoperative APACHE Ⅱ score > 14 points.

【Key words】 aged; acute intestinal obstruction; surgery; postoperative complication; pulmonary complications; risk factors

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急性肠梗阻是一组以肠内容物运行梗阻为特征的疾病,其临床表现缺乏特异性,易出现诊断延误,且疾病进展迅速,若不能得到及时有效的治疗可能会危及患者生命安全[1]。部分急性肠梗阻患者经保守治疗后相关临床症状会消失,但对于经保守治疗无效或入院时已具备手术指征的患者,则需进行手术治疗[2]。有研究显示,急性肠梗阻是导致急诊手术患者死亡的常见病因,其死亡率仅次于复杂性消化性溃疡及主动脉瘤[3]。近年来,随着手术技术及围术期管理水平的提高,很大程度上降低了急性肠梗阻患者手术死亡风险,但急性肠梗阻术后并发症依旧较多,是临床关注的热点。此外,老年急性肠梗阻患者由于机体储备功能降低,基础性疾病多,手术耐力下降,手术风险更高[4]。因此,本研究探讨老年急性肠梗阻患者术后并发症的发生情况及影响因素,以期提高患者手术安全性,保障预后。

1 对象与方法

1.1 研究对象

选取 2023 年 1 月至 2025 年 1 月在琼海市人民医院行急性肠梗阻手术的 187 例老年患者为研究对象。纳入标准:年龄≥60 岁;经腹部 X 线、CT 等辅助检查确诊为急性肠梗阻;有恶心呕吐、腹痛腹胀、肛门停止排气排便等临床症状;体征检查提示有腹部包块、腹肌紧张、肠鸣音减弱等;符合手术指征,经内科保守治疗 3 d 以上病情无明显好转,合并弥漫性腹膜炎或肠绞窄等;由同一组医师行手术治疗;病历及手术资料完整。排除标准:入院 24 h 内死亡;术前已出现多器官功能衰竭;凝血机制异常;合并急性胰腺炎、消化道穿孔等急腹症;合并肠系膜血管栓塞;资料缺失。本研究方案经琼海市人民医院伦理委员会批准(批准文号:医伦[023]第 012 号)。所有受试者均在参与研究前签署书面知情同意书。研究符合《赫尔辛基宣言》。

1.2 方法

1.2.1 术后并发症 统计患者术后并发症发生情况,包括肺部感染、切口感染、腹腔感染、泌尿系统感染、肠瘘及术后肠粘连等。根据患者并发症类型,分为肺部并发症组(n=35)、其他并发症组(n=28)及对照组(无并发症,n=124)。

1.2.2 资料收集 收集患者年龄、性别、体质量指数(body mass index, BMI)、基础性疾病(肺部疾病、冠心病、糖尿病及高血压等)、吸烟史、既往腹部手术史、肠梗阻原发病因(是否为消化道肿瘤引起的肠梗阻)、梗阻部位、发病至手术时间、术前美国麻醉医师协会分级、术前急性生理与慢性健康评价 Ⅱ (acute physiology and chronic health evaluation Ⅱ, APACHE Ⅱ)评分、术前实验室指标[血清白蛋白、血红蛋白、白细胞计数以及 C 反应蛋白(C-reactive protein, CRP)]、手术时间、术中出血量等。

1.3 统计学处理

采用 SPSS 26.0 统计软件进行数据分析。计数资料以例数(百分率)表示,组间比较采用χ^2检验。采用无序多分类 logistic 回归分析老年急性肠梗阻患者术后并发症的影响因素。P<0.05 为差异有统计学意义。

2 结 果

2.1 患者一般资料

187 例老年急性肠梗阻患者中男性 126 例,女性 61 例;年龄 60~84(70.15±6.15)岁。梗阻原因:消化道肿瘤引起的肠梗阻 65 例(34.76%),粘连性肠梗阻 39 例(20.86%),肠扭转 20 例(10.70%),肠套叠 26 例(13.90%),腹外疝 19 例(10.16%),腹股沟嵌顿疝 18 例(9.63%)。

2.2 术后并发症发生情况

187 例老年急性肠梗阻患者术后发生肺部感染 35 例(18.72%)、切口感染 18 例(9.63%)、肠粘连 11 例(5.88%)、腹腔感染 2 例(1.07%)、泌尿系统感染 3 例(1.60%)、肠瘘 1 例(0.53%),未出现脓毒症休克及感染性休克等严重并发症,无院内死亡患者。并发症总发生率为 33.69%(63/187),其中出现

1种并发症者56例,出现2种并发症者7例。

2.3 肺部并发症组、其他并发症组以及对照组临床资料

三组患者肺部疾病、糖尿病、吸烟史、消化道肿瘤引起的肠梗阻、发病至手术时间、术前APACHEⅡ评分、术前血清白蛋白、术前血红蛋白、术前白细胞计数、CRP及手术时间比较,差异均有统计学意义(均$P<0.05$;表1)。

表1 肺部并发症组、其他并发症组以及对照组临床资料比较

Table 1 Comparison of clinical data among pulmonary complication group, other complication group and control group

[n(%)]

Factor	n	Pulmonary complication group(n=35)	Other complication group(n=28)	Control group(n=124)	χ^2	P value
Age					1.512	0.469
60-80 years	131	26(74.29)	17(60.71)	88(70.97)		
≥80 years	56	9(25.71)	11(39.29)	36(29.03)		
Gender					2.910	0.233
Male	126	25(71.43)	15(53.57)	86(69.35)		
Female	61	10(28.57)	13(46.43)	38(30.65)		
BMI					3.671	0.452
<18.5 kg/m^2	36	8(22.85)	6(21.43)	22(17.74)		
18.5-24.0 kg/m^2	113	22(62.86)	19(67.86)	72(58.06)		
≥24.0 kg/m^2	38	5(14.29)	3(10.71)	30(24.20)		
Pulmonary disease	35	11(31.43)	8(28.57)	16(12.90)	8.260	0.016
Coronary heart disease	40	9(25.71)	2(7.14)	29(23.39)	4.063	0.131
Diabetes mellitus	32	8(22.86)	9(32.14)	15(12.10)	7.473	0.024
Hypertension	35	7(20.00)	2(7.14)	26(20.97)	2.916	0.233
Smoking history	27	7(20.00)	1(3.57)	19(15.32)	6.407	0.041
Previous history of abdominal surgery	45	5(14.29)	7(25.00)	33(26.61)	2.286	0.319
Intestinal obstruction caused by gastrointestinal tumor	96	14(40.00)	26(92.86)	56(45.16)	23.016	<0.001
Obstruction site					0.944	0.624
High obstruction	23	6(17.14)	3(10.71)	14(11.29)		
Low obstruction	164	29(82.86)	25(89.29)	110(88.71)		
Time from onset to surgery					7.101	0.029
24-48 h	121	20(57.14)	13(46.43)	88(70.97)		
≥48 h	66	15(42.86)	15(53.57)	36(29.03)		
Preoperative ASA grading					5.093	0.078
Ⅰ-Ⅱ	142	22(62.86)	20(71.43)	100(80.65)		
Ⅲ	45	13(37.14)	8(28.57)	24(19.35)		
Preoperative APACHEⅡ score					8.912	0.012
≤14 points	143	22(62.86)	18(64.29)	103(83.06)		
>14 points	44	13(37.14)	10(35.71)	21(16.94)		
Preoperative serum albumin					9.250	0.010
<35 g/L	40	14(40.00)	6(21.43)	20(16.13)		
≥35 g/L	147	21(60.00)	22(78.57)	104(83.87)		
Preoperative hemoglobin					9.473	0.009
<110 g/L	19	8(22.86)	4(14.29)	7(5.65)		
≥110 g/L	168	27(77.14)	24(85.71)	117(94.35)		
Preoperative white blood cell count					9.934	0.007
Normal	173	30(85.71)	23(82.14)	120(96.77)		
Abnormal	14	5(14.29)	5(17.86)	4(3.23)		
CRP					9.249	0.010
<5 mg/L	155	26(74.29)	19(67.86)	110(88.71)		
≥5 mg/L	32	9(25.71)	9(32.14)	14(11.29)		
Surgical method					1.919	0.383
Open surgery	142	29(82.86)	19(67.86)	94(75.81)		
Laparoscopic surgery	45	6(17.14)	9(32.14)	30(24.19)		
Surgical time					21.687	<0.001
≤2 h	144	29(82.86)	12(42.86)	103(83.06)		
>2 h	43	6(17.14)	16(57.14)	21(16.94)		
Intraoperative blood loss					2.854	0.240
<300 ml	152	25(71.43)	24(85.71)	103(83.06)		
≥300 ml	35	10(28.57)	4(14.29)	21(16.94)		

BMI: body mass index; ASA: American society of anesthesiologists; APACHⅡ: acute physiology and chronic health evaluationⅡ; CRP: C-reactive protein.

2.4 影响老年急性肠梗阻患者术后并发症的多因素分析

以老年急性肠梗阻患者术后并发症类型为因变量,将表 1 中有统计学意义的 11 个指标作为自变量,以术后无并发症作为对照,行无序多分类 logistic 回归分析,发现肺部疾病(OR=1.670,95%CI 1.037~2.689)、吸烟史(OR=1.404,95%CI 1.163~1.694)、术前血清白蛋白<35 g/L(OR=1.250,95%CI 1.144~1.365)、术前血红蛋白<110 g/L(OR=1.365,95%CI 1.089~1.710)是术后肺部并发症发生的危险因素;消化道肿瘤引起的肠梗阻(OR=1.328,95%CI 1.149~1.536)、发病至手术时间≥48 h(OR=1.575,95%CI 1.287~1.927)、术前 APACHE Ⅱ 评分>14 分(OR=1.476,95%CI 1.182~1.841)、术前血清白蛋白<35 g/L(OR=1.319,95%CI 1.112~1.564)以及手术时间>2 h(OR=1.573,95%CI 1.125~2.199)是术后其他并发症发生的危险因素(P<0.05;表 2)。

3 讨 论

既往研究中,急性肠梗阻的原因主要为肠粘连、肠扭转及肠套叠[5]。本研究中 187 例老年急性肠梗阻患者,消化道恶性肿瘤相关肠梗阻占比最高(34.76%),其次为粘连性肠梗阻(20.86%)。这可能与本研究所纳入的患者为老年人,其腹部手术史及恶性肿瘤史较多相关[6]。纠正肠梗阻所致的全身生理紊乱及解除梗阻是急性肠梗阻的主要处理目标,对于粘连性肠梗阻、肠扭转等患者,临床一般先以保守治疗作为首选治疗方案,但对于保守治疗无效,病情持续恶化者则需转为手术治疗。此外,对于嵌顿疝、肠套叠、恶性肿瘤相关肠梗阻等符合手术指征的患者,则需尽早进行手术治疗,以避免感染性休克、肠管坏死等[7]。有临床数据显示,因急性腹痛入院的肠梗阻患者中,有 20%需通过急性外科手术治疗[8]。而老年人基础性疾病多,机体功能下降,对麻醉及手术的耐受力降低,手术风险较高,术后并发症较多,故分析老年肠梗阻患者术后并发症发生情况及相关影响因素,对提高患者手术安全性具有重要意义。

有研究称,老年急性肠梗阻患者术后肺部并发症发生率最高,包括肺部感染、肺不张、胸腔积液等,而肺部并发症可能会引起多器官功能障碍,增加患者住院时间及死亡风险,对患者预后的影响较大[9]。本研究发现,老年急性肠梗阻患者术后并发症发生率为 33.69%,其中占比最高的并发症为肺部并发症(肺部感染,18.72%),这可能与老年人肺活量及呼吸代偿功能降低相关[10,11]。为了更精准地防治各类并发症,本研究经无序多分类 logistic 回归模型分析发现,肺部疾病、吸烟史、术前血清白蛋白<35 g/L、术前血红蛋白<110 g/L 是患者术后肺部并发症发生的危险因素。提示合并基础性肺部疾病、具有吸烟史者更易发生肺部并发症;同时,术前积极纠正低蛋白血症,提高血红蛋白水平,在降低患者术后肺部并发症发生风险中具有一定意义。

本研究还发现,消化道肿瘤引起的肠梗阻、发病至手术时间≥48 h、术前 APACHE Ⅱ 评分>14 分、术前血清白蛋白<35 g/L 以及手术时间>2 h 是老年急性肠梗阻患者其他并发症发生的危险因素。分析其原因:(1)癌性肠梗阻患者病情复杂,治疗棘手,其治疗结局受到梗阻部位、肿瘤分期、机体基础情况

表 2 影响老年急性肠梗阻患者术后并发症的无序多分类 logistic 回归分析

Table 2 Unordered multinomial logistic regression analysis of influencing factors for postoperative complications in elderly patients with acute intestinal obstruction

Factor	Pulmonary complication				Other complication			
	β	OR	95%CI	P value	β	OR	95%CI	P value
Pulmonary disease	0.513	1.670	1.037-2.689	0.035	0.256	1.292	0.911-1.831	0.151
Smoking history	0.339	1.404	1.163-1.694	<0.001	0.441	1.554	0.835-2.893	0.165
Diabetes mellitus	0.415	1.514	0.770-2.978	0.230	0.343	1.409	0.928-2.139	0.108
Intestinal obstruction caused by gastrointestinal tumor	0.393	1.481	0.857-2.560	0.160	0.283	1.328	1.149-1.536	<0.001
Time from onset to surgery≥48 h	0.305	1.357	0.771-2.386	0.290	0.454	1.575	1.287-1.927	<0.001
Preoperative APACHE Ⅱ score>14 points	0.319	1.376	0.781-2.424	0.270	0.389	1.476	1.182-1.841	<0.001
Preoperative serum albumin<35 g/L	0.223	1.250	1.144-1.365	<0.001	0.277	1.319	1.112-1.564	0.002
Preoperative hemoglobin<110 g/L	0.311	1.365	1.089-1.710	0.007	0.184	1.202	0.956-1.512	0.117
Preoperative white blood cell count normal	0.215	1.240	0.864-1.778	0.243	0.263	1.301	0.870-1.944	0.200
CRP≥5 mg/L	0.229	1.257	0.858-1.843	0.241	0.397	1.487	0.866-2.555	0.151
Surgical time>2 h	0.184	1.202	0.882-1.638	0.245	0.453	1.573	1.125-2.199	0.008

APACHE Ⅱ: acute physiology and chronic health evaluation Ⅱ; CRP: C-reactive protein.

等因素的影响,更易出现术后并发症[12]。(2)手术时机的选择是当前急性肠梗阻患者行手术治疗的热点话题。发病至手术时间过长会增加肠坏死概率,进而加大细菌移位、全身感染及多器官功能障碍综合征发生风险,从而增加术后并发症[13,14]。故建议具备手术指征的老年急性肠梗死患者在病情稳定后,尽早进行手术治疗。(3)APACHEⅡ评分是评估疾病严重度分层的常用工具,包含急性生理评分、年龄、慢性健康评分等内容,APACHEⅡ评分>14分提示患者院内死亡率在20%~50%,病情严重程度处于高危等级,故其术后并发症风险更高。(4)血清白蛋白<35 g/L即为低蛋白血症,而合并低蛋白血症易引起组织水肿,且术后伤口愈合慢,增加术后并发症发生风险[15]。(5)手术时间过长一方面提示患者病情复杂,手术操作难度高,另一方面也会增加术中出血量与器官暴露时间,进而加大术后并发症风险[16]。

综上,老年急性肠梗阻患者术后并发症多,最常见的并发症为肺部感染。肺部疾病、吸烟史、术前血清白蛋白<35 g/L、术前血红蛋白<110 g/L是肺部并发症发生的危险因素,其他并发症包括切口感染、术后肠粘连、腹腔感染、泌尿系统感染等的发生则与消化道肿瘤引起的肠梗阻、发病至手术时间、术前APACHEⅡ评分、术前血清白蛋白以及手术时间等因素相关。但本研究所纳入的样本量较小,且研究对象均来源于同一所医院,样本代表性有限,所得结论存在一定的局限性。

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