论著·临床医学

直肠癌术后回肠造口还纳患者发生低位前切除综合征的影响因素分析

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[摘要] **目的** 调查直肠癌根治术后患者行回肠造口还纳术后1年时发生低位前切除综合征(low anterior resection syndrome, LARS)的影响因素,为临床干预提供依据。**方法** 采用回顾性队列研究设计,以2023年1月—024年1月在重庆市3所三甲医院成功行回肠造口还纳术的患者作为研究队列。根据造口还纳术后1年时随访的LARS评分,将患者分为LARS组(评分≥21分)和非LARS组(评分≤20分),通过病历系统采集临床资料:年龄、BMI、性别、肿瘤大小、肿瘤距肛缘距离、T分期、N分期、低位前切术手术日期、新辅助治疗、术后化疗、吻合口漏、回肠造口还纳术手术日期。使用单因素分析筛选潜在影响因素,将P<0.2的变量纳入多因素Logistic回归模型。采用双向逐步回归法来进一步分析回肠造口还纳术后1年时发生LARS的显著影响因素。**结果** 根据纳排标准,共纳入312例患者信息,LARS组127例,非LARS组185例。回肠造口还纳术后1年LARS发生率为40.70%(轻度21.79%,重度18.91%),LARS评分为(14.52±11.64)分。多因素Logistic回归分析显示:新辅助治疗(有*vs*无:*OR*=1.830, 95%*CI*:1.088~3.089; P=0.023)、肿瘤距肛距离≤5 cm(*vs*>5 cm:*OR*=2.044, 95%*CI*:1.249~3.374; P=0.005)、吻合口漏发生(有*vs*无:*OR*=7.470, 95%*CI*:2.247~34.102; P=0.003)及还纳间隔时间(≥181 d *vs* 91~180 d:*OR*=2.297, 95%*CI*:1.363~3.917;P=0.002)、N分期(N1-N2 *vs* N0:*OR*=1.650, 95%*CI*:1.009~2.717; P=0.047)是回肠造口还纳术后1年发生LARS的显著影响因素。**结论** 本研究结果提示吻合口漏、还纳间隔时间≥181 d、肿瘤距肛缘≤5 cm及接受新辅助治疗、N分期为N1-N2与直肠癌根治术后患者回肠造口还纳后1年发生LARS有关联。临床医务人员应在造口还纳前及还纳后对具有高危因素的患者进行早期干预及长期随访。

[关键词] 低位前切除综合征;回肠造口术;直肠癌;影响因素
[中图法分类号] R656.9;R473.73;R619 [文献标志码] A

Factors influencing the development of low anterior resection syndrome in rectal cancer patients after ileostomy reversal

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[**Abstract**] **Objective** To investigate the influencing factors for low anterior resection syndrome (LARS) at one year after ileostomy reversal in patients who have undergone radical resection for rectal cancer,

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and to inform clinical interventions. **Methods** A retrospective cohort study was conducted on 312 patients who successfully underwent ileostomy reversal after radical resection for rectal cancer between January 2023 and January 2024 at 3 tertiary hospitals in Chongqing. Based on LARS scores at 1-year after stoma reversal, they were divided into a LARS group (score ≥21) and a non-LARS group (score≤20). Clinical data were collected from the medical record system, including age, body mass index (BMI), sex, tumor size, tumor distance from the anal verge, T stage, N stage, date of low anterior resection, neoadjuvant therapy, postoperative chemotherapy, anastomotic leakage, and date of ileostomy reversal. Univariate analysis was used to screen potential influencing factors, and variables with $P<0.2$ were included in a multivariate logistic regression model. Binary stepwise regression analysis was applied to further analyze significant influencing factors for LARS at 1 year after ileostomy reversal. **Results** In the cohort, there were 127 patients assigned into the LARS group and 185 into the non-LARS group. The incidence of LARS at 1 year after ileostomy reversal was 40.70%, with mild cases accounting for 21.79% and severe ones for 18.91%, and a mean LARS score of 14.52±11.64. Multivariate logistic regression analysis showed that neoadjuvant therapy (yes *vs* no: *OR*=1.830, 95%*CI*: 1.088~3.089; *P*=0.023), tumor distance from anal verge ≤5 cm (*vs* >5 cm: *OR*=2.044, 95%*CI*:1.249~3.374; *P*=0.005), occurrence of anastomotic leakage (yes *vs* no: OR=7.470, 95%*CI*: 2.247~34.102; *P*=0.003), time to reversal (≥181 d *vs* 91~180 d: *OR*=2.297, 95%*CI*:1.363~3.917; *P*=0.002), and N stage (N1~N2 *vs* N0: *OR*=1.650, 95%*CI*: 1.009~2.717; *P*=0.047) were significant influencing factors for LARS at 1 year after ileostomy reversal. **Conclusion** Our results suggest that anastomotic leakage, time to reversal ≥181 d, tumor distance from anal verge ≤5 cm, neoadjuvant therapy, and N stage N1~N2 are associated with the occurrence of LARS at 1 year after ileostomy reversal in patients following radical resection of rectal cancer. Clinical healthcare providers should implement early intervention and long-term follow-up for patients with high-risk factors both before and after stoma reversal.

[**Key words**] low anterior resection syndrome; ileostomy; rectal cancer; influencing factors

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全球癌症统计数据显示,2022年结直肠癌新发病例达190万例,死亡病例逾90万例,为第二大癌症死因,我国结直肠癌发病率和病死率居高不下[1]。结直肠癌中大部分是直肠癌,65%~70%的直肠癌位于低位直肠[2-4]。低位直肠癌的标准手术治疗遵循全直肠系膜切除(total mesorectal excision,TME)原则进行低位前切除术(low anterior resection,LAR),随着手术技术的不断革新,低位直肠癌手术的保肛率越来越高[5]。术后吻合口漏是直肠癌保肛手术后严重的并发症之一,发生率较高[6],吻合口漏可致腹腔感染,继而出现全身感染,还会导致长期总生存率降低、癌症复发风险增加以及更高的医疗成本[7],预防性回肠造口是目前临床上应对吻合口漏的重要方法,可减轻吻合口漏的严重程度[8]。部分患者行回肠造口还纳后常面临低位前切除综合征(low anterior resection syndrome,LARS)困扰[9],表现为排便排气失禁、排便频繁等,不仅阻碍患者的躯体功能(如社交约束、自身形象管理障碍),还削弱其心理社会功能(如社会角色适应和决策能力等),降低生活质量[10-12]。明确LARS影响因素有助于识别高风险患者并进行精准施策,减少LARS发生。因此,本研究旨在探究直肠癌术后回肠造口还纳患者发生LARS的影响因素,为制定预防及治疗措施提供依据。

1 资料与方法

1.1 研究对象

本研究为多中心回顾性队列研究,连续性纳入2023年1月—2024年1月在陆军军医大学第一附属医院、第二附属医院及陆军特色医学中心3所重庆市三甲医院成功行回肠造口还纳术的患者的相关数据,共312例患者。根据造口还纳术后1年时随访的LARS评分,将患者分为LARS组(评分≥21分,n=127)和非LARS组(评分≤20分,n=185)。纳入标准:①年龄18~80岁;②病理确诊为直肠癌;③同步行低位前切除术+回肠造口术;④在同一医院进行造口还纳;⑤恢复肠道连续性至少1年。排除标准:①合并多种肿瘤;②术前

肠道功能障碍;③数据遗漏。本研究已通过陆军军医大学第一附属医院伦理委员会审批[(B)ky2025026]。

1.2　样本量计算

既往大量研究明确吻合口漏是影响直肠癌术后LARS的重要因素[13-15],本研究根据前期预实验数据显示,吻合口漏占比非LARS组为1%,LARS组为11%。以是否出现吻合口漏为主要观察指标计算样本量,规定取α=0.05,β=0.10,经PASS 15.0软件计算,得出每组至少需要114例患者,总样本量至少为228例。本研究最终连续纳入312例,故样本量符合研究要求。

1.3　临床信息采集与患者随访

1.3.1　临床信息采集　　由研究团队根据文献研究法、专家会议法确定临床信息采集内容,通过电子病历系统进行采集,包括:年龄、BMI(直肠癌低位前切除术+回肠造口术、回肠造口还纳术2次入院时)、性别、肿瘤大小、肿瘤距肛缘距离、肿瘤T分期及N分期、低位前切术手术日期、新辅助治疗、术后化疗、吻合口漏、回肠造口还纳手术日期。肿瘤T分期及N分期以结直肠癌AJCC第8版TNM分期作为参照标准。低位前切除术+回肠造口术的手术日期到造口还纳术手术日期之间的时间间隔为造口还纳时间间隔。

1.3.2　患者随访　　在回肠造口还纳术后1年时采用LARS评分量表对患者进行LARS随访评分,评估患者肛门功能情况。LARS评分量表由EMMERTSEN等[16]制定,曹玉兰等[17]将该量表汉化,汉化后的量表具有良好的信效度,该量表操作简单、易于完成,被认为是快速筛查肠功能障碍的首选工具,已在国内大量应用[18-19]。LARS评分量表涵盖气体失禁、液体失禁、排便频率改变、排便急迫、排空困难5个条目,总分42分。根据评分分为3个等级,0~20分表示无LARS,21~29分为轻度LARS,30~42分为重度LARS,分数越高表明LARS症状越严重。

1.4　数据收集分组与质量控制方法

一般资料源于医院电子病历系统,回肠造口还纳术后1年时LARS评分通过门诊随访以及电话联系患者收集。根据LARS评分将患者分为非LARS组(n=185)和LARS组(n=127),见图1。2025年4月由2名经专业培训的研究成员使用一致的电子表格独立录入数据并进行核对,保证信息无误。由1名研究者定期审核数据收集情况及质量,确保数据完整准确。数据收集完成后,与原数据核对缺失值。若缺失比例≤5%,则均值填补;若同一病例的数据缺失项>2项,则考虑删除个案,以保证结果可靠。

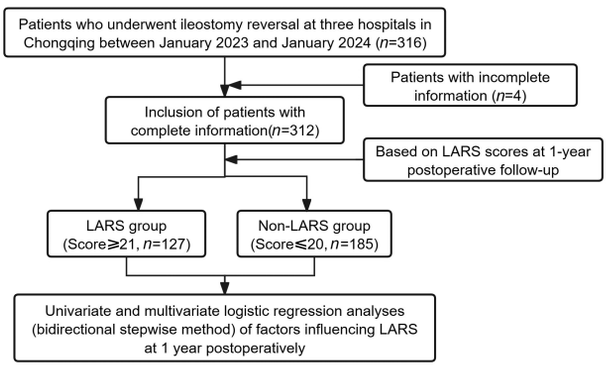


图1　STROBE流程图

Figure 1　STROBE flowchat

1.5　统计学方法

统计分析使用R 4.5.0软件,单因素分析中,二分类变量采用Fisher精确检验,多分类变量先进行整体卡方检验(报告整体P值),再与参考水平进行Fisher精确检验两两比较。多因素分析采用基于Akaike信息准则(AIC)的双向逐步回归法。数据清理与处理采用dplyr包,统计分析主要依托MASS包中的glm和step AIC函数完成,结果以OR(95%CI)报告。

2　结果

2.1　一般资料描述

共纳入316例数据,因数据不完整剔除4例,最终符合要求的患者312例,其中,男性221例(70.8%),女性91例(29.2%);年龄(59.63±11.08)岁。直肠癌术后患者行回肠造口还纳术后1年时LARS的发生率为40.70%,LARS评分为(14.52±11.64)分。其中,轻度LARS例数为68例(21.79%),重度59例(18.91%)。其他一般资料见表1。

2.2　回肠造口还纳术后1年时发生LARS的单因素分析

单因素分析采用卡方检验评估12项分类变量与回肠造口还纳术后1年时LARS评分的关联性(α=0.05)。结果显示4个因素显著相关(P<0.05),包括新辅助治疗、肿瘤距肛缘距离、吻合口漏和还纳间隔时间。见表1。

2.3　回肠造口还纳术后1年时发生LARS的多因素Logistic回归分析

使用单因素分析筛选潜在影响因素,为最大限度地减少遗漏重要变量的风险(Type 2 error),设定了较宽的纳入标准(P<0.2)。新辅助治疗、肿瘤距肛缘距离、吻合口漏、还纳间隔时间、年龄、N分期、肿瘤最大直径这7个变量被选为候选变量用于多因素分析。连续变量进行离散化处理,LARS评分根据公认阈值(≥21分)

表1 回肠造口还纳术后1年时发生LARS的单因素分析结果[$\bar{x}\pm s$,例(%)]

Table 1 Univariate analysis of factors associated with low anterior resection syndrome (LARS) at 1 year after ileostomy reversal[$\bar{x}\pm s$, n(%)]

Variable	Total(n=312)	Non-LARS(n=185)	LARS(n=127)	*OR*	95%*CI*	*P*
Sex						
Male	221(70.80%)	132	89			
Female	91(29.20%)	53	38	1.060	0.626~1.795	0.899
Age /years						
<65	197(63.14%)	110	87			
≥65	115(36.86%)	75	40	0.680	0.406~1.113	0.120
Neoadjuvant therapy						
No	218(69.90%)	138	80			
Yes	94(30.10%)	47	47	1.720	1.025~2.896	0.032
Tumor distance from anal verge/cm						
>5	174(55.80%)	114	60			
≤5	138(44.20%)	71	67	1.790	1.105~2.906	0.014
Anastomotic leakage						
No	296(94.90%)	182	114			
Yes	16(5.10%)	3	13	6.880	1.834~8.405	0.001
Adjuvant chemotherapy						
Yes	212(67.90%)	121	91			
No	100(32.10%)	64	36	0.750	0.442~1.254	0.267
N stage						
N0	172(55.10%)	109	63			
N1~N2	140(44.90%)	76	64	1.460	0.904~2.354	0.106
T stage		185	127			0.726(overall)
T0~Tis	6(1.92%)	4	2			
T1~T2	105(33.65%)	65	40	1.229	0.167~14.170	1.000
T3~T4	201(64.42%)	116	85	1.462	0.204~16.514	1.000
BMI at LAR/(kg/m^2)		n				
<24	171(54.81%)	103	68			
≥24	141(45.19%)	82	59	1.09	0.674~1.758	0.729
BMI at reversal/(kg/m^2)						
<24	169(54.16%)	103	66			
≥24	143(45.83%)	82	61	1.160	0.719~1.872	0.563
Interval to reversal/d						0.001(overall)
91~180	120(38.46%)	80	40			
≤90	48(15.38%)	37	11	0.596	0.247~1.352	0.199
≥181	144(46.15%)	68	76	2.228	1.315~3.811	0.002
Tumor max diameter/cm						
<5	256(82.05%)	146	110			
≥5	56(17.95%)	39	17	0.580	0.291~1.113	0.098

OR values were calculated exclusively for comparisons between the exposure group and the reference group

定义为二分类变量。运用基于Akaike信息准则(AIC)的双向逐步回归法来构建多因素Logistic回归模型,确定显著影响因素。

结果表明,新辅助治疗(有 *vs* 无:*OR*=1.830,95%*CI*:1.088~3.089;*P*=0.023)、肿瘤距肛距离≤5 cm(*vs*>5 cm:*OR*=2.044,95%*CI*:1.249~3.374;*P*=0.005)、吻合口漏发生(有 *vs* 无:*OR*=7.470,95%*CI*:2.247~34.102;*P*=0.003)及还纳间隔时间(≥181 d *vs* 91~180 d:*OR*=2.297,95%*CI*:1.363~3.917;*P*=0.002)、N分期(N1-N2 *vs* N0:*OR*=1.650,95%*CI*:1.009~2.717;*P*=0.047)是造口还纳术后1年发生LARS的显著影响因素。其中吻合口漏与LARS的关联强度最高(风险增加6.470倍),而早期还纳(≤90 d)与参考组(91~180 d)相比未观察到显著差异(*OR*=0.634,

表2 自变量赋值方式

Table 2 Assignment methods for independent variables

Variable	Assignment method
Sex	Male=1;Female=2
Neoadjuvant therapy	Yes=1;No=2
Tumor distance from anal verge	≤5 cm=1;>5 cm=2
Anastomotic leakage	Yes=1;No=2
Adjuvant chemotherapy	Yes=1;No=2
T stage	T0-TIS=1;T1-T2=2;T3-T4=3
N stage	N0=1;N1-N2=2
Age/years	≥65=1;<65=2
BMI/(kg/m^2)	≥24 kg/m^2=1;<24 kg/m^2=2
Interval to reversal/d	≤90=1;91-180=2;≥181=3
Tumor maximum diameter / cm	≥5c m=1;<5 cm=2

95%*CI*: 0.274~1.389; *P*=0.268)。多因素Logistic回归分析显示,纳入的自变量组合对LARS发生概率的解释具有统计学意义(似然比x^2=44.5, df=5,*P*<0.001)。模型的AIC值为391.1,McFadden伪R^2为0.105,按照标准解释准则(<0.1=弱,0.1~0.2=中等,>0.2=强),表明模型具有中等的解释强度。

基于多变量逻辑回归绘制与回肠造口还纳术后1年时发生LARS相关多因素分析森林图(见图2)。点代表调整后的优势比(*OR*),水平线代表95%置信区间(*CI*)。红色垂直虚线代表无效值(*OR*=1.0)。置信区间不跨越1.0的变量被认为具有统计学显著性(*P*<0.05)。每个变量的具体*OR*值、95%*CI*和精确*P*值已在图左侧标注。

表3 回肠造口还纳术后1年时发生LARS的多因素Logistic回归分析结果(*n*=312)

Table 3 Multivariate logistic regression analysis of factors associated with low anterior resection syndrome (LARS) at 1 year after ileostomy reversal (*n*=312)

Variable	β	Standard error	*OR*	95%*CI*	*P*
Neoadjuvant therapy (Yes *vs* No)	0.604	0.266	1.830	1.088~3.089	0.023
Tumor distance from anal verge(≤5 cm *vs* >5 cm)	0.715	0.252	2.044	1.247~3.374	0.005
Anastomotic leak (Yes *vs* No)	2.011	0.671	7.470	2.247~34.102	0.003
Interval to reversal(≤90 d *vs* 90~180 d)	−0.456	0.411	0.634	0.274~1.389	0.268
Interval to reversal(>180 d *vs* 90~180 d)	0.831	0.269	2.297	1.363~3.917	0.002
N stage(N1~N2 *vs* N0)	0.501	0.253	1.650	1.009~2.717	0.047

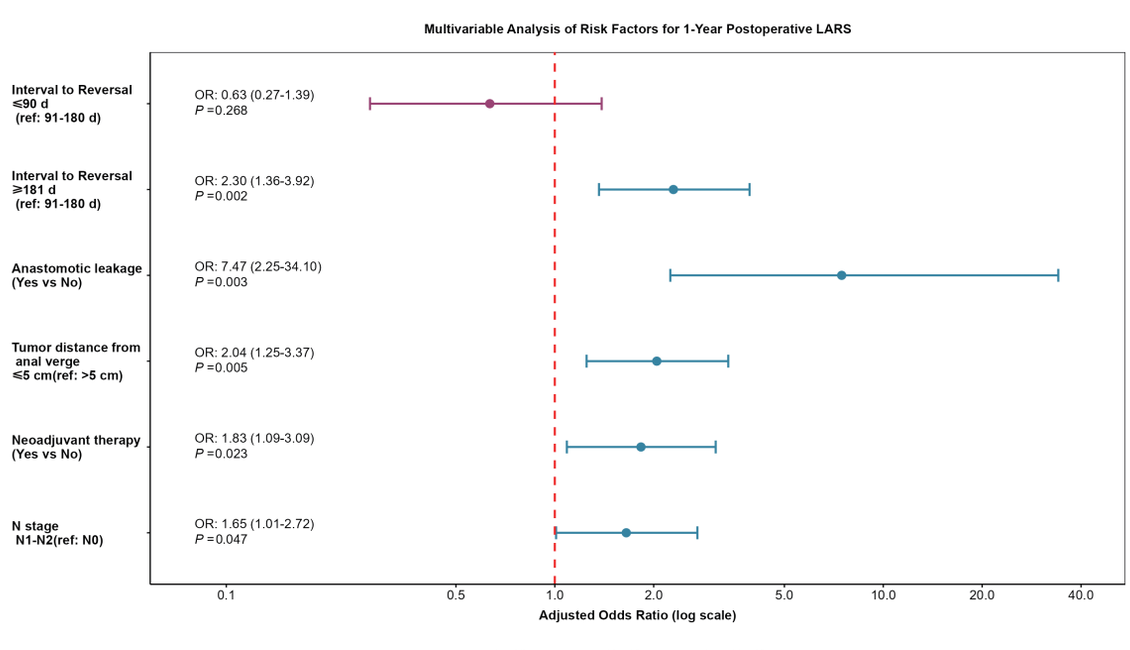


图2 与回肠造口还纳术后1年时发生LARS相关的多因素分析森林图

Figure 2 Forest plot of multivariable analysis of factors associated with low anterior resection syndrome (LARS) at 1 year after ileostomy reversal

3 讨论

LARS是直肠癌术后常见的肠道功能紊乱症候群,发生率为60%~90%[20]。且持续时间较长,症状改善人群异质性较强。多数患者LARS症状在术后6~12个月内逐渐改善,部分患者在术后1年甚至更长时间持续存在LARS症状[21]。文献报道直肠癌术后行预防性回肠造口的患者进行回肠造口还纳后更容易发生LARS[22]。但相关影响因素及机制仍未明确,值得深入探讨。本研究结果显示直肠癌术后回肠造口还纳术后1年时LARS的发生率为40.70%,发现吻合口漏、肿瘤距肛缘≤5cm、术前接受新辅助治疗及还纳间隔时间≥181天、N分期中N1-N2期是造口还纳术后1年时发生LARS的显著影响因素,临床医务人员应重点关注这部分人群,制定精准的预防及管理策略。

3.1 吻合口漏是回肠造口还纳术后1年时发生LARS的影响因素

吻合口漏是直肠癌术后严重并发症之一。既往直肠癌术后(伴/不伴预防性回肠造口)发生LARS影响因素的研究中均表明吻合口漏是独立影响因素[23-24]。本研究提示低位前切除术后发生吻合口漏的患者在回肠造口还纳术后1年时更易发生LARS,其对LARS发生的影响持续时间较长。可能原因为吻合口漏引起盆腔感染以及吻合口局部纤维化,损伤肛门括约肌及神经支配。降低直肠顺应性,排便频率增加,从而导致术后排便功能紊乱[25]。吻合口漏愈合后,可能形成明显疤痕,导致吻合口狭窄影响新直肠的体积和运动。直肠储液量减少,从而引发气体和粪便排空异常,进一步加重LARS的发生风险[26]。因此,除了积极预防吻合口漏的发生之外,还应重点强化出现吻合口漏患者在造口还纳前进行系统的盆底功能康复训练[27],改善控便能力。

3.2 还纳间隔时间是回肠造口还纳术后1年时发生LARS的影响因素

本研究结果显示,早期还纳(≤90 d)相比91~180 d还纳,未显示出对降低回肠造口还纳术1年时LARS发生的显著优势。与还纳间隔时间(90~180 d)比,还纳间隔时间≥91 d是影响回肠造口还纳术后1年时发生LARS的显著因素(*OR*=2.297, 95%*CI*: 1.363~3.917; *P*=0.002)。与TIRELLI等[28]的研究结果一致,表明肠道功能恢复延迟与更严重的LARS情况和更差的生活质量相关,此类患者普遍有排便频率紊乱、急便感等核心症状。可能的原因是回肠造口远端肠管长时间缺乏肠内容物刺激,结肠或直肠出现非特异性炎症,行回肠造口还纳恢复肠道连续性后易出现细菌定植异常,加重肠道炎症反应[29]。目前最佳的造口还纳时间尚未明确。有研究显示,预防性回肠造口术后3~6个月可能是还纳最佳时间段,对恢复肠道连续性有保护作用[30-31]。另有研究显示,造口还纳时间与LARS发生的严重程度无显著关联[32-33]。这可能与不同的研究类型中混杂因素处理方式不同以及人群的异质性有关。回肠造口最佳还纳时间有待进一步研究探索。

3.3 新辅助治疗是回肠造口还纳术后1年时发生LARS的影响因素

本研究结果显示术前接受新辅助治疗是造口还纳术后1年时发生LARS的影响因素,与直肠癌术后(伴/不伴预防性回肠造口)发生LARS相关研究结果相似[27,34-35]。新辅助治疗在一定程度上降低肿瘤分期,同时也会损伤直肠神经丛以及黏膜,削弱直肠和肛门反射,导致感觉功能障碍,增加术后LARS的发生率[36-37]。另一方面,新辅助治疗导致的肠壁水肿及周围组织纤维化,这也增加了吻合口漏的风险,吻合口漏本身也是LARS的显著影响因素。因此,医务人员应通过高分辨率MRI、直肠肛管腔内超声等设备精准评估肿瘤特征,制定个体化新辅助治疗策略,特别是避免过度放疗。而接受放疗的患者,应精准控制剂量,在治疗肿瘤的同时,降低对周围正常组织的损伤,从而减少术后LARS的发生。对于术前接受新辅助治疗的患者,应更加精准的管理,更早进行术后肛门功能训练。

3.4 肿瘤距肛缘距离是回肠造口还纳术后1年时发生LARS的影响因素

本研究结果提示,与肿瘤位置较高(>5cm)的患者相比,肿瘤位置较低(≤5cm)的患者发生LARS的风险是其2.044倍。肿瘤距肛缘距离≤5 cm是造口还纳术后1年时发生LARS的显著影响因素,肿瘤距肛缘距离决定吻合口高度,相关研究表明,与高位吻合相比,低位吻合(肿瘤距肛缘位置≤5 cm)患者更有可能出现排便频率增加[38-39]。肿瘤距肛缘位置≤5 cm时,术中操作可能损伤括约肌结构,引起静息压降低,使排便失禁风险升级。此外,低位吻合口近肛管上端,直肠缓冲功能较弱,会持续出现便意急迫感[27]。因此,在保障肿瘤切缘安全的条件下,优化解剖路径、减少括约肌间隙神经损伤,最大程度保留直肠肛管远端结构,以保证术后肛门功能。同时,对于肿瘤位置越低(≤5 cm)的患者,在造口还纳前积极采取经造口灌洗、盆底功能康复、预防性经肛灌洗等干预措施促进肛门

功能预康复。

3.5 N分期回肠造口还纳术后1年时发生LARS的影响因素

ZHANG[41]等的研究表明区域淋巴结转移(特别是在N2阶段)与造口还纳术后重度LARS的发生存在联系(*OR*=2.290, 95%*CI*: 1.076~4.873, *P*=0.031),XIA[42]等对回肠造口还纳术后1年发生LARS进行多因素分析,也提示N分期是影响LARS状态的重要因素。本研究结果表明直肠癌根治术时出现区域淋巴结转移(N1-N2)的患者在回肠造口还纳术后1年发生LARS的风险是无淋巴结转移(N0)患者的1.650倍。考虑N分期越高,周围神经和血管受影响越大,而这些神经和血管出现任何问题都可能影响肠道的正常功能[43],另一方面淋巴结阳性意味着更彻底的淋巴结清扫,可能会增加对盆腔神经丛的损伤。因此对于直肠癌根治手术时有淋巴结转移的患者,即使肿瘤位置不低,也应将其视为LARS的危险人群。

本研究通过多中心回顾性分析证实,直肠癌术后患者回肠造口还纳术后1年时低位前切除综合征(LARS)的发生率为40.70%,其中吻合口漏、肿瘤距肛缘≤5 cm、新辅助治疗及造口还纳间隔时间≥181 d、N分期有淋巴结转移是LARS发生的显著影响因素。临床中需重点关注存在上述高危因素的患者群体,通过优化造口还纳时机(推荐91~180 d)、制定个体化盆底功能预康复策略(如预防性经肛灌洗)及精准新辅助治疗方案(如放疗剂量控制)等,降低LARS发生风险。本研究为回顾性队列研究,可能存在选择偏倚和信息偏倚风险,未来需通过前瞻性研究进一步探究回肠造口还纳术后LARS的影响因素,并构建风险预测模型。为临床医务人员识别高风险人群,进行LARS精准干预提供依据。

利益冲突 本文所有作者声明不存在利益冲突

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