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开放和腹腔镜直肠癌根治术患者术后早期全身与腹腔炎性反应的差异*

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摘要 目的:探讨开放和腹腔镜直肠癌根治术患者术后早期全身与腹腔炎性的反应。**方法:**选取我院直肠癌患者 210 例,开放直肠癌根治术为 108 例,腹腔镜根治术患者 102 例,开放直肠癌根治术组为对照组,腹腔镜根治术患者为实验组。对比手术一般指标以及术后炎症反应指标。**结果:**手术一般指标:对照组的切口长度、手术时间、排气时间、并发症发生率、住院时间和 4 天引流量均显著大于实验组,此 6 项差异存在统计学意义($P<0.05$);对照组的术中出血量、术后第 1 天引流量略高于实验组,此 2 项无统计学意义($P>0.05$)。炎症指标:术前 2 组 4 项炎症指标均无统计学意义($P>0.05$)。血液检查:术后第 1 天差异具有统计学意义($P>0.05$);术后第 4 天差异无统计学意义($P>0.05$);腹部引流物检查:第 1 天对照组的炎症指标均高于实验组,但差异无统计学意义($P>0.05$),术后第 4 天对照组的炎症指标均显著高于实验组,差异具有统计学意义($P<0.05$)。**结论:**对比于传统直肠癌开放手术,腹腔镜直肠癌根治术具有创伤小、住院时间短及恢复快等优势,同时腹腔镜手术在术后炎症消退速度更快,更有利于患者恢复。

关键词:直肠癌;开放手术;腹腔镜手术;炎症反应

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Differences of Systemic and Intraperitoneal Inflammatory Response in Patients after Open or Laparoscopic Radical Surgery of Rectal Cancer*

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ABSTRACT Objective: To explore the differences of systemic and abdominal inflammatory response in patients after open or laparoscopic radical resection of rectal cancer. **Methods:** 210 patients with rectal cancer in our hospital were chosen. 108 patients who underwent open radical resection of rectal cancer were taken as control group. 102 patients who had laparoscopic radical operation were taken as experimental group. The general indicators of surgery and postoperative inflammatory reaction index were compared between the two groups. **Results:** The general index of operation such as length of incision, operation time, exhaust time, incidence of complications, hospitalization time and the fourth day induced flow rate were significantly higher in the control group than in the experimental group, and the difference was statistically significant ($P<0.05$). The amount of bleeding during operation and induced flow of the first day were slightly higher in the control group than in the experience group, and the difference had no statistical significance ($P>0.05$). There were no differences in the four indexes of inflammation before operation between the two groups ($P>0.05$). Blood examination showed that the difference of the first day was statistically significant ($P<0.05$), but it was not statistically significant in the fourth day after operation ($P>0.05$). Abdominal drainage detection results showed the indexes of inflammation in the control group were higher than in the experimental group in the first day but the difference was not statistically significant ($P>0.05$), but they were significantly higher in control group than in experimental group in the fourth day with statistically significant difference ($P<0.05$). **Conclusion:** Compared with open surgery, laparoscopic radical resection of rectal cancer has the advantages of less trauma, shorter hospital stay and rapid recovery. At the same time, the rate of inflammation subsided after laparoscopic surgery was faster and more conducive to the recovery of patients.

Key words: Rectal cancer; Open surgery; Laparoscopic surgery; Inflammatory response

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前言

直肠癌在我国发病率一直较高,为常见的消化道恶性肿瘤。

据相关统计,2015 年我国新发病例高达 50 万^[1],在恶性肿瘤死亡率中排名第五^[2]。目前常用治疗手段为手术治疗,分腹腔镜手术和开腹手术,但无论何种途径均对机体造成不同程度的

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机体和腹腔炎性反应,并损害免疫机制,对患者的近期预后造成不良影响。本实验对比开放和腹腔镜直肠癌根治术患者术后早期全身与腹腔炎性反应的差异。

1 资料与方法

1.1 一般资料

选取我院 2012 至 2015 年直肠癌根治术患者 210 例,开放直肠癌根治术为 108 例,腹腔镜根治术患者 102 例,开放直肠癌根治术组为对照组,腹腔镜根治术患者为实验组。纳入标准:1) 年龄在 18 岁以上 80 岁以下;2) 经检验确诊为直肠恶性肿瘤;3) 手术采取直肠前切除(Dixon)和经腹会阴联合切除(Miles);4) 经术中冰冻切片病理证实手术切缘为 R0。排除标准:1) 肿瘤浸润范围广泛,不宜采取根治术患者;2) 伴有其他系统肿瘤;3) 曾有新辅助放疗史和激素治疗史;4) 伴有其余内科疾病。告知家属手术相关事宜及术后可能存在的并发症,并获取家属签名协议书。两组年龄、性别比例、腹部手术史和手术方式均无统计学意义($P>0.05$)。

1.2 手术方法

术前一天将手术患者肠道排空并控制饮食,同时服用肠道抗生素。对两组患者均采用静吸复合全身麻醉,采取头低脚高的体位,并截石位^[9]。

开放手术组:在腹部正中取一切口进行常规腹盆腔探查,了解肿块部位、大小、有无转移^[9]。依据全直肠系膜切除原则^[9],确定肿瘤的方位和大小进行特异选择性切除。肿瘤与肛门边缘距离大于 5 cm 以上时采取直肠前切除术,肿瘤与肛门边缘距离低于 5 cm 时采取经腹会阴联合切除术。详细手术操作步骤可参考刘荫华等^[9]。

腹腔镜手术组:选用四孔操作法,与开放手术组采取相同游离方法和术式^[7],首先游离部分乙状结肠和直肠,其次直肠系膜,最后离断直肠。在下腹部正中作一切口,用于体外切除肿块,完成肠管的重建或造口^[8]。

1.3 数据收集与处理

(1) 手术一般指标:手术方式、手术时间、切口长度、术中出血量、术后并发症、排气时间、住院时间。(2) 炎症反应指标^[9]:血液白细胞数、盆腔引流中白细胞介素(IL)-6、IL-10、C 反应蛋白(CRP)及肿瘤坏死因子(TNF)- α 。

1.4 标本的收集和检验

术前 1 天和术后第 1、4 天清晨确认患者无进食后抽取肘臂静脉血 8 mL,分 4 个预冷试管储存,每个试管 2 mL,以 3000 r/min、10 min 和 4℃置入离心机,取上层血浆储存于 -70℃冰箱内。术后第 1、4 d 从患者腹腔抽取引流袋引流物 6ml,分别置于 3 个试管内,每个试管 2 mL。选用国产普朗公司 XFA6100 型血液细胞分析仪进行白细胞检测和分析,正常值为 $(4\sim 10)\times 10^9/L$ ^[10]。盆腔引流中白细胞介素 IL-6、IL-10、C 反应蛋白(CRP)及肿瘤坏死因子(TNF)- α 采取酶联免疫吸附法检测,详细操作步骤严格依据说明书执行^[11]。

1.5 统计学方法

计数资料行 χ^2 检验或确切概率法,计量资料用 $(\bar{x}\pm s)$ 表示,组间比较采用两样本 t 检验,以 $P<0.05$ 表示差异存在统计学意义。

2 结果

2.1 对比手术一般指标

对照组的切口长度为 (18.4 ± 3.1) cm,显著大于实验组的 (5.2 ± 2.1) cm;对照组手术时间为 (139.2 ± 15.9) min,高于实验组的 (130.2 ± 11.9) min;对照组排气时间为 (3.1 ± 1.2) d,高于实验组的 (2.2 ± 0.6) d;对照组住院时间为 (8.9 ± 1.2) d,显著高于实验组的 (6.2 ± 1.3) d;对照组术后 4 d 引流量为 (77.5 ± 23.3) mL,显著高于实验组的 (35.7 ± 8.7) mL;对照组并发症发生率为 23.14%,显著高于实验组的 9.80%;此六项差异存在统计学意义($P<0.05$)。对照组的术中出血量为 (38.8 ± 6.8) mL,略高于实验组的 (35.9 ± 8.3) mL;对照组的术后 1d 引流量为 (110.9 ± 23.4) mL,略高于实验组的 (104.5 ± 20.4) mL;此 2 项无统计学意义($P>0.05$)(表 1)。

表 1 两组患者手术前后各基本指标比较

Table 1 Comparison of the surgical general indicators between two groups

Groups	n	Length of incision(cm)	Operation time(min)	Amount of bleeding during operation(ml)	Exhaust time (d)	Length of stay(d)	Induced flow(ml)		Complication(n/%)
							After the operation 1d	After the operation 4d	
Control group	108	18.4 $\pm$ 3.1	139.2 $\pm$ 15.9	38.8 $\pm$ 6.8	3.1 $\pm$ 1.2	8.9 $\pm$ 1.2	110.9 $\pm$ 23.4	77.5 $\pm$ 23.3	25(23.14%)
Experimental group	102	5.2 $\pm$ 2.1	130.2 $\pm$ 11.9	35.9 $\pm$ 8.3	2.2 $\pm$ 0.6	6.2 $\pm$ 1.3	104.5 $\pm$ 20.4	35.7 $\pm$ 8.7	10(9.80%)
t/ χ^2		20.142	2.534	1.534	4.361	6.023	1.203	10.894	11.243
P		<0.001	0.041	0.125	<0.001	<0.001	0.163	<0.001	<0.001

2.2 对比两组血液炎症反应指标

术前 2 组 4 项炎症指标均无统计学意义($P>0.05$);术后第 1 d 及第 4 d 炎症指标均升高,对照组炎症指标高于实验组,第 1 d 差异有统计学意义 ($P<0.05$), 第 4 d 差异无统计学意义

($P>0.05$);对比两组腹腔引流物炎症指标,术后第 1 d 对照组的炎症指标均高于实验组,但差异无统计学意义($P>0.05$),术后第 4 d 对照组的炎症指标均显著高于实验组,差异具有统计学意义($P<0.05$)(表 2)。

表 2 两组患者手术前后炎症指标的比较

Table 2 Comparison of the inflammatory response indicators between the two groups

Inflammation indexes	Groups	n	Blood examination			Abdominal drainage	
			Before operation	After the operation 1 d	After the operation 4 d	After the operation 1 d	After the operation 4 d
IL-6p / (ng·L ⁻¹)	control group	108	7.2± 1.1	239.1± 40.2 ^a	135.6± 20.4 ^a	204.2± 31.9	145.5± 25.3
	experimental group	102	6.3± 1.1 ^b	151.2± 34.2 ^{ac}	129.3± 18.1 ^{ab}	189.9± 40.1 ^b	132.3± 25.8 ^c
IL-10p / (ng·L ⁻¹)	control group	108	13.2± 2.9	22.6± 3.4 ^a	17.9± 2.8 ^a	48.2± 24.1	27.4± 15.6
	experimental group	102	14.3± 2.5 ^b	18.3± 3.3 ^{ac}	16.7± 3.7 ^{ab}	42.7± 24.7 ^b	20.9± 14.1 ^c
CRPp / (ng·mL ⁻¹)	control group	108	0.3± 0.2	4.3± 1.6 ^a	1.5± 1.2 ^a	1.1± 0.5	0.8± 0.1
	experience group	102	0.3± 0.1 ^b	2.9± 0.9 ^{ac}	1.4± 0.7 ^{ab}	1.0± 0.2 ^b	0.7± 0.1 ^c
TNF-αp / (ng·L ⁻¹)	control group	108	88.6± 43.3	124.9± 44.8 ^a	105.2± 35.1 ^a	115.9± 33.1	94.9± 29.8
	experience group	102	83.1± 36.9 ^b	101.6± 44.0 ^{ac}	94.8± 39.8 ^{ab}	107.2± 26.9 ^b	93.8± 28.3 ^b

Note: a: compared with before operation (P < 0.05); b: compared with control group (P > 0.05); c: compared with control group (P < 0.05).

3 讨论

相比于传统的开放手术,腹腔镜手术有创伤小、恢复快、并发症少以及住院时间短等优点,所以近年来在外科手术中逐渐被广泛运用。将腹腔镜手术借鉴于直肠癌根治术中,发现手术同样适用^[12,13]。本研究对比开放手术和腹腔镜手术对术后早期全身与腹腔炎症反应的影响。根据实验结果可得,对照组的切口长度、手术时间、排气时间、并发症发生率、住院时间和4 d引流量均显著大于实验组,此六项差异存在统计学意义(P<0.05);对照组的术中出血量略高于实验组,对照组的术后1 d引流量略高于实验组,此2项无统计学意义(P>0.05)。从总体对比腹腔镜手术仍然有着比较大的优势,能减轻手术创伤,缩短患者恢复时间。

术后全身性炎症起源于腹腔创伤处,在刺激下腹膜中性粒细胞、间皮细胞等产生并分泌大量炎症因子,导致腹膜渗透远高于血液^[14]。虽然腹腔炎症因子能较好得反应术后炎症情况,但目前从事相关实验较少。早期一部分学者认为在直肠癌根治术的过程中,开放手术引起的炎症反应与和腹腔镜手术相当^[15,16],更有学者表示赞同开放手术才有利于减轻炎症反应^[17]。张瑞^[18]等将两种方法对比后认为,通过腹腔镜的办法能使腹膜受损较轻,大大降低了对腹膜纤溶功能的影响,有效抑制肠粘连。Wu^[19]等通过检测术后腹腔引流液中白细胞介素IL-6、IL-10、C反应蛋白(CRP)及肿瘤坏死因子(TNF)-α等指标认为两种手术对创伤程度为一致。本实验中结果则是术前2组4项炎症指标均无统计学意义(P>0.05);术后血液检查第1天及第4天炎症指标均升高,对照组炎症指标高于实验组,第1天差异有统计学意义(P<0.05),第4天差异无统计学意义(P>0.05);术后腹部引流物检查第1天对照组的炎症指标均高于实验组,但差异无统计学意义(P>0.05),术后第4天对照组的炎症指标均显著高于实验组,差异具有统计学意义(P<0.05)。笔者从原理探究可得^[20],腹腔镜手术创伤较小,对机体损害程度较轻,故术后机体全身反应比较小。同时切口较小也直接影响了外在感染的几率,减轻机体炎症反应症状。

综上所述,对比于传统直肠癌开放手术,腹腔镜直肠癌根治术具有创伤小、住院时间短及恢复快等优势。两组手术方式在术后第一天炎症反应相当,但腹腔镜手术炎症反应消退快,在第四天时和开放手术的炎症反应形成明显的差距,所以对于直肠癌根治术,腹腔镜手术更适合在临床中推广。

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