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结直肠癌围术期营养干预对患者术后营养指标、T 淋巴细胞亚群及并发症的影响*

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摘要 目的:探讨结直肠癌围术期营养干预对患者术后营养指标、T 淋巴细胞亚群及并发症的影响。**方法:**选取 2017 年 3 月~2019 年 3 月期间我院收治的结直肠癌患者 103 例,根据随机数字表法将患者分为对照组(n=51)和研究组(n=52),对照组给予常规方案干预,研究组给予营养支持方案干预。比较两组围术期指标、营养指标、T 淋巴细胞亚群及并发症。**结果:**研究组患者的排便时间、首次肛门排气时间、住院时间均短于对照组($P<0.05$)。对照组术后 1 d、术后 7 d 的 $CD3^+$ 、 $CD4^+$ 、 $CD4^+/CD8^+$ 均低于入院时, $CD8^+$ 则高于入院时($P<0.05$);研究组术后 1 d、术后 7 d 的 $CD3^+$ 、 $CD4^+$ 、 $CD4^+/CD8^+$ 呈先降低后升高趋势, $CD8^+$ 呈先升高后降低趋势($P<0.05$);研究组术后 1 d、术后 7 d 的 $CD3^+$ 、 $CD4^+$ 、 $CD4^+/CD8^+$ 高于对照组, $CD8^+$ 则低于对照组($P<0.05$)。两组术后 1 d、术后 7 d 血清前清蛋白(PA)、血红蛋白(Hb)、总蛋白(TP)、转铁蛋白(TF)水平均呈先下降后升高趋势($P<0.05$);研究组术后 1 d、术后 7 d 血清 PA、Hb、TP、TF 水平均高于对照组($P<0.05$)。两组并发症发生率比较差异无统计学意义($P>0.05$)。**结论:**结直肠癌围术期给予营养支持方案干预,可有效改善患者营养状态,提高免疫功能,且不增加并发症发生率,具有一定的临床应用价值。

关键词:结直肠癌;围术期;营养干预;营养指标;T 淋巴细胞亚群;并发症

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Effect of Perioperative Nutritional Intervention on Nutritional Indicators, T Lymphocyte Subsets and Complications of Patients with Colorectal Cancer*

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ABSTRACT Objective: To investigate the effect of perioperative nutritional intervention on nutritional parameters, T lymphocyte subsets and complications of patients with colorectal cancer. **Methods:** 103 patients with colorectal cancer who were admitted to our hospital from March 2017 to March 2019 were selected, they were divided into control group (n=51) and study group (n=52) according to random number table method. The control group was given routine program intervention, and the study group was given nutritional support program intervention. Perioperative indicators, nutritional indicators, T lymphocyte subsets and complications were compared between the two groups. **Results:** The defecation time, first anal exhaust time and hospitalization time in the study group were shorter than those in the control group ($P<0.05$). The $CD3^+$, $CD4^+$, $CD4^+/CD8^+$ in the control group were lower than those at admission 1d after operation and 7d after operation, while $CD8^+$ was higher than those at admission ($P<0.05$). The $CD3^+$, $CD4^+$, $CD4^+/CD8^+$ in the study group decreased first and then increased, and $CD8^+$ increased first and then decreased ($P<0.05$). The $CD3^+$, $CD4^+$, $CD4^+/CD8^+$ in the study group were higher than those in the control group at 1 d after operation, 7 d after operation, $CD8^+$ was lower than that in control group ($P<0.05$). The levels of serum prealbumin (PA), hemoglobin (Hb), total protein (TP) and transferrin (TF) in the two groups decreased first and then increased ($P<0.05$). The levels of serum PA, Hb, TP and TF in the study group were higher than those in the control group at 1 d after operation, 7 d after operation ($P<0.05$). There was no significant difference in the incidence of complications between the two groups ($P>0.05$). **Conclusion:** Nutrition support program intervention in perioperative period of colorectal cancer can effectively improve the nutritional status of patients, improve immune function, and it do not increase the incidence of complications, which has a certain clinical value.

Key words: Colorectal cancer; Perioperative period; Nutritional intervention; Nutritional indicators; T lymphocyte subsets; Complications

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前言

结直肠癌是临床常见的消化道恶性肿瘤,该病早期症状不典型,伴随着疾病进展,可出现排便习惯改变、局部腹痛等轻微症状,疾病晚期则可出现体重减轻、贫血等全身性症状^[1-3]。据相关报道统计^[4],结直肠癌的发病率、死亡率较高,分别约占全球范围内恶性肿瘤发病率、死亡率的第三位及第四位,预后较差。手术治疗是结直肠癌的主要治疗手段,疗效确切,但由于不少患者在围术期存在不同程度的营养不良现象,致使其免疫功能减退,增加并发症发生风险^[5,6]。因此,寻找提高结直肠癌围术期患者的营养支持方案具有积极的临床意义。以往营养支持多为单纯饮食调整,然而由于多数结直肠癌患者术中胃肠道功能受损严重,致使其耐受性差,效果一般^[7,8]。近年来,营养支持理念已广泛普及于临床,可有效改善围术期的营养水平^[9,10]。本研究对结直肠癌围术期患者给予营养干预,并分析其对患者术后营养指标、T淋巴细胞亚群及并发症的影响,旨在为结直肠癌围术期的治疗提供数据支持。

1 资料与方法

1.1 一般资料

选取我院2017年3月~2019年3月收治的103例结直肠癌患者。纳入标准:(1)诊断标准参考《中国常见恶性肿瘤诊治规范》^[11];(2)均具备手术指征,且均行结直肠癌切除术;(3)均为初治患者,可配合完成本次研究者;(4)患者及其家属知情本研究且签署了知情同意书;(5)卡劳夫斯基(Karnofsky, KPS)^[12]行为状况评分>80分。排除标准:(1)合并其他消化症状类疾病,如阑尾炎、消化道梗阻等;(2)合并凝血功能障碍者;(3)合并严重感染、免疫性、内分泌疾病者;(4)合并心肝肾等脏器病变者;(5)伴有精神疾患,无法配合治疗者;(6)依从性差,不配合本次研究者。本研究已获我院伦理委员会批准。将患者根据随机数字表法分为对照组(n=51)和研究组(n=52),其中对照组男31例,女20例,年龄39~61岁,平均(48.72±3.47)岁;临床分期:I期15例,II期19例,III期17例;手术方式:肠切除+吻合19例,Miles术22例,Hartmann术10例;体质量指数22.9~26.4 kg/m²,平均(24.61±0.97)kg/m²。研究组男34例,女18例,年龄37~62岁,平均(48.59±3.06)岁;临床分期:I期16例,II

期17例,III期19例;手术方式:肠切除+吻合22例,Miles术19例,Hartmann术11例;体质量指数22.8~26.9 kg/m²,平均(24.53±0.88)kg/m²。两组一般资料对比无差异($P>0.05$)。

1.2 方法

对照组:术前3 d:半流食、流食、禁食补液、链霉素、灭滴灵、番泻叶,术前1 d:无渣流质饮食,术前0.5 d:聚乙二醇电解质、补充氨基酸、脂肪乳,术后给予静脉高营养,排气后正常进食,进食方式为以流质饮食过渡至半流质、普食。研究组:术前3 d口服能全力至术前16 h,能全力500 mL可提供500 kcal热量及20 g蛋白质。2000 mL/d,分5次使用,同时口服链霉素、灭滴灵;术前12 h口服300~500 mL的10%甘露醇,当晚清肠;术后12~24 h给予能全力,经鼻胃管加温后输入,400~500 mL/d;术后2 d加量至800~1000 mL/d;若患者无不良反应则于术后3 d加量至1500~2000 mL/d;持续干预至术后1周,排气后方可正常进食,进食方式为以流质饮食过渡至半流质、普食。

1.3 观察指标

(1)记录两组围术期指标:排便时间、首次肛门排气时间及住院时间。(2)于入院时、术后1 d、术后7 d抽取所有患者清晨空腹静脉血6 mL,分为两管,其中一管以3500 r/min离心12 min,取上清液置于-30℃冰箱中待测。采用美国贝克曼公司生产的Array-360特种蛋白分析仪检测前清蛋白(Prealbumin, PA)、血红蛋白(Hemoglobin, Hb)、总蛋白(Total protein, TP)、转铁蛋白(Transferrin, TF)水平。另一管采用FasCalibur型流式细胞仪及其配套试剂(美国BD公司生产)检测T淋巴细胞亚群:CD3⁺、CD4⁺、CD8⁺比例,计算CD4⁺/CD8⁺。(3)记录两组并发症情况。

1.4 统计学方法

采用SPSS26.0进行数据分析。计数资料用率(%)描述,两组比较用 χ^2 检验或Fisher确切概率法分析。计量资料以($\bar{x} \pm s$)的形式表示,组间比较行成组t检验,组内前后比较行配对t检验。检验水准 $\alpha=0.05$ 。

2 结果

2.1 围术期指标比较

研究组患者的排便时间、首次肛门排气时间、住院时间均短于对照组($P<0.05$);详见表1。

表1 围术期指标比较($\bar{x} \pm s$)

Table 1 Comparison of perioperative indicators($\bar{x} \pm s$)

Groups	Defecation time(d)	First anal exhaust time(h)	Hospitalization time(d)
Control group(n=51)	6.86±0.53	55.68±5.19	11.65±1.35
Study group(n=52)	4.53±0.44	42.17±4.38	8.92±1.42
t	24.295	14.287	9.996
P	0.000	0.000	0.000

2.2 两组T淋巴细胞亚群比较

两组入院时CD3⁺、CD4⁺、CD8⁺、CD4⁺/CD8⁺比较差异无统计学意义($P>0.05$);对照组术后1 d、术后7 d的CD3⁺、CD4⁺、CD4⁺/CD8⁺均低于入院时,CD8⁺则高于入院时($P<0.05$),而对对照组术后1 d、术后7 d的T淋巴细胞亚群比较差异无统计学

意义($P>0.05$);研究组术后1 d、术后7 d的CD3⁺、CD4⁺、CD4⁺/CD8⁺呈先降低后升高趋势,CD8⁺呈先升高后降低趋势($P<0.05$);研究组术后1 d、术后7 d的CD3⁺、CD4⁺、CD4⁺/CD8⁺高于对照组,CD8⁺则低于对照组($P<0.05$);详见表2。

表 2 两组 T 淋巴细胞亚群比较($\bar{x} \pm s$)

Table 2 Comparison of T lymphocyte subsets between two groups($\bar{x} \pm s$)

Groups	Point of time	CD3 ⁺ (%)	CD4 ⁺ (%)	CD8 ⁺ (%)	CD4 ⁺ /CD8 ⁺
Control group(n=51)	Admission	56.81± 8.28	32.87± 5.34	21.25± 4.24	1.55± 0.27
	1 d after operation	43.79± 7.53 ^a	22.72± 4.33 ^a	28.47± 4.28 ^a	0.80± 0.12 ^a
	7 d after operation	44.40± 9.26 ^a	23.15± 4.29 ^a	27.46± 3.43 ^a	0.84± 0.16 ^a
Study group(n=52)	Admission	56.73± 9.24	32.73± 6.32	21.17± 3.54	1.55± 0.34
	1 d after operation	48.71± 8.52 ^{ac}	26.72± 4.69 ^{ac}	24.63± 3.68 ^{ac}	1.08± 0.36 ^{ac}
	7 d after operation	56.38± 7.40 ^{bc}	32.41± 5.46 ^{bc}	21.23± 3.64 ^{bc}	1.53± 0.44 ^{bc}

Note: Compared with admission, ^a $P<0.05$; Compared with 1d after operation, ^b $P<0.05$; Compared with the control group, ^c $P<0.05$.

2.3 两组营养指标比较

两组入院时血清 PA、Hb、TP、TF 水平比较差异无统计学意义($P>0.05$);两组术后 1 d、术后 7 d 血清 PA、Hb、TP、TF 水

平均呈先下降后升高趋势($P<0.05$),研究组术后 1 d、术后 7 d 血清 PA、Hb、TP、TF 水平平均高于对照组($P<0.05$);详见表 3。

表 3 两组营养指标比较($\bar{x} \pm s$)

Table 3 Comparison of nutritional indicators between two groups($\bar{x} \pm s$)

Groups	Point of time	PA(mg/L)	Hb(g/L)	TP(g/L)	TF(μmol/L)
Control group(n=51)	Admission	275.14± 21.38	124.67± 18.33	60.87± 4.48	2.92± 0.49
	1 d after operation	176.17± 23.41 ^a	71.28± 12.27 ^a	46.24± 3.57 ^a	1.63± 0.38 ^a
	7 d after operation	219.34± 22.67 ^{ab}	92.56± 15.13 ^{ab}	50.54± 4.62 ^{ab}	2.12± 0.43 ^{ab}
Study group(n=52)	Admission	274.09± 23.53	125.21± 17.07	60.78± 4.92	2.95± 0.50
	1 d after operation	203.64± 27.84 ^{ac}	86.20± 11.25 ^{ac}	50.79± 3.57 ^{ac}	2.01± 0.39 ^{ac}
	7 d after operation	245.27± 23.62 ^{abc}	105.12± 18.11 ^{abc}	55.06± 4.52 ^{abc}	2.58± 0.44 ^{abc}

Note: Compared with admission, ^a $P<0.05$; Compared with 1d after operation, ^b $P<0.05$; Compared with the control group, ^c $P<0.05$.

2.4 两组围术期间并发症发生情况比较

对照组围术期间出现 11 例并发症,包括吻合口漏 2 例,切口感染 3 例,呕吐 2 例,腹胀 4 例,并发症发生率为 21.57%(11/51);研究组围术期间出现 7 例并发症,包括吻合口漏 1 例,切口感染 2 例,呕吐 2 例,腹胀 2 例,并发症发生率为 13.46%(7/52);两组并发症发生率比较差异无统计学意义($\chi^2=1.173, P=0.279$)。

3 讨论

近年来,随着人们生活结构的改变以及人口老龄化的加剧,结直肠癌的发病率逐年递增,且逐渐趋于年轻化,给人类的生命健康带来巨大威胁^[13,14]。结直肠癌的主要治疗方法为手术治疗,可有效阻止癌细胞扩散,阻止疾病进展,但术后仍难以避免肿瘤的复发和转移,影响患者预后。由于大多数的结直肠癌患者术前均存在不同程度的营养状态下降及免疫功能下调,加之术后高分代谢影响,导致患者应激能力及免疫能力降低,这也是导致术后肿瘤复发和转移的主要原因^[15,16]。营养状态是机体产生组织生长修复能力、抵抗能力以及维持正常生理的一种物质基础^[17,18]。既往有文献报道^[19,20],结直肠癌患者的营养风险发生率高达 27%~54%,明显高于普通外科患者的平均营养风险发生率(20%~30%)。因此,给予相关的营养支持治疗是结直肠癌围术期患者不可或缺的一部分。以往的营养支持主要包括入院时 2~3 d 半流质饮食、机械性灌肠、反复导泄等措施^[21,22],但该类干预措施不仅会加重患者营养不良,还易破坏肠粘膜屏

障等,降低治疗效果,增加患者痛苦^[23,24]。

本次研究结果显示,两组术后血清 PA、Hb、TP、TF 水平平均呈先下降后升高趋势,但研究组上述水平平均高于对照组,可见结直肠癌围术期给予营养支持方案干预,可有效改善其营养状态。分析其原因,常规的营养支持仅侧重于维持水电解质平衡、酸碱度等,且由于严格的限食,导致营养摄入不足,不仅无法改善营养状态,还可能导致细菌移位,从而加重营养风险^[25]。相对而言,系统的营养支持方案干预更加符合人体正常生理代谢功能要求,可保障生物、免疫完整性,并改善黏膜通透性。本研究营养支持方案所使用的能全力包含 7 种营养物质,可有效满足围术期患者的营养代谢,有效改善患者营养状态^[26]。本次研究结果还显示,研究组术后围术期指标、免疫功能改善情况均明显优于对照组,这可能是因为营养支持方案干预可有效恢复患者肠道功能,改善其不良营养状态,保证了患者围术期正常生理需求,提高患者手术耐受力,有利于其术后恢复,进而改善其免疫功能^[27,28]。

综上所述,结直肠癌围术期给予营养支持方案干预,可有效提高免疫功能,改善患者营养状态,且不增加并发症发生率,临床应用价值较高。

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