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损伤控制手术对严重胸腹联合伤患者胃肠功能及血清炎症因子水平的影响 *

杨永飞 孙运秀 郭方圆 蔡 钧 杨世疆

(华中科技大学同济医学院附属武汉市中心医院 急诊科 湖北 武汉 430000)

摘要 目的:探讨损伤控制手术治疗严重胸腹联合伤患者的临床观察及对患者胃肠功能的影响。**方法:**选择 2014 年 9 月至 2016 年 9 月我院接诊的 96 例严重胸腹联合伤患者,通过随机数表法分为观察组(n=48)和对照组(n=48)。对照组行确定性手术,观察组行损伤控制性手术。观察并比较两组患者手术时间、术中出血量、血清肿瘤坏死因子- α (TNF- α)、白介素-6(IL-6)及 C 反应蛋白(CRP)水平、排便时间、排气时间、肠鸣音恢复时间、进食时间及术后并发症的发生情况。**结果:**观察组手术时间短于对照组,术中出血量少于对照组($P<0.05$);观察组患者血清肿瘤坏死因子- α (TNF- α)、白介素-6(IL-6)及 C 反应蛋白(CRP)水平均低于对照组($P<0.05$);观察组排便时间、排气时间、肠鸣音恢复时间及进食时间均早于对照组($P<0.05$);观察组术后并发症发生率低于对照组($P<0.05$);观察组死亡率低于对照组($P<0.05$)。**结论:**在严重胸腹联合伤患者中实施损伤控制手术效果显著,可促进术后胃肠功能的恢复,减少并发症,降低死亡率,值得应用推广。

关键词:胸腹联合伤;损伤控制手术;胃肠功能;炎症因子

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Effects of Damage Control Surgery on Gastrointestinal Functions and Serum Levels of Inflammatory Factors of Patients with Thoraco-abdominal Injury*

YANG Yong-fei, SUN Yun-xiu, GUO Fang-yuan, CAI Jun, YANG Shi-jiang

(Emergency department, Wuhan Central Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, 430000, China)

ABSTRACT Objective: To study the effects of damage control surgery on the gastrointestinal functions and serum levels of inflammatory factors of patients with thoraco-abdominal injury. **Methods:** 98 patients with thoraco-abdominal injury who were treated in our hospital from September 2014 to September 2016 were selected and randomly divided into the observation group (n=48) and the control group (n=48). The patients in the control group were treated with definitive surgery, while the patients in the observation group were treated with damage control surgery. Then the operation time, blood loss, the serum levels of TNF- α , IL-6 and CRP, the time of defecation, exhaustion, bowel sound recovery and eating, and the incidence of postoperative complications in the two groups were observed and compared. **Results:** The operation time in the observation group was shorter than that of the control group, and the blood loss was less than that of the control group ($P<0.05$); After surgery, the serum levels of TNF- α , IL-6 and CRP in the observation group were lower than those of the control group ($P<0.05$); The time of defecation, exhaustion, bowel sound recovery and eating in the observation group were shorter than those of the control group ($P<0.05$); The incidence of postoperative complications in the observation group was lower than that of the control group ($P<0.05$); The mortality rate of the observation group was lower than that of the control group ($P<0.05$). **Conclusion:** Damage control surgery has better clinical effects on the treatment of thoraco-abdominal injury, which can promote the recovery of gastrointestinal functions, and reduce the serum levels of inflammatory factors, and it's worthy of clinical application and promotion.

Key words: Thoraco-abdominal injury; Damage control surgery; Gastrointestinal functions; Inflammatory factors

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前言

近年来,由于交通创伤等所造成的严重胸腹联合伤的发生率逐渐增加,其伤情复杂,且易并发休克、呼吸窘迫综合征、感染、脏器功能衰竭等并发症,若得不到及时的治疗,很大程度上

会引发死亡^[1]。而在严重胸腹联合伤的救治过程中,常需进行多部位、长时间的外科处理,导致生命指数难以耐受,手术效果也不尽人意^[2]。损伤控制手术主要指在对重症外科损失进行处理时,优先实施急诊手术,使用快捷的应急措施,维持生命体征,旨在争取复苏时间以及增加存活率,随后再根据患者恢复情况

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作者简介:杨永飞(1983-),男,硕士,主治医师,研究方向:创伤外科学、急诊医学等,电话:13129936980

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实施确定性手术^[3]。该方式作为新兴的外科手术模式,逐渐在临床得到广泛应用^[4]。为探讨损伤控制手术在严重胸腹联合伤中的应用价值,我院开展此次研究,现报道如下。

1 资料与方法

1.1 一般资料

选择 2014 年 9 月至 2016 年 9 月我院接诊的 96 例严重胸腹联合伤患者。纳入标准^[5]:① 创伤严重程度评分(ISS)≥ 16 分;② 均在受伤后 0.5~72 h 内就诊;③ 患者或其家属同意参与此次研究。排除标准^[6]:① 入院后 24 h 未经手术便死亡;② 伴有恶性肿瘤等终末期疾病;③ 创伤前则存在严重肝肾功能障碍。通过随机数表分为观察组和对照组,各 48 例。观察组男 27 例,女 21 例,年龄 21~58 岁,平均(37.84± 3.75)岁;交通伤 24 例,利器损伤 8 例,高空坠落 7 例,爆炸伤 5 例,其余 4 例;胸部损伤:血气胸 34 例,肋骨骨折 17 例,胸骨骨折 8 例,心脏损伤 1 例;腹部损伤:脾损伤 23 例,肝损伤 14 例,肾脏损伤 11 例,胰腺伤 7 例,十二指肠 5 例,其余 13 例。对照组男 28 例,女 20 例,年龄 22~59 岁,平均(38.01± 3.67)岁,交通伤 21 例,利器损伤 10 例,高空坠落 8 例,爆炸伤 4 例,其余 5 例;血气胸 36 例,肋骨骨折 15 例,胸骨骨折 6 例,心脏损伤 2 例;腹部损伤:脾损伤 25 例,肝损伤 14 例,肾脏损伤 13 例,胰腺伤 5 例,十二指肠 4 例,其余 15 例。本次研究已获得我院伦理委员会批准,两组患者在性别、年龄、致伤原因、受伤部位上无显著差异($P>0.05$),具有可比性。

1.2 方法

对照组患者根据创伤情况选择手术类型,行确定性手术。观察组根据损伤控制手术,具体内容如下:① 院前急救:采取液体复苏、控制出血等措施,医师在接诊患者后,即刻判断病情,在院前急救使需结扎血管或纱布加压包扎等方式,在液体复苏时做好保温工作,及时联系手术室、输血科等科室,患者入院后则可即刻进行相关检查;② 损伤控制:处理对生命造成危及的损伤,先需控制止血,行腹腔填塞、压迫止血,再找到出血点后给予相应止血措施;再控制污染,主要为冲洗腹腔,控制为肠内

容物等漏出,型胃肠造瘘,在腹腔内留置三套用以引流冲洗腹腔,若切除和吻合耗时较长,可在进行确定性手术时处理;③ 损伤控制处理完毕后,给予纠正水电介质紊乱、扩容、补液、抗感染等措施,并加强营养支持,等患者基本恢复生理功能后,根据患者具体病情及生命体征的不同进行确定性手术,

1.3 观察指标

① 记录手术时间、术中出血量;② 手术前及确定性手术 24 h 后采集静脉血,使用酶联免疫吸附法测定肿瘤坏死因子(TNF)- α 、白介素(IL)-6、C 反应蛋白(CRP);③ 记录排便时间、肛门排气时间、肠鸣音恢复时间及进食时间;④ 记录术后并发症;⑤ 记录死亡率。

1.4 统计学分析

数据用 SPSS18.0 软件包处理,计量资料均数± 标准差($\bar{x} \pm s$)表示,t 检验;计数资料表示, χ^2 检验, $P<0.05$ 表示差异具有统计学意义。

2 结果

2.1 两组手术情况对比

观察组手术时间比对照组短,术中出血量比对照组少($P<0.05$),见表 1。

表 1 两组手术时间、术中出血量对比($\bar{x} \pm s$)
Table 1 Comparison of the operation time and blood loss between two groups($\bar{x} \pm s$)

Groups	Operation time	Blood loss
Observation group(n=48)	62.93± 8.54*	313.45± 24.35*
Control group(n=48)	87.46± 9.25	587.28± 32.12

Note: compared with the control group, * $P<0.05$.

2.2 两组术前术后炎症因子水平对比

术后,两组患者血清 TNF- α 、IL-6 及 CRP 水平均升高($P<0.05$),但观察组血清 TNF- α 、IL-6 及 CRP 水平低于对照组($P<0.05$),见表 2。

表 2 两组术前术后炎症因子对比($\bar{x} \pm s$)

Table 2 Comparison of the inflammatory factors between two groups before and after operation($\bar{x} \pm s$)

Groups		TNF- α (ng/L)	IL-6(ng/L)	CRP(mg/L)
Observation group(n=48)	Before operation	15.96± 3.02	8.94± 1.25	34.51± 7.45
	After operation	21.58± 4.36**	18.02± 3.23**	47.66± 9.31**
Control group(n=48)	Before operation	16.05± 2.95	8.87± 1.29	34.46± 7.53
	After operation	32.41± 6.13*	27.41± 4.57*	68.95± 12.04*

Note: compared with before operation, * $P<0.05$; compared with the control group after operation, ** $P<0.05$.

2.3 两组术后胃肠功能对比

观察组术后排便时间、肛门排气时间、肠鸣音恢复时间及

进食时间均短于对照组($P<0.05$),见表 3。

表 3 两组术后胃肠功能对比($\bar{x} \pm s, h$)

Table 3 Comparison of the recovery of gastrointestinal function between two groups after operation($\bar{x} \pm s, h$)

Groups	Defecation time	Anal exhaust time	recovery of the bowel sound	Feeding time
Observation group(n=48)	81.74± 6.41*	65.64± 10.13*	62.18± 5.02*	76.16± 7.04*
Control group(n=48)	93.10± 7.29	123.81± 12.01	81.64± 6.61	91.29± 7.84

Note: compared with the control group after operation, * $P<0.05$.

2.4 两组术后并发症对比

观察组术后吻合口漏、切口裂开、粘连性肠梗阻、感染的总

发生率(4.16%)低于对照组(22.91%)($P<0.05$),见表4。

表4 两组术后并发症对比(例,%)

Table 4 Comparison of the complications between two groups after operation(n, %)

Groups	Anastomotic leakage	Incision disruption	Adhesive ileus	Infection	Total incidence rate
Observation group(n=48)	0(0.00)	0(0.00)	1(2.08)	1(2.08)	2(4.16)*
Control group(n=48)	1(2.08)	1(2.08)	3(6.25)	6(12.50)	11(22.91)

Note: compared with the control group after operation, * $P<0.05$.

2.5 两组死亡率对比

观察组术后出现2例多器官功能障碍死亡,1例由于呼吸窘迫综合征死亡,对照组术后3例在复苏过程中由于严重休克死亡,2例死于手术抢救过程中,3例多器官功能障碍死亡,3例死于术后严重感染,观察组死亡率低于对照组[6.25%(3/48) vs 22.9%(11/48)]($\chi^2=5.352$, $P=0.021$)。

3 讨论

严重胸腹联合伤患者在就诊时便会有多个脏器损伤的情况,其伤情复杂,且患者病情变化快,同时休克、低氧血症的发生率也较高,威胁着患者生命。而传统的早期进行确定性手术的观点逐渐受到较多的学者的质疑。有研究指出,在实施常规手术过程中,很可能由于手术、麻醉时间过长,致使患者发生体温下降、凝血功能障碍、代谢酸中毒等三联征象^[7]。随着医学水平的不断进步,对于严重胸腹联合伤的治疗方式也逐渐更新。

损伤控制性理论的理念是提高存活率,最先是在1983年美国医师Stone等所提出^[8]。随着多年来众多学者对这一概念的加深认识,逐渐将该方式应用在创伤外科救治领域中^[9,10]。损伤控制性手术首先对患者的致命伤进行应急手术处理措施,再进行ICU复苏,等到患者病情控制后再实施确定性手术,避免机体在严重内紊乱的状态下实施大范围手术所造成的不可逆性的机体生理功能损害^[11]。在创伤状况下,由于致伤因素所造成的病理生理反应,会损害机体的内稳态,加上手术的打击,会促使生理功能进一步的损伤,而在损伤控制性手术中,选择分期手术,首先对出血、污染等问题进行处理,消除患者的原发性损伤。并较多研究已证实,损伤控制手术所达到的医源性损伤分流,可使直接进行确定性手术对患者造成的损伤^[12,13]。本研究指出,损伤控制手术进行控制出血、污染、消除原发性损伤后,手术时间缩短,术中出血量也得到控制,使患者痛苦得以减轻。并且实施损伤控制手术的患者在术后吻合口漏、切口裂开、粘连性肠梗阻、感染的发生率上,也比常规手术的患者要低。此外,在术后死亡率上,损伤控制手术的患者发生率仅为6.25%,并且未有在抢救过程中发生死亡的患者,分析是由于损伤控制手术首先处理了患者的原发性损伤,也为之后的确定性手术提供了充足的时间,提高存活率。这与Inaba K等^[14]的研究具有相似性。

胃肠道不仅有消化吸收的作用,还有免疫和内分泌功能,有研究指出,严重胸腹联合伤在术后极易出现缺血-再灌注损伤,组织缺血缺氧、毛细血管微循环障碍,再加上患者需长时间禁食,对胃肠道产生的损伤较大^[15,16]。而在脂质代谢产物、活性

氧、炎性介质对胃肠组织造成的损伤,难以吸收营养,细胞缺血缺氧等,均是引发胃肠障碍的重要原因^[17]。本次研究显示,损伤控制手术的患者排便时间、肛门排气时间、肠鸣音恢复时间及进食时间均比常规手术的患者要短,分析原因是由于在损伤控制手术中,给予控制出血及污染的措施,还采取了纠正水电介质紊乱、扩容、补液、抗感染、肠外营养支持等内容,避免了直接进行确定性手术对患者造成的损伤,在促进术后胃肠功能恢复上具有意义。TNF- α 、IL-6、CRP水平的表达过高或持续时间较长,则可对机体造成造成创伤^[18]。本研究显示,术后两组患者各指标水平均出现增加,但损伤控制手术的患者各指标水平均低于常规手术,提示损伤控制手术可控制术后全身炎症反应。Zielinski MD等^[19]也得出相似结论。并有研究指出,若不早期恢复患者胃肠功能,保护肠粘膜屏障,则很有可能增加患者体内炎症反应,促使全身性炎症反应综合征、多器官功能障碍等,这也是促使严重胸腹联合伤患者死亡的重要原因之一^[20]。

综上所述,在严重胸腹联合伤患者中实施损伤控制手术效果显著,可促进术后胃肠功能的恢复,减少并发症,降低死亡率,值得推广应用。

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