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限制性液体复苏与常规液体复苏对失血性休克患者临床疗效分析*

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摘要 目的:探讨限制性液体复苏与常规液体复苏对失血性休克患者死亡率、凝血功能及并发症的影响。**方法:**选取失血性休克患者 100 例,随机分为限制组(n=55)和常规组(n=45),其中限制组采用限制性液体复苏抗休克,而常规组采用常规液体复苏。比较两组患者输血量及死亡率、血压与检验指标、并发症发生率。**结果:**与常规组相比,限制组患者输血量较少,死亡率较低,痊愈率较高,差异有统计学意义($P<0.05$)。与常规组相比,限制组患者平均动脉压、碱剩余明显较低,血红蛋白、血小板、红细胞比容明显较高,凝血酶原时间明显较短,差异有统计学意义($P<0.001$)。与常规组相比,限制组患者急性呼吸窘迫综合征、多器官功能障碍综合征发生率较低,差异有统计学意义($P<0.05$)。**结论:**限制性液体复苏为失血性休克患者赢得更多后续急诊手术止血时间,能降低患者死亡率和并发症如急性呼吸窘迫综合征、多器官功能障碍综合征的发生率。

关键词:限制性液体复苏;常规液体复苏;失血性休克;死亡率;凝血功能

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Influence of Limited Fluid Resuscitation and Conventional Fluid Resuscitation of Patients with Hemorrhagic Shock*

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ABSTRACT Objective: To explore the influence of limited fluid resuscitation and conventional fluid resuscitation on the case fatality rate, coagulation function and complication of patients with hemorrhagic shock. **Methods:** 100 patients with hemorrhagic shock from September 2013 to September 2015 in our hospital were randomly divided into limit group (n=55) and conventional group (n=45). Patients in the limit group were treated by limited fluid resuscitation while patients in the conventional group were treated by conventional fluid resuscitation. Transfusion quantity, case fatality rate, blood pressure, test indexes and rate of complications were compared between two groups. **Results:** Compared to conventional group, patients in the limit group had less transfusion quantity, lower case fatality rate and higher cure rate, and the differences were statistically significant ($P<0.05$). Compared to conventional group, patients in the limit group had lower mean arterial pressure and buffer excess, higher hemoglobin, platelet and hematocrit, shorter prothrombin time, and the differences were statistically significant ($P<0.001$). Compared to conventional group, patients in the limit group had lower rate of acute respiratory distress syndrome and multiple organ dysfunction syndrome, and the differences were statistically significant ($P<0.05$). **Conclusion:** The limited fluid resuscitation was beneficial for patients with hemorrhagic shock to win time for emergency operation rescue, which could reduce case fatality rate and the incidence of complications such as acute respiratory distress syndrome and multiple organ dysfunction. It is worthy of clinical promotion.

Key words: Limited fluid resuscitation; Conventional fluid resuscitation; Hemorrhagic shock; Case fatality rate; Coagulation function

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前言

失血性休克是临床上所有休克类型中最常见的一种^[1],通常发生于迅速大量出血(出血量超过血容量 30%~50%)但血容量不能得到及时补充的情况下,多数继发于严重的创伤,导致死亡率高。而早期恰当的液体复苏是成功抢救失血性休克患者的关键^[2]。传统补液方案要求在早期进行大量输液,使平均动脉压在短期内上升至 80 mmHg 以上^[3]。近年来越来越多临床医生

采用限制性液体复苏对失血性休克患者进行救治^[4],且取得良好效果。本研究探讨限制性液体复苏与常规液体复苏对失血性休克患者死亡率、凝血功能及并发症的影响。

1 资料及方法

1.1 一般资料

选取 2013 年 9 月~2015 年 9 月于我院诊治的失血性休克患者 100 例,采用随机数字表法分为限制组和常规组。纳入标

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准:① 所有患者入院时已出现休克,且出血尚未能控制;② 损伤严重度评分^[9](ISS)大于 16 分;③ 抢救前患者输血量少于 500 mL;④ 家属已签署知情同意书。排除标准:① 患者合并严重颅脑损伤;② 患者合并心脏病、高血压等疾病;③ 患者有重要器官功能障碍病史或大手术史;④ 患者在抢救前已死亡。限制组患

者 55 例,年龄 21~52 岁;其中男 38 例,女 17 例;常规组患者 45 例,年龄 20~49 岁;其中男 30 例,女 15 例。年龄、性别、受伤至医院时间、ISS 评分、受伤原因在限制组与常规组间比较差异无统计学意义($P>0.05$)(表 1)。

表 1 两组患者一般资料比较($\bar{x} \pm s$)

Table 1 Comparison Of General Data Of Patients Between Two Groups($\bar{x} \pm s$)

The general information	Limit group	Conventional group	T/ χ^2	P
N	55	45		
Age (Years Old)	36.1 $\pm$ 6.7	35.8 $\pm$ 4.9	0.250	0.803
Male [N,(%)]	38(69.1%)	30(66.7%)	0.067	0.796
The Time of Injury To The Hospital(H)	1.3 $\pm$ 0.4	1.4 $\pm$ 0.5	1.111	0.269
Iss Score*	23.7 $\pm$ 4.4	24.0 $\pm$ 5.1	0.316	0.753
Cause [N(%)]	Traffic Accident Injury	26(57.8%)	0.079	0.994
	Falling Injury	3(5.5%)		
	Sharp Object Injury	4(7.3%)		
	Crush Injury	7(12.7%)		

Notes: *Iss grade: Injury Severity Score.

1.2 研究方法

所有患者入院后迅速进行病情评估,内容包括患者的意识状态、生命体征、颈动脉波动情况、周围循环情况及丢失血容量等。评估病情完成后根据患者病情严重程度并依据国际创伤急救复苏指南^[9]制定个体化抢救措施并执行。抢救同时完善术前检查,明确病因后行急诊手术进行止血。常规组患者采用常规液体复苏方案积极抗休克治疗,即迅速建立 2 条以上输液通道,迅速补充有效循环血容量,使平均动脉压在短期内上升至 80 mmHg 以上,确保重要器官如心、脑、肾等血液供应。限制组患者早期补液使平均动脉压上升至 40 mmHg 后要遵循少量多次的补液原则,切忌补液过急,使平均动脉压维持在 40~60 mmHg 之间,待急诊手术控制出血后再补充足量液体。

1.3 评价指标

所有患者需检测血常规、凝血功能、动脉血气分析等,记录诊治前后平均动脉压,输血输血量,血红蛋白、血小板、红细胞比容、凝血酶原时间、碱剩余,死亡率、急性肾损伤、急性呼吸窘迫综合征、多器官功能障碍综合征等并发症发生情况。

1.4 统计学方法

其中计数资料行 χ^2 检验,组间比较行 t 检验,如结果提示 $P<0.05$,则差异有统计学意义。

2 结果

2.1 两组患者输血输血量及死亡率比较

与常规组相比,限制组患者输血量较少,死亡率较低,痊愈率较高,差异有统计学意义($P<0.05$)。输血量在两组患者间差异无统计学意义($P>0.05$)(表 2)。

表 2 两组患者输血输血量及死亡率比较($\bar{x} \pm s$)

Table 2 Comparison of The Blood Transfusion And Mortality Of Patients Between Two Groups($\bar{x} \pm s$)

Groups	N	Blood transfusion volume (ML)	Infusion quantity (ML)	Mortality [N,(%)]	Cure rate [N,(%)]
Limit group	55	503.4 $\pm$ 312.7	1290.1 $\pm$ 338.5	6(10.9%)	49(89.1%)
Conventional group	45	497.2 $\pm$ 274.6	2887.4 $\pm$ 454.3	12(26.7%)	33(73.3%)
T/ χ^2		0.104	20.132	4.164	4.164
P		0.917	<0.001	0.041	0.041

2.2 两组患者血压计检验指标比较

从表 3 可以获知:与常规组相比,限制组患者平均动脉压、碱剩余明显较低,血红蛋白、血小板、红细胞比容明显较高,凝血酶原时间明显较短,差异有统计学意义($P<0.001$)。

2.3 两组患者并发症发生情况比较

从表 4 可以获知与常规组相比,限制组患者急性呼吸窘迫综合征、多器官功能障碍综合征发生率较低,差异有统计学意义($p<0.05$)。急性肾损伤发生率在两组患者间差异无统计学意

义($P>0.05$)。

3 讨论

失血性休克是临床上所有休克类型中最常见的一种,由各种病因引起迅速大量失血而发生。血压迅速下降、有效循环血容量急剧减少和组织缺血缺氧是失血性休克的主要临床表现^[7]。由于失血性休克有病情危重,高致死率及高术后并发症发生率等危重病特点,因此在疾病早期进行恰当的液体复苏对患

者死亡率、凝血功能及并发症有着极其重要的影响。传统液体复苏观点认为,失血性休克主要由于单纯性出血引起的^[8],因此要求在早期进行快速大量输液及输血,使平均动脉压在短期内上升至 80 mmHg 以上。本研究结果显示,与常规组相比,限制组患者死亡率较低,痊愈率较高,差异有统计学意义($\chi^2=4.164$,

$P=0.041$)。其原因可能为常规液体复苏在快速大量补液后并不能使患者心脏、大脑、肾脏等重要器官恢复良好的血流灌注^[9]。研究证实失血性休克患者还容易受到死亡三联征,即低体温、代谢性酸中毒和凝血功能障碍的影响^[10]。

表 3 两组患者血压计检验指标比较($\bar{x} \pm s$)Table 3 Comparison of the sphygmomanometer test of patients between two groups($\bar{x} \pm s$)

Blood pressure and test indexes	Limit group	Conventional group	T	P
N	55	45		
Mean arterial pressure(mmHg)	52.5 $\pm$ 9.0	68.3 $\pm$ 9.2	8.647	<0.001
Hemoglobin(g/L)	123.4 $\pm$ 22.8	103.2 $\pm$ 20.9	4.575	<0.001
Platelet ($\times 10^9/L$)	187.6 $\pm$ 44.3	111.3 $\pm$ 51.2	7.988	<0.001
Hematocrit value	0.34 $\pm$ 0.04	0.25 $\pm$ 0.05	10.002	<0.001
Prothrombin time(s)	12.5 $\pm$ 1.7	15.3 $\pm$ 3.6	5.117	<0.001
Base excess(mmol/L)	1.3 $\pm$ 1.1	2.8 $\pm$ 1.2	6.512	<0.001

表 4 两组患者并发症发生情况比较[例,(%)]

Table 4 Comparison of complications between two groups [n, (%)]

Groups	N	Acute kidney injury	Acute respiratory distress syndrome	Multiple organ dysfunction syndrome
Limit group	55	7(12.7%)	6(10.9%)	7(12.7%)
Conventional group	45	6(13.3%)	13(28.9%)	13(28.9%)
χ^2		0.008	5.199	4.040
P		0.929	0.023	0.044

近年来,临床上限制性液体复苏用于休克的救治越来越广泛,其不仅可以避免快速大量补液引起的不良反应,还能够充分调动患者本身的代偿机制^[11]。本研究结果显示,与常规组相比,限制组患者平均动脉压、碱剩余明显较低,血红蛋白、血小板、红细胞比容明显较高,凝血酶原时间明显较短,差异均有统计学意义($P<0.001$);表明限制性液体复苏强调的早期少量补液有利于失血性休克患者有效循环血容量和微循环灌注的适当恢复^[12],确保心脏、大脑、肾脏等重要器官的供血供氧。但限制性液体复苏不能补液过少,其关键在于在救治早期为患者确定一个复苏平衡点^[13,14],使平均动脉压维持在 40~60 mmHg。在急诊手术止血前,切忌输液过快及增加输血量,而当活动性出血控制后再补充足量液体。

由于失血性休克患者病因相对明确,起病急骤,病情易恶化且死亡率、并发症发生率高,所以在临床救治过程中一般需要诊断和救治同时开展^[15,16]。本研究结果显示,与常规组相比,限制组患者急性呼吸窘迫综合征、多器官功能障碍综合征发生率较低,差异有统计学意义($P<0.05$)。其可能原因为早期限制性液体复苏有利于失血性休克患者有效循环血容量的恢复,使乳酸等代谢产物堆积减少,有利于维持内环境的稳态,为后续急诊手术抢救赢得充分的时间^[17-19]。Zhang X W 等^[20]研究表明,严重创伤引起的失血性休克的黄金抢救时机是在受伤后 60 分钟以内,因此在临床上进行快速高效的救治显得尤为重要。

综上所述,限制性液体复苏用于救治失血性休克疗效好,为患者赢得更多后续急诊手术止血时间,能降低患者死亡率和

并发症如急性呼吸窘迫综合征、多器官功能障碍综合征的发生率,值得广泛应用于临床。

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