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强化肠内营养对急诊重症患者血糖控制及病情转归的影响*

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摘要 目的:考察强化肠内营养对急诊重症患者血糖、营养状态以及并发症的影响。**方法:**以 300 例 2018 年 4 月-2020 年 3 月就入住我院 ICU 的患者为研究对象,分为对照组和研究组,每组 150 例。对照组患者进行肠外营养支持,研究组患者予以肠内营养治疗,通过考察患者血糖、24 h 胰岛素使用量、血清总蛋白(Total protein, Tp)、白蛋白(albumin, Alb)、肌酐(creatinine, Scr)以及并发症等指标,评价其对病情的影响。**结果:**研究组 24 h 内平均血糖为 89.8 ± 38.4 mg/dl,显著低于对照组的 157.6 ± 68.3 mg/dl ($P < 0.05$),研究组 24 h 内胰岛素使用量为 18.6 ± 12.3 μ ,显著低于对照组的 34.7 ± 30.6 μ ($P < 0.05$)。治疗前,两组患者 Tp、Alb 和肌酐清除率(creatinine clearance, CCR)水平均无显著差异($P > 0.05$),治疗后,两组 Tp 和 Alb 水平显著升高,CCR 水平显著降低($P < 0.05$);与对照组相比,研究组患者 Tp 和 Alb 水平显著升高,CCR 水平显著降低($P < 0.05$)。两组均存在不同程度的腹泻、腹胀以及上消化道出血情况,其中对照组的总发生率为 23.33%,研究组的为 26.67%,经比较,无显著差异($P > 0.05$)。**结论:**强化肠内营养能有效改善急诊重症患者的血糖水平,改善患者的营养状态,安全性高。

关键词:肠内营养;急诊重症;血糖;生化指标;并发症

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The Effect of Intensified Enteral Nutrition on Blood Sugar Control and Condition of Critically Ill Patients in Emergency Department*

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ABSTRACT Objective: To investigate the effect of intensive enteral nutrition on blood sugar, nutritional status and complications of critically ill emergency patients. **Methods:** Taking 300 patients who were admitted to the ICU of our hospital from April 2018 to March 2020 as the research objects, they were divided into a control group and a study group, each with 150 cases. Patients in the control group received parenteral nutrition support, and patients in the study group received enteral nutrition therapy. The effects of blood glucose, 24 h insulin usage, total serum protein (Tp), albumin (Alb), creatinine (Scr) and complications, etc., were used to evaluate the impact on the disease. **Results:** The average blood glucose of the study group within 24 hours was 89.8 ± 38.4 mg/dl, which was significantly lower than the control group's 157.6 ± 68.3 mg/dl ($P < 0.05$), and the insulin usage in the study group within 24 hours was 18.6 ± 12.3 μ , which was significantly lower than the control group 34.7 ± 30.6 μ ($P < 0.05$). Before treatment, there was no significant difference in the levels of Tp, Alb and CCR between the two groups of patients ($P > 0.05$). After treatment, the levels of Tp and Alb in the two groups increased significantly, while the CCR levels decreased significantly ($P < 0.05$). Compared with the control group, the levels of Tp and Alb in the study group were significantly increased, and the level of CCR was significantly decreased ($P < 0.05$). There were different degrees of diarrhea, abdominal distension and upper gastrointestinal bleeding in the two groups. The total incidence of the control group was 23.33%, and that of the study group was 26.67%. After comparison, there was no significant difference ($P > 0.05$). **Conclusion:** Intensified enteral nutrition can effectively improve the blood sugar level of critically ill patients in emergency departments, and improve the nutritional status of patients with high safety.

Key words: Enteral nutrition; Emergency critical illness; Blood sugar; Biochemical indicators; Complications

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前言

急诊重症患者由于病情危重,常伴有不同程度的咀嚼、意

识障碍,或者由于患者处于术后镇静镇痛状态以及经口气管插管行呼吸支持等原因,不能自主进食,且机体也处于高分解、高代谢和负氮平衡的状态,对患者进行一定的营养支持是治疗中

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的重要组成部分^[1-3]。肠内营养(Enteral Nutrition, EN)可采用口服或者管饲途径,为患者的胃肠道提供机体代谢所需的营养物质以及其他各种营养素^[4-6]。肠内营养符合人体代谢的生理特性,而且安全性较高,在临床中有广泛的应用,早期肠内营养支持为急诊重症患者提供营养物质的同时,也对肠黏膜有滋养性营养作用^[7-9]。在治疗期前若患者处于营养不良状态,会引起患者的免疫功能下降、降低伤口愈合能力,伴随肌肉无力现象,进而延长患者的住院治疗时间,对患者的健康和经济都有不良影响。因此有必要尽早的对急诊重症患者进行肠内营养支持^[10-12]。

急诊重症患者普遍存在胰岛素抵抗,是一种机体的应激反应,也反映出患者机体胰岛素功能反应受损,表现为血糖持续性升高,进而诱发严重感染、多脏器功能衰竭等并发症,严重影响患者抢救成功率^[13-15]。

因此本研究对急诊重症患者进行肠内营养支持,通过考察患者血糖、24 h 胰岛素使用量、血清总蛋白(Tp)、白蛋白(Alb)、肌酐(Scr)以及并发症等指标,评价其对病情转归的影响,具体如下。

1 对象与方法

1.1 基本信息

以 300 例 2018 年 4 月 -2020 年 3 月就入住我院 ICU 的患者为研究对象,采用随机数字表法分为对照组和研究组,每组 150 例。一般资料见表 1 所示,两组患者基本信息如性别、年龄、机械通气、气管切开、APACHE2 评分等经分析无统计学意义($P>0.05$),具有可比性。患者及家属均充分了解研究内容并签署知情同意书,本研究已获得医院伦理委员会的准许。

表 1 基本资料比较
Table 1 Comparison of basic data

Groups	Age(years)		Gender(cases)		Tracheotomy (cases)	Mechanical Ventilation (cases)	APACHE2 (cases)
	Age range	Average age	Male	Female			
Control group (n=150)	20~87	60.3±12.8	79	71	68	75	21.4± 1.7
Research group (n=150)	21~86	61.1±11.6	76	74	57	76	21.5± 2.1

1.2 纳入与排除标准

纳入标准:年龄 >18 岁,临床诊断为脑血管病、心肺复苏后、重症肺炎、急性重症胰腺炎、急性冠脉综合症等急诊重症患者;入 ICU 时间 >24 h;患者及家属同意参加研究;APACHE II ≥ 8 分。

排除标准:入院 48 h 内死亡;EN 期间接受放化疗者;患有腹泻相关的疾病者;大出血、急诊手术而无法进行 EN 者。

1.3 研究方法

所有患者均接受等氮、等热量的营养支持,营养液中糖供给范围 30%~40%,脂肪供给范围 50%~60%,蛋白质供给范围 10%~20%,所含热量为 125.5 kJ/(kg·d),非蛋白质热量与氮比为 150:1,对于不足的部分由静脉补充。

对照组患者进行肠外营养支持,于住院后 24 h~48 h 开始,24 h 匀速静脉输注营养液,0~24 h 给与全量的 40%,之后每隔 24 h 增加 30%,直至达到全量,且根据病人的需求补充适量的维生素和微量元素。研究组患者予以肠内营养治疗,取 500 mL 瑞素肠内营养液,通过鼻肠管缓慢匀速滴注,初始量为 50 mL,之后逐渐增加至每次 100~150 mL,4~6 次/d,且根据患者情况,逐渐增加 1~2 次汤水或果汁等。

1.4 观察指标

1.4.1 血糖控制情况 采用飞利浦快速血糖仪对患者的血糖进行检测,记录患者血糖水平和每日胰岛素使用量。

1.4.2 生化指标 所有患者分别于治疗前和治疗后第 14 d 采集清晨空腹静脉血,检测并分析患者血清 Tp、Alb 以及 CCR 水平。

1.4.3 并发症情况 详细继续入院 14 d 内两组患者腹泻、腹胀以及上消化道出血等并发症情况。

1.5 数据处理

以 SPSS 19.0 对数据进行分析,计量资料以 $\bar{x} \pm s$ 表示,使用 t 检验,计数资料采用率(%)表示,计量资料使用 χ^2 检验, $P<0.05$ 为具有统计学意义。

2 结果

2.1 血糖控制情况

本研究对两组患者 24 h 内平均血糖和胰岛素使用量进行比较,结果见表 2 所示,研究组 24 h 内平均血糖为 89.8 ± 38.4 mg/dl,显著低于对照组的 157.6 ± 68.3 mg/dl($P<0.05$),研究组 24 h 内胰岛素使用量为 $18.6 \pm 12.3 \mu$,显著低于对照组的 $34.7 \pm 30.6 \mu$ ($P<0.05$)。

2.2 生化指标

本研究对治疗前后两组患者的 Tp、Alb 和 CCR 水平进行

表 2 两组患者血糖水平和胰岛素使用量比较(例,%)

Table 2 Comparison of blood glucose levels and insulin usage between the two groups (n,%)

Groups	Average blood glucose in 24h (mg/dl)	Insulin consumption within 24h (μ)
Control group (n=150)	157.6±68.3	34.7±30.6
Research group (n=150)	89.8±38.4*	18.6±12.3*

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

比较,结果见表3所示。治疗前,两组患者Tp、Alb和CCR水平均无显著差异($P>0.05$),治疗后,两组Tp和Alb水平显著升高,CCR水平显著降低($P<0.05$);与对照组相比,研究组患者Tp和Alb水平显著升高,CCR水平显著降低($P<0.05$)。

表3 两组患者的Tp、Alb和CCR水平比较

Table 3 Comparison of Tp, Alb and CCR levels between the two groups

Groups	Tp(g/L)		Alb(g/L)		CCR(umol/L)	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group (n=150)	54.4±10.7	60.4±7.3 [#]	31.7±4.3	34.1±3.6 [#]	93.5±26.7	71.6±34.8 [#]
Research group (n=150)	54.8±9.4	64.9±5.8**	32.5±3.8	37.3±4.2**	91.6±35.1	44.7±18.9**

Note: [#]Compared with before treatment, $P<0.05$; * Compared with the control group, $P<0.05$.

2.3 并发症情况

本研究对两组患者并发症情况进行比较,结果见表4所示,显示两组均存在不同程度的腹泻、腹胀以及上消化道出血

情况,其中对照组的总发生率为23.33%,研究组的为26.67%,经比较无显著差异($P>0.05$)。

表4 两组患者的并发症比较(例,%)

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

Groups	Diarrhea	Bloating	Upper gastrointestinal bleeding	Total incidence
Control group (n=150)	2(1.33)	16(10.67)	17(11.33)	35(23.33)
Research group (n=150)	5(3.33)	17(11.33)	18(12.00)	40(26.67)

3 讨论

急诊重症患者常伴有意识障碍和自主进食障碍,同时由于缺血、缺氧、循环障碍等原因,患者的肠屏障功能容易受损,在治疗过程中的镇痛镇静、机械通气以及胃肠道手术等治疗手段都可以诱发或加重胃肠功能障碍,引起肠黏膜受损,导致肠壁水肿等^[16-18]。肠功能障碍也可导致患者的喂养不耐受,黏膜萎缩以及肠壁血运减少等情况,加上常伴有细菌和内毒素的移位,增加了脓毒症的风险,甚至导致脓毒症休克,危及病人生命。而肠内营养能有效保护胃肠道黏膜,维持肠黏膜屏障,有研究发现,强化肠内营养能有效刺激肠黏膜上皮细胞的生长,起到保护肠道黏膜的作用,也能维持上皮细胞间的紧密连接,且促进血液循环,还能减少肠道细菌移位^[19-21],尽早对患者开展营养干预有重要意义。

急诊重症患者常处于高应激状态,患者血糖呈异常升高,而血糖的变化也能反映患者应激反应的强弱,血糖持续异常高水平与病情危重程度正相关^[22-24]。应激性高血糖对机体具有有害的病理生理效应,一方面,葡萄糖具有前炎性作用,另一方面,葡萄糖可以诱导核内核因 κB ,活性蛋白-1等的升高,能诱导产生大量活性氧,导致细胞的损伤,产生胰岛素抵抗,加重疾病的发展,诱发多种并发症^[25-27]。本研究对两组患者24 h内平均血糖和胰岛素使用量进行比较,结果表明,研究组24 h内平均血糖为 89.8 ± 38.4 mg/dl,显著低于对照组的 157.6 ± 68.3 mg/dl,研究组24 h内胰岛素使用量为 18.6 ± 12.3 μ ,显著低于对照组的 34.7 ± 30.6 μ ,林亚琴^[28]等学者的研究探讨改良肠内营养方案对急性重症缺血性脑卒中病人胰岛素抵抗(IR)状态及血糖水平的影响,对照组给予常规糖尿病肠内营养制剂,研究组

给予改良新型糖尿病肠内营养制剂,治疗后,研究组空腹血糖、餐后6 h血糖、餐后12 h血糖及日血糖最大波动幅度显著低于对照组,与本研究类似。即强化肠内营养治疗能有效改善急诊重症患者的血糖异常情况,为病人提供足够的能量支持,有利于患者病情的控制。

常见的营养支持手段除了肠内营养之外,还有肠外营养,可以将蛋白质及其它营养物质经静脉输入患者体内,能有效预防肺水肿的发生,也能改善患者的营养状态,但是该手段与人体生理过程存在差异,对患者胃肠功能可能会造成一定的影响^[29,30]。肠内营养与人体生理过程更为相符,能维持机体正氮平衡,能促进蛋白质的合成,利于患者的恢复。本研究对治疗前后两组患者的Tp、Alb和CCR水平进行比较,结果显示,治疗前,两组患者Tp、Alb和CCR水平均无显著差异,治疗后,两组Tp和Alb水平显著升高,CCR水平显著降低;与对照组相比,研究组患者Tp和Alb水平显著升高,CCR水平显著降低,与邓青志^[31]的研究类似,探讨早期肠内营养对重症脑卒中患者血清炎症因子,免疫功能的影响作用,早期组(常规治疗基础上72 h内即给予肠内营养),对照组(常规治疗),治疗后,早期组的Tp、Alb、Hb、PA水平均显著的高于对照组。但是关于强化肠内营养治疗后,CCR水平变化目前尚未报道。说明强化肠内营养治疗能有效改善机体营养状态。

肠内营养支持能有效刺激患者胃肠道,避免长时间禁食所引起的胃肠道功能下降,保证了胃肠道黏膜细胞结构和功能的完整性,能有效减轻并发症的发生率^[32]。本研究对两组患者并发症情况进行比较,结果显示两组均存在不同程度的腹泻、腹胀以及上消化道出血情况,其中对照组的总发生率为23.33%,研究组的为26.67%,经比较,无显著差异。赵青菊^[33]等学者探

讨论实施早期肠内营养和肠外营养对重型颅脑损伤患者胃液 pH 值的影响,分为早期肠内营养组(EEN组)和肠外营养组(PN组),两组入院即刻消化道出血发生率差异无统计学意义,EEN组患者入院后第3、5、7d消化道出血发生率均明显低于PN组,与本研究结果有所不同。分析其原因为个体差异,基础疾病的影响等。本研究也存在一定的不足,没有进行长期的随访,对比期生存率,在分组中没有探究肠内营养联合肠外营养治疗急诊重症患者的疗效,后续研究需要继续深入探究,选择更加适合患者的方法。

综上所述,强化肠内营养能有效改善急诊重症患者的血糖水平,改善患者的营养状态,因此,对患者开展营养干预有重要意义,且安全性高。

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