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ISS 与 APACHE II 评分对急诊多发伤患者伤情评估的价值分析 *

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摘要 目的:探讨损伤严重程度计分法(Injury severity score, ISS)和慢性健康评分(Acute physiology and chronic health evaluation score II, APACHE II)评分对急诊多发伤患者伤情评估的应用价值。**方法:**将我院自 2016 年 6 月至 2019 年 6 月急诊收治的多发伤患者 85 例作为研究对象,分别使用 ISS 和 APACHE II 评分,追踪患者住院期间的伤情严重程度和预后情况。**结果:**急诊多发伤患者入院时 ISS 评分和 APACHE II 评分越高,患者 ICU 收住率和死亡率越高,患者预后越差($P<0.05$);死亡的急诊多发伤患者 ISS 评分和 APACHE-II 评分均明显高于存活组 ($P<0.05$)。ISS 评分预测急诊多发伤患者死亡的灵敏度为 87.06%, 特异性为 85.88%, APACHE-II 评分预测急诊多发伤患者死亡的灵敏度和特异性分别为 88.24%和 87.06%,差异无统计学意义($P>0.05$),两者联合预测急诊多发伤患者死亡的灵敏度为 95.29%,特异性为 94.12%,均优于单独预测($P<0.05$)。**结论:**ISS 评分和 APACHE-II 评分能够较为准确的评估急诊多发伤患者的病情严重程度,对患者预后具有较好的预测价值,两者结合使用的应用价值更高。

关键词:急诊;多发伤;ISS;APACHE II 评分;伤情评估

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Evaluation of the Value of ISS and APACHE II Scores for the Evaluation of Injuries in Patients with Multiple Trauma in Emergency Department*

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ABSTRACT Objective: To investigate the application value of ISS and APACHE II scores for the evaluation of injuries in patients with multiple trauma in emergency department. **Methods:** Eighty-five patients with multiple injuries in our hospital from June 2016 to June 2019 were enrolled in the study. The ISS and APACHE II scores were used to track the severity and prognosis of patients during hospitalization. **Results:** The higher the ISS score and the APACHE II score in patients with multiple traumatic injuries, the higher the ICU admission rate and mortality rate, and the worse the prognosis ($P<0.05$). The ISS score and APACHE-II score of patients with multiple emergency injuries were significantly higher than those of the survival group ($P<0.05$). The sensitivity of the ISS score for predicting death in multiple trauma patients was 87.06% and the specificity was 85.88%. The sensitivity and specificity of the APACHE-II score for predicting death in multiple trauma patients were 88.24% and 87.06%, respectively. The difference was not statistically significant ($P>0.05$). The combined sensitivity of the two groups in predicting the death of patients with multiple traumatic injuries was 95.29% and the specificity was 94.12%, which was better than the single prediction ($P<0.05$). **Conclusion:** The ISS score and APACHE-II score can accurately assess the severity of patients with multiple trauma in emergency department, and have a good predictive value for prognosis. The combination application of the two is more valuable.

Key words: Emergency department; Multiple injuries; ISS; APACHE II score; Injury assessment

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前言

急诊收治的多发伤患者具有病情危重、伤情变化迅速、病死率高、救治时间窗窄等诸多特点^[1,2],临床医护人员仅凭已有的经验判断伤情易造成院前多发伤患者的误诊和漏诊,不利于患者救治^[3,4]。尽早的识别多发伤患者的"预警信号",并及时做出正确的处理措施,可有效的避免伤情恶化,改善患者预后^[5-7]。

急性生理和慢性健康评分 II (Acute Physiology and Chronic Health Evaluation, APACHE-II)是目前临床上重症监护病房应用范围最广、权威性更高的危重病情评价系统^[8,9]。本研究将我院急诊科近三年来收治的 85 例多发伤患者作为研究对象,分别使用损伤严重程度评分(Injury severity score, ISS)和 APACHE-II 评价患者伤情和预后的应用价值。现将研究结果报道如下。

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1 资料与方法

1.1 一般资料

将我院自 2016 年 6 月至 2019 年 6 月急诊收治的多发伤患者 85 例作为研究对象,包括男 48 例,女 37 例,年龄 20~83 岁,平均年龄 45.81 ± 9.29 岁,致伤时间 20 min~24 h,平均 3.54 ± 1.25 h,致伤因素:交通事故 58 例,高处坠落 12 例,重物砸伤 10 例,锐器损伤 5 例;致病伤类型:颅脑外伤 42 例次,胸部外伤 53 例次,腹部伤 48 例次,骨盆损伤 16 例次,四肢、脊柱损伤 54 例次,存在三处以上创伤患者 57 例(67.06%),创伤性休克或失血性休克 61 例(71.76%)。

1.2 评分标准

表 1 NEWS 的评分标准(分)

Table 1 Rating criteria for NEWS(scores)

Physiological index	3	2	1	0
State of consciousness	No reaction	Responding to pain	Responding to sound	clear
Respiratory frequency (times/min)	≥ 30	<9 or 21~29	15~20	9~14
HR(times/min)	≥ 130	≤ 40 or 111~129	41~50 or 101~110	51~100
Systolic pressure(mmHg)	≤ 70	1~80 or ≥ 200	81~100	101~199
T($^{\circ}\text{C}$)	-	<35.0 or ≥ 38.5	-	35.0~38.4

1.3 观察指标

对比两种评分系统在不同分值段患者急诊心肺复苏、守住 ICU、专科病房、门诊治疗、死亡和一个月内出院的构成比。

1.4 统计学方法

使用统计学软件 SPSS21.0 进行数据分析,计数资料用(%)表示,组间比较用 χ^2 检验,计量资料用($\bar{x} \pm s$)表示,组间比较用 t 检验,以 $P < 0.05$ 差异有统计学意义。

ISS 评分:在简明损伤定级法的基础上评估患者总体解剖损害,将全身划分为头颈、面、胸、腹、四肢、体表等六个区域,按照伤情对生命安全威胁的大小程度,将每一处损伤评分等级分为 1~6 分,ISS 计算方法为身体三个最为严重损伤区域的最高 AIS 分值的平方和,最高不超过 75 分^[10,11]。

APACHE- II 评分^[12,13]:所有患者先按照改良早期预警评分(Modified early warning score, NEWS)完成呼吸频率、血压、心率等相关生理指标的检查,评分详见表 1。在此基础上完善 APACHE- II 评分所需动脉血气检查、肾功能、电解质、血常规等急诊十二项急性生理指标的检查,取 24 h 内最差值,进行 APACHE- II 评价^[5]。

2 结果

2.1 ISS 不同分值段多发伤患者接受处置的方式以及预后比较

急诊多发伤患者入院时 ISS 评分越高,患者 ICU 收住率和死亡率越高,提示 ISS 评分越高,患者预后越差($P < 0.05$),详见表 2。

表 2 ISS 不同分值段多发伤患者接受处置的方式以及预后比较

Table 2 Comparison of the methods of treatment and prognosis of patients with multiple injuries in different scores of ISS

Score	Cases	Emergency cardiopulmonary resuscitation	Accepting ICU	Collection of specialist general wards	Outpatient treatment	Death	Discharged within 1 month
≤ 15	20	0(0.00)	0(0.00)	2(10.00)	18(90.00)	0(0.00)	0(0.00)
16~30	27	1(3.70)	3(11.11)	5(18.52)	19(70.37)	4(14.81)	25(92.59)
31~50	30	4(13.33)	16(53.33)	1(3.33)	9(30.00)	7(23.33)	8(26.67)
≥ 50	8	2(25.00)	6(75.00)	0(0.00)	0(0.00)	5(62.00)	0(0.00)
χ^2	-	13.251	18.642	5.134	14.205	10.398	19.842
P	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

2.2 APACHE- II 不同分值段多发伤患者接受处置的方式以及预后比较

急诊多发伤患者入院时 APACHE- II 评分越高,其 ICU 收住率和死亡率越高,提示患者 APACHE- II 评分越高,患者预后越差($P < 0.05$),详见表 3。

2.3 死亡与存活急诊多发伤患者 ISS 和 APACHE- II 评分的比较

死亡组急诊多发伤患者 ISS 评分和 APACHE- II 评分均明

显高于存活组($P < 0.05$),详见表 4。

2.4 ISS 评分和 APACHE- II 评分预测急诊多发伤患者预后的价值分析

ISS 评分预测急诊多发伤患者死亡的灵敏度为 87.06%,特异性为 85.88%,APACHE- II 评分预测急诊多发伤患者死亡的灵敏度和特异性分别为 88.24%和 87.06%,差异无统计学意义($P > 0.05$),两者联合预测急诊多发伤患者死亡的灵敏度为 95.29%,特异性为 94.12%,均优于单独预测($P < 0.05$),详见表 5。

表 3 APACHE- II 不同分值段多发伤患者接受处置的方式以及预后比较

Table 3 Comparison of the methods of treatment and prognosis of patients with multiple injuries in different scores of APACHE-II

Score	Cases	Emergency cardiopulmonary resuscitation	Accepting ICU	Collection of specialist general wards	Outpatient treatment	Death	Discharged within 1 month
≤ 15	24	0(0.00)	0(0.00)	0(0.00)	24(100.00)	1(4.17)	0(0.00)
16~25	41	0(0.00)	2(4.88)	3(7.32)	36(87.80)	4(9.76)	40(97.56)
26~35	13	0(0.00)	7(53.85)	1(7.69)	5(38.46)	5(38.46)	2(15.38)
≥ 36	7	2(28.57)	5(71.43)	0(0.00)	0(0.00)	6(85.71)	0(0.00)
χ^2	-	5.813	8.343	3.941	19.645	11.057	31.085
<i>P</i>	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

表 4 急诊多发伤患者死亡与否 ISS 和 APACHE- II 评分比较

Table 4 Comparison of the ISS and APACHE-II scores between survival and death patients with multiple trauma in emergency department

Groups	Cases	ISS score	APACHE-II score
Survival group	69	19.86± 2.59	14.64± 4.52
Death group	16	34.17± 3.21	23.19± 6.23
<i>t</i>	-	19.012	6.322
<i>P</i>	-	<0.001	<0.001

表 5 ISS 评分和 APACHE- II 评分预测急诊多发伤患者预后的价值分析

Table 5 Clinical value of ISS score and APACHE-II score for predicting the prognosis of patients with multiple trauma in emergency

Grading system	Sensitivity	Specificity 95%	Confidence interval
ISS score	74(87.06)	73(85.88)	0.607~0.842
APACHE-II score	75(88.24)	74(87.06)	0.620~0.879
Joint evaluation	81(95.29)	80(94.12)	0.584~0.892

3 讨论

对急诊多发伤患者进行创伤评估是临床急救工作的一个重要环节^[14],可有效避免部分非急诊患者共享有限急诊资源造成急诊拥挤现象的发生,同时会减少医护人员对创伤患者的分诊难度^[15,16]。对于临床收治的急诊多发伤患者而言,机体存在一定的预警信号,在受伤后数小时可观察到某些生理指标发生异常变化,如果能及时发现并捕捉这些预警信号,对化解患者危机,防止病情进一步恶化具有积极的意义^[17,18]。

创伤评分系统可以通过临床评估对患者的伤情严重程度进行定量分析,对正确诊断、指导治疗和判断预后之重要^[19]。目前,临床使用的评分系统较多,其中以解剖学评分为基础的 ISS 评分系统已经逐渐成为评价创伤的金标准,ISS≥ 16 分的患者有 10% 的死亡率,>20 分死亡率明显增高,>50 分时患者存活的几率很低。因此,临床将 ISS≥ 16 作为严重多发伤的界定标准^[20,21]。有资料显示国内外多项研究证实 ISS 是创伤患者死亡的独立危险因素,ISS 在 15~20 分患者病死率为 0.5%,20~39 分患者病死率为 21%,>30 分患者为 38.3%,本研究结果显示患者 ISS 得分越高,患者 ICU 入住率和死亡率升高,提示 ISS 预测患者病死率具有一定的预后预测参考价值^[22,23]。

APACHE- I 评分系统是目目前危重病领域使用最为普及和权威的评分系统,由 Knaus 提出,包含所有的具有客观性的指

标,缺点是包含了临床上不常用的检测项目,实际操作起来具有一定的难度^[24,25]。APACHE- II 评分是在其基础上增加一些元素形成的新评价系统,具有简单、可靠、设计合理、预测准确等诸多优点,主要包含了对患者年龄评分、急性疾病严重程度的急性生理学评分和患病前慢性健康状况等三部分 12 项临床指标的评价,但是由于该系统需要收集患者 24 h 内各项指标的最差值^[26],而急诊多发伤患者在急诊科停留的时间不一定超过 24 h,因此 APACHE- II 评分还是存在不便之处。此外,该评分实际操作起来费用昂贵,基层医院由于设备不全、医疗条件差等因素,难以得到广泛的应用^[27-29]。本研究结果显示 APACHE- II 评分得分越高,患者 ICU 收住率和病死率越高,提示 APACHE- II 评分和多发伤患者的病情严重程度存在一定的正相关性。进一步分析结果显示 ISS 评分和 APACHE- II 评分在预测多发伤患者预后方面具有一定的灵敏度和特异性,两者联合检测可提高患者预后预测的灵敏度和特异性^[29,30]。

综上所述,ISS 评分和 APACHE- II 评分能够较为准确的评估急诊多发伤患者的病情严重程度,对患者预后具有较好的预测价值,两者结合的应用价值更高,临床上可根据患者病情和实际医疗条件选择简便、便宜的评分系统进行评价。

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