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· 论 著 ·

应用查尔森基础疾病权重指数评估脓毒症患者预后

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[摘要] **目的** 探讨基础疾病评分系统查尔森基础疾病权重指数(Charlson's weighted index of comorbidities, WIC)评估脓毒症患者预后的价值。**方法** 回顾性分析3年收治的234例脓毒症患者的临床资料, 计算WIC评分及急性病理生理和慢性健康状况评分II(APACHE II), 根据28 d预后情况分为存活组和死亡组, 分析WIC评分对患者预后的评估价值。**结果** 共有234例脓毒症患者纳入研究, 死亡77例(32.9%)。WIC评分越高, 患者的死亡风险越大; 多因素logistic回归分析提示WIC评分是决定脓毒症患者预后的危险因素($OR=1.434, 95\% CI: 1.097\sim 1.875, P=0.008$); WIC评分、APACHE II评分以及两者联合预测死亡概率的ROC曲线下面积(95% CI)分别0.670(0.591~0.748)、0.770(0.703~0.837)和0.821(0.757~0.885)。**结论** WIC评分可以较好地评估基础疾病对于危重病患者预后的影响。

[关键词] 脓毒症; 基础疾病; 查尔森基础疾病权重指数; 急性病理生理和慢性健康状况评分

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Charlson's weighted index of comorbidities in assessing prognosis of septic patients

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[Abstract] **Objective** To investigate the value of Charlson's weighted index of comorbidities (WIC) in predicting the prognosis of patients with sepsis. **Methods** The clinical data of 234 septic patients in the last three years were retrospectively analyzed. The scores of WIC and acute physiology and chronic health evaluation II (APACHE II) were calculated. The patients were divided into two groups according to death or survival outcome 28 days later, and the value of WIC score in predicting prognosis was analyzed. **Results** It was found that 77 (32.9%) of the 234 patients died. Increasing WIC score was associated with increased mortality. Multiple logistic regression analysis revealed that WIC was a risk factor of prognosis of septic patients ($OR=1.434, 95\% CI: 1.097-1.875, P=0.008$). The areas under the ROC curves in predicting the mortality of the septic patients were 0.670 (0.591-0.748) for the WIC score, 0.770 (0.703-0.837) for APACHE II score and 0.821 (0.757-0.885) for the combination of both. **Conclusion** WIC score can satisfactorily predict the influence of underlying diseases on the prognosis of septic patients.

[Key words] sepsis; underlying diseases; Charlson's weighted index of comorbidities; acute physical and chronic health evaluation score

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脓毒症是危重病患者死亡的重要原因, 因其诊断标准的宽泛性和复杂性, 脓毒症的预后与病情评估较为困难。患者对于脓毒症的易感性直接决定其预后。基础疾病属于易感性的一个重要方面, 评价

基础疾病对于脓毒症预后的影响, 有助于鉴别脓毒症死亡的高危因素, 指导治疗。查尔森基础疾病权重指数(Charlson's weighted index of comorbidities, WIC)是基于患者基础疾病的评分系

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统, 包括 19 个基础疾病^[1], 已有研究显示 WIC 可以很好地预测危重病患者在院死亡率^[2-3]。本研究回顾性分析脓毒症患者的临床资料, 探讨 WIC 对于脓毒症预后的评估价值。

1 资料和方法

1.1 临床资料 回顾性分析 2008 年 1 月至 2011 年 10 月入住第二军医大学长征医院急救科 ICU 的所有患者的临床资料, 诊断为脓毒症的患者考虑纳入研究, 资料不全者、年龄小于 18 岁者、孕妇、手术后 ICU 观察时间不满 1 d 者、多次入院者(第 1 次入院资料除外)等排除研究。脓毒症、严重脓毒症和感染性休克等的诊断标准参照美国胸科协会的有关定义^[4]。共有 234 例纳入研究, 47 例因为资料不全等被排除。记录患者的一般资料, 包括: 性别, 年龄, 既往基础疾病, 28 d 预后, 出院时转归, 住院天数等; 同时计算患者入院时的急性病理生理和慢性健康状况评分 II (acute physical and chronic health evaluation II, APACHE II)^[5]、脓毒症相关功能障碍评分 (sepsis-related organ failure assessment, SOFA)^[6] 和 WIC 评分^[3]。

1.2 统计学处理 采用 SPSS 18.0 软件分析相关数据。WIC、SOFA 和 APACHE II 数据以 $\bar{x} \pm s$ 表示, 组间比较采用 *t* 检验; 计数资料组间的比较采用 χ^2 检验。绘制受试者工作曲线 (ROC) 比较 WIC 和 APACHE II 评分对于 28 d 预后的判断。对性别、年龄、SOFA 评分、APACHE II 评分和 WIC 评分对于预后的影响进行单因素分析, 若 $P < 0.2$ ^[7-8], 纳入预后回归方程, 进行多因素 logistic 回归分析。检验水平 (α) 为 0.05。

2 结果

2.1 一般资料 共有 234 例患者纳入研究, 其中男性 164 例, 女性 70 例; 脓毒症 79 例, 严重脓毒症 73 例, 感染性休克 82 例。根据 28 d 预后情况分为存活组 157 例 (67.1%) 和死亡组 77 例 (32.9%), 两组的具体资料见表 1。

2.2 WIC 评分与脓毒症预后及疾病严重程度的关系 脓毒症、严重脓毒症和感染性休克患者的 WIC 分值分别为 1.0 ± 1.5 、 0.9 ± 1.2 和 1.3 ± 1.5 , 差异无统计学意义 ($P = 0.152$), 死亡组 WIC 分值高于存

活组 ($P < 0.05$, 表 1)。表 2 显示了相同 WIC 分值时预后和疾病严重程度不一的各组例数, 提示分值得低的患者预后较好, 评分越高患者的死亡风险越大 ($P < 0.05$)。

表 1 存活组和死亡组脓症患者的一般资料比较

Tab 1 Comparison of clinical data between survivors and non-survivors of septic patients

Index	Survivors	Non-survivors	P value
N	157	77	
Male/female n/n	110/47	54/23	0.504
Age (year), $\bar{x} \pm s$	52.7 ± 18.4	61.9 ± 17.7	0.000
APACHE II score $\bar{x} \pm s$	11.6 ± 5.3	18.0 ± 6.8	0.000
SOFA score $\bar{x} \pm s$	5.0 ± 3.4	9.1 ± 4.1	0.000
WIC score $\bar{x} \pm s$	0.8 ± 1.3	1.6 ± 1.5	0.000
Severity n			0.000
Sepsis	72	7	
Severe sepsis	54	19	
Septic shock	31	51	
Infection sites n			0.000
Lung	43	45	
Abdomen	45	17	
Poly-trauma	56	11	
Others	13	4	

APACHE II: Acute physical and chronic health evaluation II; SOFA: Sepsis-related organ failure assessment; WIC: Charlson's weighted index of comorbidities

表 2 WIC 评分与脓症患者预后以及疾病严重程度的关系

Tab 2 Association of WIC score with prognosis and severity of septic patients

WIC score	Prognosis		Severity	
	Survivors	Non-survivors*	Sepsis	Severe sepsis or septic shock
0	95	24	46	73
1	22	7	9	20
2	22	25	12	35
3	9	11	5	15
4	5	3	4	4
5	2	3	1	4
≥6	2	4	2	4
Total	157	77	79	155

WIC: Charlson's weighted index of comorbidities. * $P < 0.05$ vs survivors

2.3 WIC 评分是脓毒症预后的危险因素 由表 1 可见, 年龄、WIC 评分、APACHE II 评分、SOFA 评分、疾病严重程度及疾病种类等在死亡组和存活组

之间差异有统计学意义($P < 0.05$)。APACHE II 评分和 SOFA 评分直线相关,因此只选择其中之一,即 APACHE II 评分和年龄、WIC 评分、疾病种类、疾病严重程度等纳入预后回归方程,进行多因素 logistic 回归分析,结果显示:WIC 评分($OR = 1.434, 95\% CI: 1.097 \sim 1.875, P = 0.008$)、APACHE II 评分($OR = 1.189, 95\% CI: 1.120 \sim 1.261, P < 0.001$)是 28 d 预后的危险因素,非严重脓毒症(含感染性休克)是 28 d 预后的保护因素($OR = 0.119, 95\% CI: 0.045 \sim 0.316, P < 0.001$),而年龄和疾病种类不是决定患者预后的影响因素。若上述方程把 APACHE II 评分改为 SOFA 评分结果类似。

2.4 WIC 评分联合 APACHE II 评分有助于评估预后 ROC 曲线(图 1)显示 SOFA 评分、WIC 评分、APACHE II 评分和后两者联合预测概率的曲线下面积(95% CI)依次为 0.775(0.710~0.840)、0.670(0.591~0.748)、0.770(0.703~0.837)和 0.821(0.757~0.885),说明 WIC 评分联合 APACHE II 评分有助于评估预后。

3 讨论

患者既往基础疾病影响 ICU 患者的预后,合并糖尿病、慢性阻塞性肺疾病、慢性心血管疾病以及慢性肾病等患者容易发生感染,而脓毒症患者合并以上疾病往往预后较差^[8]。早期对脓毒症患者进行危险度分层,有利于进行针对性的治疗,降低死亡率。许多脓毒症患者往往合并一个以上基础疾病,如何评价这些基础疾病对于预后的影响颇有难度。WIC 评分是 Charlson 等^[1]构建的一个基于患者基础疾病的评分系统,其包括 19 个疾病种类,每个疾病权重 1~6 分不等,累积之和即为患者基础疾病评分(表 3)。文献报道,在肿瘤、腹膜透析及感染性心内膜炎等患者中,WIC 评分能够很好地对患者进行分层和预测预后^[9]。WIC 评分在脓毒症等危重病患者中的预后价值少有研究,本研究结果显示,随着 WIC 分值增加,脓毒症患者死亡风险增大,多因素 logistic 回归分析表明 WIC 评分是影响患者预后的危险因素,说明患者合并的基础疾病影响预后。

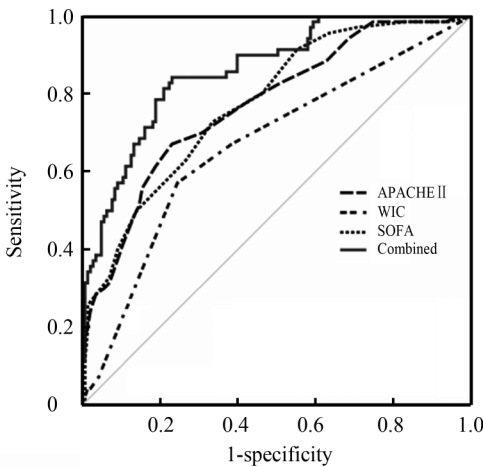


图 1 SOFA 评分、WIC 评分、APACHE II 评分以及后两者联合预测 28 d 预后的 ROC 曲线
Fig 1 The ROC curves of SOFA score, WIC score, APACHE II score and combination of WIC and APACHE II score in predicting the mortality of septic patients 28 days later

APACHE II: Acute physical and chronic health evaluation II; SOFA: Sepsis-related organ failure assessment; WIC: Charlson's weighted index of comorbidities; ROC: Receiver operating characteristic

表 3 WIC 评分系统^[1]

Tab 3 Charlson's weighted index of comorbidities^[1]

Assigned weights for disease	Condition	
1	Myocardial infarct	
	Congestive heart failure	
	Peripheral vascular disease	
	Cerebrovascular disease	
	Dementia	
	Chronic pulmonary disease	
	Connective tissue disease	
	Ulcer disease	
	Mild liver disease	
	Diabetes	
	2	Hemiplegia
		Moderate or severe renal disease
		Diabetes with end organ damage
		Any tumor
Leukemia		
3	Lymphoma	
	Moderate or severe liver disease	
	6	
6	Metastatic solid tumor	
	Acquired immune deficiency syndrome (AIDS)	

Assigned weights for each condition that a patient has. The total equals the score. Example: Chronic pulmonary (1) and lymphoma (2) = total score (3)

APACHE II 评分和 SOFA 评分是 ICU 常用的两个评分系统, WIC 评分与之相比更关注患者既往的基础疾病, 虽然 APACHE II 评分也考虑到患者的年龄和基础疾病等, 但是其更关注急性生理状况情况。本研究提示, 单独应用 WIC 评分预测患者预后不如 APACHE II 评分准确, 但联合 WIC 和 APACHE II 评分提高了对患者 28 d 预后预测的准确性。因此, WIC 评分可能成为脓毒症患者预后分层的有益补充。

本研究存在以下不足之处: 首先, 作为一个回顾性研究, 病例数相对较少, 且收集的仅是 28 d 预后, 期待有前瞻性的临床试验来验证我们的结论, 同时随访出院患者的半年或者 1 年生存率。再次, WIC 评分只包括 19 个基础疾病, 高血压等并不在其中, 因此, 在接下来的研究中需要比较其他基础疾病相关评分系统同预后的关系。

4 利益冲突

所有作者声明本文不涉及任何利益冲突。

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