doi: 10.13241/j.cnki.pmb.2018.19.022

老年脓毒症和脓毒性休克患者30天死亡率的危险因素分析*

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摘要 目的:探讨就诊于急诊室诊断为脓毒症或者脓毒性休克的患者30天内死亡率与在急诊室初次获得的参数的关系,并探讨死亡率的危险因素。**方法:**选取2014年6月到2017年6月就诊于我院急诊室且诊断为脓毒血症或者脓毒性休克并有完整随访资料大于65岁的老年患者145例,将30天内存活的患者分为A组,将30天内死亡的患者分为B组,比较两组之间检验指标及生命体征的差异。根据脓毒症序贯器官衰竭评估快速评分(qSOFA)将qSOFA＜2分的定义为a组,qSOFA≥2分的定义为b组,比较两组的死亡率。并采用二项Logistic回归分析探讨30天死亡率的独立危险因素。**结果:**145例患者中,44.8 %(n=65)的患者在30天内死亡,33.1 %(n=48)的患者需要无创或者侵入性机械通气。A组与B组之间舒张压(P=0.003)、收缩压(P=0.002)、格拉斯哥昏迷量表评分(GCS)(P＜0.001)、血尿素氮(P＜0.001)及qSOFA(P＜0.001)比较均具有统计学差异。a组死亡率(35.7 %)显著低于b组(53.3 %)(P=0.033)。qSOFA是30天内死亡率的独立危险因素(OR=2.871,P=0.004)。**结论:**qSOFA是老年脓毒症及脓毒性休克患者30天内死亡的的独立危险因素。

关键词:急诊;老年;脓毒症;30天内死亡率;危险因素

中图分类号:R459.7;R631.2 **文献标识码:**A **文章编号:**1673-6273(2018)19-3698-04

Analysis of the Risk Factors of 30-day Mortality in Elderly Patients with Sepsis and Septic Shock*

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ABSTRACT Objective: To investigate the relationship between 30-day mortality of patients diagnosed with sepsis or septic shock in the emergency room and the initial parameters obtained in the emergency room, and explore the risk factors of mortality. **Methods:** 145 cases of patients older than 65 years old who were diagnosed as sepsis or septic shock and had complete follow-up data were collected from June 2014 to June 2017 in the emergency room of our hospital were selected. The patients who survived within 30 days were divided into group A, and the patients who died within 30 days were divided into group B. The differences in laboratory inspection parameters and vital signs groups were compared between the two. According to the quick Sepsis-related Organ Failure Assessment (qSOFA), patients with qSOFA<2 points were defined as group a, and patients with qSOFA≥ 2 points were defined as group b. The mortality was compared between the two groups. Binary logistic regression analysis was used to evaluate independent risk factors for 30-day mortality. **Results:** Of the 145 cases of patients, 44.8 % (n=65) of patients died within 30 days, and 33.1 % (n=48) of patients required non-invasive or invasive mechanical ventilation. There were statistically significant differences in the diastolic blood pressure (P=0.003), systolic blood pressure (P=0.002), Glasgow Coma Scale (GCS) (P<0.001), blood urea nitrogen (P<0.001), and qSOFA (P<0.001) between group A and group B. The mortality rate of group a (35.7 %) was significantly lower than that of group b (53.3 %)(P=0.033). qSOFA was an independent risk factor for the mortality within 30 days (OR=2.871, P=0.004). **Conclusions:** qSOFA is an independent risk factor for the death within 30 days of sepsis and septic shock patients.

Key words: Emergency; Elderly; Sepsis; Mortality within 30 days; Risk factors

Chinese Library Classification (CLC): R459.7; R631.2 Document code: A

Article ID: 1673-6273(2018)19-3698-04

前言

近年来,就诊于急诊室大于65岁的老年人逐年增多,在急诊室对于脓毒症老年患者的管理引起学者的关注[3]。有学者认

* 基金项目:南京军区科研基金面上课题(12MA043)

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(收稿日期:2018-03-17 接受日期:2018-04-20)

为升高的乳酸有助于老年患者脓毒症的诊断及确诊[4]。基于2016年脓毒症及脓毒性休克的定义，有学者提出脓毒症序贯器官衰竭评估 (Sepsis-related Organ Failure Assessment,SOFA)评分系统[5]。后来又形成了一个在急诊室更简单实用的系统-脓毒症序贯器官衰竭评估快速评分 (quick SOFA,qSOFA)。qSOFA结合了感染的特征及另外三个标准：收缩压≤ 100 mmHg、格拉斯哥昏迷量表评分(Glasgow Coma Scale,GCS)＜15和呼吸频率≥ 22次/分,每个标准为1分,如果总分≥ 2分常常提示感染已危及生命。有研究表明qSOFA在没有实验室检查的条件下有助于脓毒症的诊断[5]。qSOFA≥ 2分且合并有需要缩血管药物维持平均动脉压＞75 mmHg和乳酸＞2 mmol/L称为脓毒性休克。

除了乳酸水平,有些生物指标比如降钙素原和C反应蛋白也用于诊断和预测脓毒症[6]。但这些实验室检验指标比全血细胞计数昂贵。血小板与淋巴细胞比 (platelet-lymphocyte ratio,PLR)是一个可以从血常规中获得不需要额外花费的指标,有研究报道PLR是炎症反应的象征[7]。最近的研究表明PLR在各种条件下均升高,包括急性肠系膜缺血、慢性阻塞性肺病急性加重、类风湿性关节炎和肾细胞癌[8,9]。因此,本研究主要探讨了qSOFA、PLR、乳酸、其它检验指标和生命体征是否是脓毒症和脓毒性休克患者30天内死亡的危险因素，以期为老年脓毒症和脓毒性休克患者的诊治提供参考。

1 资料与方法

1.1 一般资料

选取2014年6月到2017年6月就诊于我院急诊室且初次诊断为脓毒血症或者脓毒性休克大于65岁的老年患者。通过医院门诊系统检索患者的基本资料、初次实验室检验指标及生命体征。通过电话回访患者在我院急诊确诊后的30天内的生存状态。将30天内存活的患者分为A组(80例),将30天内死亡的患者分为B组(65例)。

1.2 观察指标

患者的基本资料:年龄、性别及合并症。入急诊室时的收缩压、舒张压、GCS、qSOFA、呼吸频率、体温、心率、氧饱和度、血钠、血钾、血尿素氮、血肌酐、血红蛋白、血乳酸、白细胞、血小板、中性粒细胞、淋巴细胞和PLR。比较上述指标在A组与B组之间的差异。此外,收集患者在急诊室接受的治疗。

1.3 统计学分析

通过SPSS20.0分析数据,计量资料以均值± 标准差表示,计数资料以百分数表示。分别利用t检验及卡方检验,采用二项Logistic回归分析探讨死亡率的独立危险因素。以P＜0.05为差异有统计学意义。

2 结果

2.1 一般情况

从2014年6月到2017年6月，共有145例患者纳入研究,年龄为82.0± 10.5,其中女性占54.5 %(79例),男性占45.5 %(66例)。44.8 %(65例)的患者在入急诊室30天内死亡。145例患者中,最常见的感染原因为肺部感染(69.0 %)和泌尿系统感染(46.2 %),最常见的合并症是高血压(62.1 %)、冠心病(29.0 %)和糖尿病(27.6 %)。在急诊室接受最常见的治疗为吸氧(59.3 %)、抗菌药使用(55.2 %)和支气管舒张剂的使用(53.1 %),见表1。

2.2 A组与B组之间各项指标的差异

表1 在急诊室接受的治疗

Table 1 Treatment started in the emergency room

Treatment	%, n
Oxygen absorption	59.3(86)
Antibacterial drugs	55.2(80)
Bronchodilator	53.1(77)
Intravenous hydration	40.7(59)
Paracetamol	33.8(49)
Mechanical Ventilation	33.1(48)
Furosemide	28.3(41)
Methylprednisolone	16.6(24)
Low molecular weight heparin	11.7(17)
Dopamine	11.0(16)
Calcium antagonists	8.3(12)
Cardiopulmonary resuscitation	5.5(8)
Nitroglycerin	4.8(7)

A组与B组之间各个参数的差异见表2。A组的收缩压(P=0.002)、舒张压(P=0.003)和GCS(P＜0.001)均高于B组,血尿素氮(P＜0.001)及qSOFA(P＜0.001)均低于B组,差异具有统计学意义。两组之间的血肌酐、PLR和其他参数比较均没有差异。

2.3 不同qSOFA评分患者的死亡率

将qSOFA＜2分的患者分为a组,将qSOFA≥ 2分的患者分为b组,b组死亡率(53.3 %)显著高于a组(35.7 %)(P=0.033),见表3。

2.4 患者生存状态的多因素分析

以是否死亡为因变量，以表1中A组与B组有差异的参数(收缩压、舒张压、GCS、血尿素氮和qSOFA)为自变量,进行二项Logistic回归分析,结果显示qSOFA为30天内死亡的独立危险因素(OR=2.871,P=0.004),见表4。

3 讨论

脓毒症和脓毒性休克在全世界范围内均是死亡率很高且治疗费用很高的疾病[1]。老年脓毒症患者的临床特征年轻患者不同[10]。本研究主要探讨了PLR、乳酸及其他指标能否用于诊断脓毒症,及患者30天死亡率的独立危险因素。结果显示存活组与死亡组的PLR和乳酸水平比较均没有显著差异，但两组患者的qSOFA不同,不同qSOFA的患者死亡率不同,且qSOFA是30天内死亡的独立危险因素。

Safari的研究表明在急诊室确诊的脓毒症或者脓毒性休克的患者30天死亡率为51.43 %，这些患者的年龄为68.36± 18.62[11]。Chen通过评估qSOFA、CRB-65和CRB在肺炎中的预测性能,发现28天的死亡率为33 %[12]。本研究中,患者30

天死亡率为 44.8 %，和上述结果相似，33.1 %的患者需要机械通气，Safari 的研究中需要机械通气的患者比例为 32.6 %[13]。Bhat 报道了诊断为严重脓毒症的患者中有 41.5 %需要机械通气[14]，Dettmer 同样报道了在急诊室中需要机械通气的患者比例为 39.9 %[15]。

表 2 A组与 B 组参数比较

Table 2 Comparison of the parameters between group A and group B

Parameters	Group A(n=80)	Group B(n=65)	P value
Diastolic pressure(mmHg)	71.36± 22.41	61.34± 20.65	0.003
Systolic pressure(mmHg)	130.21± 36.12	110.25± 38.42	0.002
GCS(score)	14.3± 2.1	12.7± 1.8	＜0.001
Blood urea nitrogen(mg/dl)	26.2± 7.6	47.6± 10.1	＜0.001
qSOFA(score)	1.73± 0.32	2.21± 0.41	＜0.001
Age(year)	81.9± 7.8	82.1± 7.9	0.879
Gender(Female,%)	42, 52.5	37, 56.9	0.595
Breathing frequency(/min)	22.1± 7.1	23.7± 7.6	0.193
Body temperature(℃)	36.9± 1.0	37.1± 1.1	0.254
Heart rate(/min)	99.8± 23.5	103.7± 24.1	0.328
SpO_2(%)	85.7± 12.7	83.8± 11.9	0.358
Creatinine(mg/dl)	140.7± 21.7	145.9± 23.7	0.171
Blood sodium(mmol/L)	135.3± 10.7	136.7± 11.1	0.442
Blood potassium(mmol/L)	4.31± 0.78	4.41± 0.73	0.431
Hemoglobin (g/dL)	12.79± 2.56	12.34± 2.76	0.322
White blood cells (thousands/μL)	12.37± 7.12	13.64± 7.03	0.285
Platelets (thousands/μL)	212.00± 97.65	215.81± 98.67	0.816
Neutrophils (thousands/μL)	10.17± 6.47	11.87± 7.12	0.135
Lymphocytes (thousands/μL)	0.94± 0.51	0.97± 0.54	0.732
Blood lactate (mmol/L)	1.97± 0.86	2.26± 0.98	0.060
PLR	204.7± 74.8	189.6± 63.4	0.198

表 3 a 组与 b 组死亡率的比较

Table 3 Comparison of the mortality rate between group a and group b

Living status	Group a (n, %)	Group b (n, %)	P value
Death	25, 35.7	40, 53.3	0.033
Survival	45, 64.3	35, 46.7	

表 4 Logistic 回归分析结果

Table 4 Logistic regression analysis results

Parameters	B value	SE	Wals	P value	Exp(B)
qSOFA	1.055	0.365	8.326	0.004	2.871
Systolic pressure	0.012	0.018	0.441	0.507	1.012
Diastolic pressure	0.150	0.180	0.691	0.406	1.162
GCS	0.286	0.615	0.215	0.643	1.331
Blood urea nitrogen	1.368	0.886	2.388	0.122	3.927

Note: P-value is the result of comparative analysis between group A and group B.

Valencia 也报道了＞65 岁且诊断为脓毒症的患者在急诊室中，存活的患者平均动脉压高于死亡的患者[10]。脓毒症或脓毒性休克的患者由于炎性因子的大量释放，引起血管通透性的增加及血管对缩血管的敏感性降低，引起血压下降，血压下降

后减少了心、肾、脑及外周血管的氧供,造成组织缺氧。故存活的患者血压往往较死亡者更高。本研究中,存活组与死亡组的收缩压与舒张压具有显著差异,且两组患者的 GCS 评分和血尿素氮水平不同。Nowak 研究了在急诊室诊断为脓毒症的患者,发现低死亡率和高死亡率的患者血尿素氮水平没有统计学差异,我们的结果与上述结果不同有可能是因为两个研究纳入的人群不同,Nowak 研究的人群为 <65 岁的患者[16]。在另外一个和我们设计相似的研究中,Uluöz 发现死亡患者的 GCS (10.36± 4.9)评分显著低于存活的病人(13.6± 2.5)[17],和我们的研究结果一致。

肺部感染和泌尿系统感染是脓毒症最常见的病因[18,19]。最常见的三个合并症是高血压(62.1 %)、冠心病(29.0 %)和糖尿病(27.6 %)。Logoglu 发现急诊室中>65 岁的患者最常见合并症分别是高血压(40.5 %)、冠心病(26.6 %)和糖尿病(22.4 %)[20],和我们的结果相似。抗菌药是在急诊室用于治疗最常用的药物(55.2 %),与我们的结果一致[21]。本研究中,死亡组 qSOFA 评分(2.21± 0.41)显著高于存活组(1.73± 0.32),qSOFA≥ 2 分的患者死亡率(53.3 %)显著高于 qSOFA<2 分(35.7 %)的患者,qSOFA 与死亡率存在显著的正相关。此外,qSOFA 评分是死亡率的独立危险因素。Wang 对 477 例急诊患者的 qSOFA 评分进行分析,发现存活组与死亡组的 qSOFA 评分显著不同[22]。Singer 的研究发现 qSOFA 评分与住院率、住院时间和住院期间死亡率呈现显著正相关[23]。我们认为感染越重的患者,组织缺氧和酸中毒就越重,更易出现休克、血压下降和呼吸急促,故 qSOFA 评分往往就更高。Zencir 发现在致死性感染心内膜炎的患者中 PLR 升高[24]。然而 Duman 发现在脓毒症、脓毒性休克和严重的脓毒症之间 PLR 没有差异(P=0.737),在存活和死亡的病人中也没有发现 PLR 有任何差异(P=0.336)[25]。虽然 PLR 被认为是一个经济且易获得的感染指标,但是我们和 Duman 的研究均没有发现死亡和存活的患者 PLR 有差异。在未来的研究中,仍需要更多研究 PLR 与感染及愈后的关系。

此外,我们还发现存活组与死亡组之间的初次检验的乳酸值没有统计学差异。Varis 发现入院时乳酸 >2 mmol/L 的患者 90 天死亡率大于乳酸 <2 mmol/L 的患者,但是作者发现入院时的乳酸值不是死亡率的独立危险因素[26]。结合我们的研究结果,我们认为在病程中多次测量乳酸可能比入院时单次的乳酸测量更能预测患者的愈后。

总之,本研究结果表明 qSOFA 是老年脓毒症及脓毒性休克患者 30 天内死亡的的独立危险因素,应引起临床医生的足够重视。

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