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ABOUT COVER

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AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (*WJCC*, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

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Retrospective Study

Analysis of prognostic factors in patients with emergency sepsis

Xian-Li Ning, Min Shao

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Abstract

BACKGROUND

Emergency sepsis is a common and serious infectious disease, and its prognosis is influenced by a number of factors.

AIM

To analyse the factors influencing the prognosis of patients with emergency sepsis in order to provide a basis for individualised patient treatment and care. By retrospectively analysing the clinical data collected, we conducted a comprehensive analysis of factors such as age, gender, underlying disease, etiology and site of infection, inflammatory indicators, multi-organ failure, cardiovascular function, therapeutic measures, immune status and severity of infection.

METHODS

Data collection: Clinical data were collected from patients diagnosed with acute sepsis, including basic information, laboratory findings, medical history and treatment options. Variable selection: Variables associated with prognosis were selected, including age, gender, underlying disease, etiology and site of infection, inflammatory indicators, multi-organ failure, cardiovascular function, treatment measures, immune status and severity of infection. Data analysis: The data collected are analysed using appropriate statistical methods such as multiple regression analysis and survival analysis. The impact of each factor on prognosis was assessed according to prognostic indicators, such as survival, length of stay and complication rates.

RESULTS

Descriptive statistics: Descriptive statistics were performed on the data collected from the patients, including their basic characteristics and clinical presentation.

CONCLUSION

Type 2 diabetes mellitus were independent factors affecting the prognosis of patients with sepsis.

Key Words: Platelet count; Length of ICU stay; Mechanical ventilation; Abdominal infection; Combined coronary artery disease

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Core Tip: Age, gender, underlying disease, etiology and site of infection, inflammatory indicators, multi-organ failure, cardiovascular function, therapeutic measures, immune status, and severity of infection are important factors influencing the prognosis of emergency sepsis patients.

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INTRODUCTION

Sepsis is a life-threatening condition caused by a dysregulated host response to infection resulting in organ dysfunction and is a common high mortality syndrome[1-5]. With the treatment of underlying infections, optimisation of organ perfusion is the mainstay of sepsis treatment, including the use of intravenous fluids and antihypertensive agents. The heart is one of the key organs involved in sepsis, and myocardial injury and cardiac insufficiency including diastolic and/or systolic dysfunction often occurs in patients with sepsis and is a significant cause of death in septic patients[6,7]. Diastolic dysfunction in sepsis is associated with fluid resuscitation in septic patients, and elevated left ventricular filling pressures are strongly associated with mortality[8,9]. With the development of haemodynamic monitoring and cardiac ultrasound technology, the American Society of Echocardiography revised the definition of diastolic dysfunction in 2009, but operational measurement is often difficult due to the complexity of its measurement and the frequent occurrence of arrhythmias such as tachycardia or atrial fibrillation in critically ill patients. The ratio of peak early mitral diastolic flow velocity to early mitral annular diastolic motion velocity (E/e') is commonly used to reflect elevated left heart filling pressures and is easily measured in critically ill patients. Based on a simplified classification of diastolic function in sepsis [10], the aim of this study was to investigate the factors that influence the prognosis of patients with sepsis according to their clinical characteristics and to provide a theoretical basis for the prognosis of patients with sepsis. It is reported as follows.

Age: Age is an important prognostic factor, with older patients usually having a poorer prognosis. **Gender:** Gender may have an impact on prognosis, as women usually have a better prognosis than men. **Underlying disease:** Patients with some chronic diseases (*e.g.* diabetes, heart disease, kidney disease, *etc.*) usually have a poorer prognosis[11-17]. **Etiology and site of infection:** Different sites and causes of infection may have different prognostic implications. Certain sites of infection (*e.g.* bloodstream infection) may have a poorer prognosis. **Inflammatory indicators:** Abnormal levels of inflammatory indicators (*e.g.* C-reactive protein, white blood cell count, calcitoninogen, *etc.*) are associated with prognosis. Higher inflammatory markers are usually associated with a poorer prognosis. **Multi-organ failure:** Multi-organ failure is one of the complications of severe sepsis and has a significant impact on prognosis[18-26]. **Cardiovascular function:** Instability of cardiovascular function is associated with prognosis. Hypotension and arrhythmias may predict a poorer prognosis. **Therapeutic measures:** Early and appropriate therapeutic measures, such as antibiotic therapy and haemodynamic support, are essential for prognosis. **Immune status:** Patients with impaired immune function (*e.g.* immunosuppressant users, HIV-infected patients, *etc.*) usually have a poorer prognosis. **Severity of infection:** The severity of the infection and the level of sepsis scoring systems (*e.g.* SOFA score, APACHE II score) are associated with prognosis. These are only some of the possible factors, and the specific influences will also depend on the study design, patient sample and data availability. When conducting specific analyses, statistical methods such as multiple regression analysis and survival analysis can be used to determine which factors have the most significant impact on prognosis.

MATERIALS AND METHODS

General information

Retrospective analysis of the clinical data of 102 patients with sepsis in the emergency care unit [collectively referred to as intensive care unit (ICU)] of our hospital from May 2018 to April 2023. (1) Inclusion criteria: Meeting the latest diagnostic criteria of sepsis 3.0 promulgated by the American Society of Critical Care Medicine and the European Society of Critical Care Medicine in 2016, with a SOFA score ≥ 2 (a baseline SOFA score of 0 was suspiciously assumed for patients with unknown underlying organ dysfunction); and (2) Exclusion criteria: (1) those who died of disease within 48 h of diagnosis

of sepsis and septic shock; (II) acute coronary syndrome, malignant arrhythmias; (III) unclear ultrasound images; (IV) advanced malignancy; and (V) post-cardiopulmonary resuscitation. Patients were divided into a death group and a survival group according to their clinical outcome in hospital. The study was approved by the hospital ethics committee.

Methodology

Clinical data such as age, gender, body mass index, comorbidities, laboratory tests such as white blood cell count, platelet count, blood creatinine value, blood potassium, glutamate transaminase, classification of the source of infection, duration of ICU stay, acute physiology and chronic health evaluation (APACHE II), sequential organ failure (SOFA) score, and the application of tissue Doppler imaging to determine peak mitral valve diastolic velocity (E) and mitral annular diastolic velocity (SOFA). APACHE II, sequential organ failure (SOFA) score and the use of tissue Doppler imaging to determine peak mitral valve early diastolic flow velocity (E), early mitral annular motion velocity (e') and E/e'.

Observation indicators

The clinical data of the patients were analysed and classified according to their cardiac function as normal cardiac function, abnormal systolic function (LVEF < 50%), diastolic dysfunction, and systolic and diastolic dysfunction. Diastolic dysfunction is graded according to the simplified method: $e' < 8$ and E/e' . Diastolic dysfunction grade I: $e' < 8$ and $E/e' \leq 8$, diastolic dysfunction grade II: $e' < 8$ and $8 < E/e' < 13$, diastolic dysfunction grade III: $e' < 8$ and $E/e' \geq 13$. Analyse the factors affecting the prognosis of patients with sepsis.

Statistical treatment

SPSS 25.0 software was used for statistical analysis of the data obtained. The measurement data conforming to normal distribution were expressed as (mean \pm SD) and compared by *t*-test; the measurement data conforming to non-normal distribution were expressed as M(P25, P75) and the rank sum test was used for comparison between groups. Statistical data were expressed as rates (%), and comparisons were made using the χ^2 test. Variables with statistically significant differences in univariate analysis were introduced into a binary logistic regression model for multivariate analysis. Differences were considered statistically significant at $P < 0.05$.

RESULTS

Analysis of the patient's clinical data

The study included 102 patients with sepsis, 60 males and 62 females; age 30-87 years, mean (61.69 ± 8.78) years; 63 patients were mechanically ventilated by tracheal intubation; APACHE II score 16-33, mean (24.38 ± 3.20); SOFA score 7-17, mean (12.27 ± 1.95) points. There were 46 cases in the death group and 56 cases in the survival group.

Univariate analysis of factors

Affecting the prognosis of septic patients comparing E, e', platelet count, creatinine maximum, SOFA score, ICU length of stay, cardiac function classification, abdominal infection, mechanical ventilation, type 2 diabetes and coronary artery disease in both groups were statistically significant ($P < 0.05$), Tables 1-3.

Multi-factor analysis of variables

Affecting the prognosis of patients with sepsis Multi-factor analysis of variables that were significant in the univariate analysis was performed, where E, platelet count, duration of ICU stay, abdominal infection, mechanical ventilation, type 2 diabetes and coronary heart disease were independent influencing factors on the death of patients with sepsis ($P < 0.05$), Table 4.

DISCUSSION

Myocardial injury due to sepsis was previously thought to refer specifically to myocardial systolic dysfunction; however, recent studies have shown that myocardial injury in sepsis can manifest as different types of cardiac dysfunction, such as left ventricular diastolic dysfunction, left ventricular systolic dysfunction, and that the different types of cardiac dysfunction can coexist with each other. Both left ventricular diastolic dysfunction and systolic dysfunction are predictors of mortality in patients with sepsis compared with patients with normal cardiac function[27-31]. The author classified diastolic dysfunction into classes I, II and III based on a simplified classification of diastolic function in sepsis, based on the E/e' ratio. This is more consistent with previous studies reported.

There are limited invasive methods of measuring cardiac diastolic function in patients with sepsis. e'/e' correlates well with left ventricular end-diastolic pressure in patients with sepsis[32-35]. In this study, a univariate analysis of cardiac function grading revealed a statistically significant difference ($P < 0.05$) when comparing cardiac function grading between the surviving and deceased groups, but a multifactorial logistic regression analysis failed to show a statistically significant difference, a study that appears to contradict the results of recent studies. The author considers that the reasons for the inconsistent findings may be related to the small sample size of this study, case selection bias, timing of cardiac ultrasound assessment, simplified version of the diastolic function definition, and treatment received.

Table 1 Univariate analysis of factors affecting the breath parameters of patients

Group	Left ventricular end-diastolic internal diameter (mm)	Left ventricular end-systolic internal diameter (mm)	E (m/s)	E/e'	e' (cm/s)
Survival group (<i>n</i> = 56)	49.30 ± 3.57	33.78 ± 3.43	0.84 (0.67, 1.08)	8.67 (7.25, 11.56)	8.87 ± 2.37
Death group (<i>n</i> = 46)	49.03 ± 3.37	34.17 ± 3.44	0.79 (0.63, 1.01)	8.85 (6.92, 11.50)	8.41 ± 2.48
<i>t</i> / <i>Z</i> / <i>X</i> ² values	0.84	1.23	2.48	0.05	2.10
<i>P</i> value	> 0.05	> 0.05	< 0.05	> 0.05	< 0.05

Table 2 Univariate analysis of factors affecting the fundamental factor of patients

Group	Age (yr)	Body mass index (kg/m ²)	White blood cell count (×10 ⁹ /L)	Platelet count (×10 ⁹ /L)	Admission creatinine (mg/dL)
Survival group (<i>n</i> = 56)	61.96 ± 8.16	24.92 ± 3.15	14.70 ± 3.58	179.43 ± 53.19	0.88 (0.68, 1.13)
Death group (<i>n</i> = 46)	61.31 ± 9.60	24.68 ± 3.36	14.57 ± 3.40	169.55 ± 49.70	0.94 (0.70, 1.20)
<i>t</i> / <i>Z</i> / <i>X</i> ² values	0.78	0.82	0.41	2.09	1.50
<i>P</i> value	> 0.05	> 0.05	> 0.05	< 0.05	> 0.05

Table 3 Univariate analysis of factors affecting the blood system parameters of patients

Group	Creatinine maximum (mg/dL)	Blood potassium (mmol/L)	Glutathione transaminase (U/L)	Lactic acid (mg/dL)	SOFA score (Points)
Survival group (<i>n</i> = 56)	1.43 (0.93, 2.18)	4.75 ± 0.63	34.00 (26.00, 43.00)	51.88 (39.39, 78.79)	12.12 ± 1.87
Death group (<i>n</i> = 46)	1.67 (1.12, 2.67)	4.76 ± 0.58	34.00 (25.00, 44.75)	53.80 (39.39, 71.82)	12.48 ± 2.04
<i>t</i> / <i>Z</i> / <i>X</i> ² values	2.88	0.16	0.61	0.64	2.00
<i>P</i> value	< 0.05	> 0.05	> 0.05	> 0.05	< 0.05

Table 4 Multifactorial analysis affecting the prognosis of patients with sepsis

Factors	B	S.E.	Wald values	<i>P</i> value	OR value	95%CI
E	-1.949	0.769	6.416	0.011	0.142	0.032, 0.643
Platelet count	-0.005	0.003	4.440	0.035	0.994	0.989, 0.999
Abdominal infection	0.788	0.288	7.499	0.006	2.200	1.251, 3.868
Mechanical ventilation	3.481	0.305	130.130	0.000	32.491	17.866, 59.089
ICU length of stay	-0.082	0.020	16.925	0.000	0.921	0.886, 0.958
Type 2 diabetes	0.783	0.391	4.001	0.045	2.187	1.016, 4.708
Coronary heart disease	1.727	0.682	6.421	0.011	5.624	1.479, 21.387

ICU: Intensive care unit.

CONCLUSION

The results of this study showed that E, platelet count, days of ICU stay, abdominal infection, mechanical ventilation, type 2 diabetes mellitus and coronary heart disease were independent factors influencing death in patients with sepsis (*P* < 0.05). Patients in the survivor group had longer ICU stays than those in the death group, and the analysis may be

related to factors such as receiving haemodialysis. Small retrospective studies suggest that early initiation of continuous renal replacement therapy may improve clinical acute kidney injury in septic patients.

ARTICLE HIGHLIGHTS

Research background

Emergency sepsis is a common and serious infectious disease, and its prognosis is influenced by a number of factors.

Research motivation

The aim of this study was to analyse the factors influencing the prognosis of patients with emergency sepsis in order to provide a basis for individualised patient treatment and care. By retrospectively analysing the clinical data collected.

Research objectives

We conducted a comprehensive analysis of factors such as age, gender, underlying disease, etiology and site of infection, inflammatory indicators, multi-organ failure, cardiovascular function, therapeutic measures, immune status and severity of infection.

Research methods

Clinical data were collected from patients diagnosed with acute sepsis, including basic information, laboratory findings, medical history and treatment options. Variable selection: Variables associated with prognosis were selected, including age, gender, underlying disease, etiology and site of infection, inflammatory indicators, multi-organ failure, cardiovascular function, treatment measures, immune status and severity of infection. Data analysis: The data collected are analysed using appropriate statistical methods such as multiple regression analysis and survival analysis. The impact of each factor on prognosis was assessed according to prognostic indicators, such as survival, length of stay and complication rates.

Research results

Descriptive statistics were performed on the data collected from the patients, including their basic characteristics and clinical presentation.

Research conclusions

Type 2 diabetes mellitus were independent factors affecting the prognosis of patients with sepsis.

Research perspectives

The impact of each factor on prognosis was assessed according to prognostic indicators, such as survival, length of stay and complication rates.

FOOTNOTES

Author contributions: These authors contributed equally to this work.

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REFERENCES

- 1 **Gaieski DF**, Edwards JM, Kallan MJ, Carr BG. Benchmarking the incidence and mortality of severe sepsis in the United States. *Crit Care Med* 2013; **41**: 1167-1174 [PMID: [23442987](#) DOI: [10.1097/CCM.0b013e31827c09f8](#)]
- 2 **Brown SM**, Pittman JE, Hirshberg EL, Jones JP, Lanspa MJ, Kuttler KG, Litwin SE, Grissom CK. Diastolic dysfunction and mortality in early severe sepsis and septic shock: a prospective, observational echocardiography study. *Crit Ultrasound J* 2012; **4**: 8 [PMID: [22870900](#) DOI: [10.1186/2036-7902-4-8](#)]
- 3 **Sanfilippo F**, Corredor C, Fletcher N, Landesberg G, Benedetto U, Foex P, Cecconi M. Erratum to: Diastolic dysfunction and mortality in septic patients: a systematic review and meta-analysis. *Intensive Care Med* 2015; **41**: 1178-1179 [PMID: [25851394](#) DOI: [10.1007/s00134-015-3799-9](#)]
- 4 **Ritzema JL**, Richards AM, Crozier IG, Frampton CF, Melton IC, Doughty RN, Stewart JT, Eigler N, Whiting J, Abraham WT, Troughton RW. Serial Doppler echocardiography and tissue Doppler imaging in the detection of elevated directly measured left atrial pressure in ambulant subjects with chronic heart failure. *JACC Cardiovasc Imaging* 2011; **4**: 927-934 [PMID: [21920328](#) DOI: [10.1016/j.jcmg.2011.07.004](#)]
- 5 **Lanspa MJ**, Gutsche AR, Wilson EL, Olsen TD, Hirshberg EL, Knox DB, Brown SM, Grissom CK. Application of a simplified definition of diastolic function in severe sepsis and septic shock. *Crit Care* 2016; **20**: 243 [PMID: [27487776](#) DOI: [10.1186/s13054-016-1421-3](#)]
- 6 **Fleischmann C**, Thomas-Rueddel DO, Hartmann M, Hartog CS, Welte T, Heublein S, Dennler U, Reinhart K. Hospital Incidence and Mortality Rates of Sepsis. *Dtsch Arztebl Int* 2016; **113**: 159-166 [PMID: [27010950](#) DOI: [10.3238/arztebl.2016.0159](#)]
- 7 **Angus DC**, Linde-Zwirble WT, Lidicker J, Clermont G, Carcillo J, Pinsky MR. Epidemiology of severe sepsis in the United States: analysis of incidence, outcome, and associated costs of care. *Crit Care Med* 2001; **29**: 1303-1310 [PMID: [11445675](#) DOI: [10.1097/00003246-200107000-00002](#)]
- 8 **Iba T**, Thachil J. Present and future of anticoagulant therapy using antithrombin and thrombomodulin for sepsis-associated disseminated intravascular coagulation: a perspective from Japan. *Int J Hematol* 2016; **103**: 253-261 [PMID: [26588929](#) DOI: [10.1007/s12185-015-1904-z](#)]
- 9 **Iba T**, Yamada A, Hashiguchi N, Nagaoka I. New therapeutic options for patients with sepsis and disseminated intravascular coagulation. *Pol Arch Med Wewn* 2014; **124**: 321-328 [PMID: [24732306](#) DOI: [10.20452/pamw.2299](#)]
- 10 **Shankar-Hari M**, Phillips GS, Levy ML, Seymour CW, Liu VX, Deutschman CS, Angus DC, Rubenfeld GD, Singer M; Sepsis Definitions Task Force. Developing a New Definition and Assessing New Clinical Criteria for Septic Shock: For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA* 2016; **315**: 775-787 [PMID: [26903336](#) DOI: [10.1001/jama.2016.0289](#)]
- 11 **Howell MD**, Davis AM. Management of Sepsis and Septic Shock. *JAMA* 2017; **317**: 847-848 [PMID: [28114603](#) DOI: [10.1001/jama.2017.0131](#)]
- 12 **Rudd KE**, Johnson SC, Agesa KM, Shackelford KA, Tsoi D, Kievlan DR, Colombara DV, Ikuta KS, Kissoon N, Finfer S, Fleischmann-Struzek C, Machado FR, Reinhart KK, Rowan K, Seymour CW, Watson RS, West TE, Marinho F, Hay SI, Lozano R, Lopez AD, Angus DC, Murray CJL, Naghavi M. Global, regional, and national sepsis incidence and mortality, 1990-2017: analysis for the Global Burden of Disease Study. *Lancet* 2020; **395**: 200-211 [PMID: [31954465](#) DOI: [10.1016/S0140-6736\(19\)32989-7](#)]
- 13 **Zhao L**, Yang J, Zhou C, Wang Y, Liu T. A novel prognostic model for predicting the mortality risk of patients with sepsis-related acute respiratory failure: a cohort study using the MIMIC-IV database. *Curr Med Res Opin* 2022; **38**: 629-636 [PMID: [35125039](#) DOI: [10.1080/03007795.2022.2038490](#)]
- 14 **Ren Y**, Zhang L, Xu F, Han D, Zheng S, Zhang F, Li L, Wang Z, Lyu J, Yin H. Risk factor analysis and nomogram for predicting in-hospital mortality in ICU patients with sepsis and lung infection. *BMC Pulm Med* 2022; **22**: 17 [PMID: [34991569](#) DOI: [10.1186/s12890-021-01809-8](#)]
- 15 **Sun Q**, Li N, Jia L, Guo W, Jiang H, Liu B, Bao C, Liu M, Huang J, Lei L. Ribosomal Protein SA-Positive Neutrophil Elicits Stronger Phagocytosis and Neutrophil Extracellular Trap Formation and Subdues Pro-Inflammatory Cytokine Secretion Against *Streptococcus suis* Serotype 2 Infection. *Front Immunol* 2020; **11**: 585399 [PMID: [33603733](#) DOI: [10.3389/fimmu.2020.585399](#)]
- 16 **Cheung WK**, Chau LS, Mak II, Wong MY, Wong SL, Tiwari AF. Clinical management for patients admitted to a critical care unit with severe sepsis or septic shock. *Intensive Crit Care Nurs* 2015; **31**: 359-365 [PMID: [26292920](#) DOI: [10.1016/j.iccn.2015.04.005](#)]
- 17 **Rhee C**, Zhang Z, Kadri SS, Murphy DJ, Martin GS, Overton E, Seymour CW, Angus DC, Dantes R, Epstein L, Fram D, Schaaf R, Wang R, Klompas M; CDC Prevention Epicenters Program. Sepsis Surveillance Using Adult Sepsis Events Simplified eSOFA Criteria Versus Sepsis-3 Sequential Organ Failure Assessment Criteria. *Crit Care Med* 2019; **47**: 307-314 [PMID: [30768498](#) DOI: [10.1097/CCM.0000000000003521](#)]
- 18 **Corl KA**, Prodromou M, Merchant RC, Gareen I, Marks S, Banerjee D, Amass T, Abbasi A, Delcombre C, Palmisciano A, Aliotta J, Jay G, Levy MM. The Restrictive IV Fluid Trial in Severe Sepsis and Septic Shock (RIFTS): A Randomized Pilot Study. *Crit Care Med* 2019; **47**: 951-959 [PMID: [30985449](#) DOI: [10.1097/CCM.0000000000003779](#)]
- 19 **Seymour CW**, Rosengart MR. Bedside Ultrasonography for Diagnosis of Septic Shock--Reply. *JAMA* 2016; **315**: 89-90 [PMID: [26746467](#) DOI: [10.1001/jama.2015.15073](#)]
- 20 **Kierzkowska M**, Markowska K, Majewska A. Knowledge, Attitude and Practice Regarding *Staphylococcus pettenkoferi*. *Infect Dis Rep* 2022; **14**: 112-120 [PMID: [35200442](#) DOI: [10.3390/idr14010015](#)]
- 21 **Rhee C**, Dantes R, Epstein L, Murphy DJ, Seymour CW, Iwashyna TJ, Kadri SS, Angus DC, Danner RL, Fiore AE, Jernigan JA, Martin GS, Septimus E, Warren DK, Karcz A, Chan C, Menchaca JT, Wang R, Gruber S, Klompas M; CDC Prevention Epicenter Program. Incidence and Trends of Sepsis in US Hospitals Using Clinical vs Claims Data, 2009-2014. *JAMA* 2017; **318**: 1241-1249 [PMID: [28903154](#) DOI: [10.1001/jama.2017.13836](#)]
- 22 **Marik PE**, Linde-Zwirble WT, Bittner EA, Sahatjian J, Hansell D. Fluid administration in severe sepsis and septic shock, patterns and outcomes: an analysis of a large national database. *Intensive Care Med* 2017; **43**: 625-632 [PMID: [28130687](#) DOI: [10.1007/s00134-016-4675-y](#)]
- 23 **Fine N**, Tasevski N, McCulloch CA, Tenenbaum HC, Glogauer M. The Neutrophil: Constant Defender and First Responder. *Front Immunol* 2020; **11**: 571085 [PMID: [33072112](#) DOI: [10.3389/fimmu.2020.571085](#)]
- 24 **Ma F**, Chang X, Wang G, Zhou H, Ma Z, Lin H, Fan H. *Streptococcus Suis* Serotype 2 Stimulates Neutrophil Extracellular Traps Formation via Activation of p38 MAPK and ERK1/2. *Front Immunol* 2018; **9**: 2854 [PMID: [30581435](#) DOI: [10.3389/fimmu.2018.02854](#)]

- 25 **Iwashyna TJ**, Cooke CR, Wunsch H, Kahn JM. Population burden of long-term survivorship after severe sepsis in older Americans. *J Am Geriatr Soc* 2012; **60**: 1070-1077 [PMID: [22642542](#) DOI: [10.1111/j.1532-5415.2012.03989.x](#)]
- 26 **Wang L**, Chen X, Zhang H, Hong L, Wang J, Shao L, Chen G, Wu J. Comprehensive analysis of transient receptor potential channels-related signature for prognosis, tumor immune microenvironment, and treatment response of colorectal cancer. *Front Immunol* 2022; **13**: 1014834 [PMID: [36389750](#) DOI: [10.3389/fimmu.2022.1014834](#)]
- 27 **Stortz JA**, Mira JC, Raymond SL, Loftus TJ, Ozrazgat-Baslanti T, Wang Z, Ghita GL, Leeuwenburgh C, Segal MS, Bihorac A, Brumback BA, Mohr AM, Efron PA, Moldawer LL, Moore FA, Brakenridge SC. Benchmarking clinical outcomes and the immunocatabolic phenotype of chronic critical illness after sepsis in surgical intensive care unit patients. *J Trauma Acute Care Surg* 2018; **84**: 342-349 [PMID: [29251709](#) DOI: [10.1097/TA.0000000000001758](#)]
- 28 **Bouma S**. Diagnosing Pediatric Malnutrition. *Nutr Clin Pract* 2017; **32**: 52-67 [DOI: [10.1177/0884533616671861](#)]
- 29 **Levinson AT**, Casserly BP, Levy MM. Reducing mortality in severe sepsis and septic shock. *Semin Respir Crit Care Med* 2011; **32**: 195-205 [PMID: [21506056](#) DOI: [10.1055/s-0031-1275532](#)]
- 30 **Wong W**, Yim YM, Kim A, Cloutier M, Gauthier-Loiselle M, Gagnon-Sanschagrin P, Guerin A. Assessment of costs associated with adverse events in patients with cancer. *PLoS One* 2018; **13**: e0196007 [PMID: [29652926](#) DOI: [10.1371/journal.pone.0196007](#)]
- 31 **Kumar G**, Kumar N, Taneja A, Kaleekal T, Tarima S, McGinley E, Jimenez E, Mohan A, Khan RA, Whittle J, Jacobs E, Nanchal R; Milwaukee Initiative in Critical Care Outcomes Research (MICCOR) Group of Investigators. Nationwide trends of severe sepsis in the 21st century (2000-2007). *Chest* 2011; **140**: 1223-1231 [PMID: [21852297](#) DOI: [10.1378/chest.11-0352](#)]
- 32 **Seymour CW**, Gesten F, Prescott HC, Friedrich ME, Iwashyna TJ, Phillips GS, Lemeshow S, Osborn T, Terry KM, Levy MM. Time to Treatment and Mortality during Mandated Emergency Care for Sepsis. *N Engl J Med* 2017; **376**: 2235-2244 [PMID: [28528569](#) DOI: [10.1056/NEJMoa1703058](#)]
- 33 **Raith EP**, Udy AA, Bailey M, McGloughlin S, MacIsaac C, Bellomo R, Pilcher DV; Australian and New Zealand Intensive Care Society (ANZICS) Centre for Outcomes and Resource Evaluation (CORE). Prognostic Accuracy of the SOFA Score, SIRS Criteria, and qSOFA Score for In-Hospital Mortality Among Adults With Suspected Infection Admitted to the Intensive Care Unit. *JAMA* 2017; **317**: 290-300 [PMID: [28114553](#) DOI: [10.1001/jama.2016.20328](#)]
- 34 **Valik JK**, Ward L, Tanushi H, Johansson AF, Färnert A, Mogensen ML, Pickering BW, Herasevich V, Dalianis H, Henriksson A, Naclér P. Predicting sepsis onset using a machine learned causal probabilistic network algorithm based on electronic health records data. *Sci Rep* 2023; **13**: 11760 [PMID: [37474597](#) DOI: [10.1038/s41598-023-38858-4](#)]
- 35 **Green Corkins K**, Teague EE. Pediatric Nutrition Assessment. *Nutr Clin Pract* 2017; **32**: 40-51 [DOI: [10.1177/0884533616679639](#)]



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