

Here is the latest edition of the Sepsis Bulletin. The bulletin covers the latest information on sepsis and comes out fortnightly. Next edition is due 13 September 2018 (due to staff holidays). Older editions are available as pdfs on the Keeping Up To Date library guide (http://libguides.bodleian.ox.ac.uk/Keeping_up_to_date)

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SEPSIS BULLETIN

23 August 2018

Maternal, neonatal and paediatric sepsis

[Inadequate use of antibiotics and increase in neonatal sepsis caused by resistant bacteria related to health care assistance: a systematic review](#)

Silva A.C.B. et al

Braz J Infect Dis. 2018 Aug 17. pii: S1413-8670(18)30127-2.

Technologies and life support management have enhanced the survival of preterm infants. The immune system of newborns is immature, which contributes to the occurrence of healthcare-associated infections (HAI). The overlap of several conditions with neonatal sepsis and the difficulty of diagnosis and laboratory confirmation during this period result in a tendency to over-treat neonatal sepsis. The use of antimicrobial agents (ATM) is a risk factor for multidrug-resistant

Adult sepsis (cont.)

[Implementation of a whole of hospital sepsis clinical pathway in a cancer hospital: impact on sepsis management, outcomes and costs](#)

Thursky, K. et al

BMJ Open Qual 2018;7:e000355.

Infection and sepsis are common problems in cancer management affecting up to 45% of patients and are associated with significant morbidity, mortality and healthcare utilisation. Looks to develop and implement a whole of hospital clinical pathway for the management of sepsis (SP) in a specialised cancer hospital and to measure the impact on patient outcomes and healthcare utilisation.

bacterial infections. This work aimed to perform a systematic review of the relationship between inadequate use of ATM and increase in neonatal sepsis related to healthcare assistance, due to bacterial resistance.

[Effects of vitamin D on apoptosis of T-lymphocyte subsets in neonatal sepsis.](#)

Zheng, G. et al

Experimental and Therapeutic Medicine August 2018

Effect of vitamin D on apoptosis of peripheral blood T-lymphocyte subsets in treatment of neonatal sepsis was investigated. The results indicated that the prognosis of sepsis patients treated with vitamin D is improved, and the mechanism may be achieved by regulating T-lymphocyte subsets and inflammatory factors.

[Hypothermia: A Sign of Sepsis in Young Infants in the Emergency Department?](#)

Kasmire, K.E. et al

Pediatr Emerg Care. 2018 Aug 14. [Epub ahead of print]

Diagnosis of sepsis in young infants can be challenging due to the nonspecific signs, which can include hypothermia. Whether the presence of hypothermia in young infants should prompt evaluation for serious infection is unclear. The objectives were to measure the prevalence of serious infection among infants ≤ 60 days of age with hypothermia in the emergency department (ED) and determine other clinical features of hypothermic infants who have serious infection.

[Infants Born to Mothers with Clinical Chorioamnionitis: A Cross-Sectional Survey on the Use of Early-Onset Sepsis Risk Calculator and Prolonged Use of Antibiotics.](#)

Ayrapetyan, M. et al

Am J Perinatol. 2018 Aug 21. [Epub ahead of print]

Evaluates variations in practice for the management of neonates born to mothers with clinical chorioamnionitis. Shows that a large number of practitioners are using the neonatal EOS risk calculator for neonates born to mothers with chorioamnionitis. Despite a clear guideline from the Committee on Fetus and Newborn, almost 44% will treat healthy-appearing neonates born to mothers with chorioamnionitis with a prolonged course of antibiotics solely for abnormal CBC or CRP.

[Sepsis in the Obstetric Client.](#)

Adorno, M. et al.

Crit Care Nurs Clin North Am. 2018 Sep;30(3):415-422. Epub 2018 Jul 13.

[Mottling score and skin temperature in septic shock: Relation and impact on prognosis in ICU](#)

Ferraris, A. et al

PLoS ONE 13(8): e0202329.

Mottling score, defined by 5 areas over the knee is developed to evaluate tissue perfusion at bedside. Because of the subjective aspect of the score, we aimed to compare mottling score and skin temperature in septic shock with infrared thermography in ICU and the correlation to survival. Skin temperature measured with infrared thermography technology around the knee is lower when mottling sign is present and sign microcirculation alterations. This method, compared to standard mottling score is objective and allows data collections. However, this method failed to predict mortality in ICU patients.

[Blue light enhances bacterial clearance and reduces organ injury during sepsis.](#)

Lewis, A.J. et al

Crit Care Med. 2018 Aug;46(8):e779-e787. doi:

10.1097/CCM.0000000000003190.

The physiology of nearly all mammalian organisms are entrained by light and exhibit circadian rhythm. The data derived from animal studies show that light influences immunity, and these neurophysiologic pathways are maximally entrained by the blue spectrum. Here, we hypothesize that bright blue light reduces acute kidney injury by comparison with either bright red or standard, white fluorescent light in mice subjected to sepsis. To further translational relevance, we performed a pilot clinical trial of blue light therapy in human subjects with appendicitis. In conclusion modifying the spectrum of light may offer therapeutic utility in sepsis.

[Translational Sepsis Research: Spanning the Divide](#)

Lewis, A.J. et al

Critical Care Medicine: September 2018 - Volume 46 - Issue 9 - p 1497–1505

Our knowledge of the molecular mechanisms of sepsis has attained exponential growth. Yet, the pillars of its care remain antibiotics, fluid resuscitation, and physiologic support of failing organ systems. The inability to bring biologic breakthroughs to the bedside is not for lack of effort. Over 60 clinical trials of novel therapies, each heavily supported by the momentum of biologic data suggesting clinical utility, have been conducted and have failed to identify benefit. This mass of “negative” clinical data about an equally towering mound of knowledge of sepsis biology, which

Maternal sepsis is the third most common direct cause of maternal mortality following maternal hemorrhage and maternal hypertension. Undetected and poorly managed maternal infections can lead to sepsis, death, or disability for the mother and an increased likelihood of early neonatal infection and other adverse outcomes. When caring for obstetric patients, it is important to identify the stages of antepartum, intrapartum, and postpartum care. Sepsis occurs at any stage of obstetric care.

[Hit or Miss? A Review of Early-Onset Sepsis in the Neonate.](#)

Scheel, M. et al

Crit Care Nurs Clin North Am. 2018 Sep;30(3):353-362. Epub 2018 Jul 7. Review.

For the bedside nurse identifying at-risk neonates for development of early-onset sepsis is a challenge. The ambiguity of clinical presentation can easily be overlooked, resulting in delayed treatment of this vulnerable population. Adding to this dilemma is inconsistent implementation of screening criteria used by health providers to identify at-risk neonates, resulting in lost opportunities of early identification and treatment. This article discusses the current approach to and the nurse's role in early-onset sepsis.

Adult sepsis

[The prognostic performance of qSOFA for community-acquired pneumonia](#)

Tokioka, F. et al

Journal of Intensive Care 2018 6:46

Quick Sepsis-related Organ Failure Assessment (qSOFA) is a new screening system for sepsis. The prognostic performance of qSOFA for patients with suspected infections outside the intensive care unit (ICU) is similar to that of full SOFA; however, its performance for community-acquired pneumonia (CAP) has not yet been evaluated in detail. The objectives were to compare the prognostic performance of qSOFA with existing pneumonia severity scores and the pneumonia severity index (PSI), and examine its usefulness for predicting mortality and ICU admission in patients with CAP of high severity and mortality that requires hospitalization. The prognostic performance of qSOFA for in-hospital mortality and ICU admission was not significantly different from those of CURB-65 and PSI. qSOFA only requires a few items and vital signs, and, thus, may be particularly useful for emergency department or non-respiratory specialists.

collectively have led investigators to ask, "what happened?" Here, we present a synthetic review of some of the challenges in translating experimental animal models of sepsis to the bedside. We commence with the concept that the heterogeneity in the kinetics of the sepsis response serves as an important, often underappreciated but surmountable, source of translational impedance. Upon this groundwork, we discuss distinctions between animal experimentation and clinical trial design in the elements for hypothesis testing: cohort selection, power and sample size, randomization and blinding, and timing of intervention. From this concept, we develop a contextual framework for advancing the paradigm of animal-based investigations to facilitate science that transitions from molecule to medicine.

[CE: Managing Sepsis and Septic Shock](#)

Flynn Makic, M.B. et al

AJN, American Journal of Nursing. February 2018 - Volume 118 - Issue 2 - p 34–39

Sepsis is a leading cause of critical illness and hospital mortality. Early recognition and intervention are essential for the survival of patients with this syndrome. In 2002, the Society of Critical Care Medicine (SCCM) and the European Society of Intensive Care Medicine (ESICM) launched the Surviving Sepsis Campaign (SSC) to reduce overall patient morbidity and mortality from sepsis and septic shock by driving practice initiatives based on current best evidence. The SSC guidelines have been updated every four years, with the most recent update completed in 2016. The new guidelines have increased the focus on early identification of infection, risks for sepsis and septic shock, rapid antibiotic administration, and aggressive fluid resuscitation to restore tissue perfusion. This article discusses the new SSC treatment guidelines, changes in the sepsis bundle interventions, and the Sepsis-3 definitions and tools, all of which enable nurses to improve patient outcomes through timely collaborative action.

[Mortality Measures to Profile Hospital Performance for Patients With Septic Shock](#)

Walkey, A.J. et al

Crit Care Med. 2018 Aug;46(8):1247-1254

Sepsis care is becoming a more common target for hospital performance measurement, but few studies have evaluated the acceptability of sepsis or septic shock mortality as a potential performance measure. In the absence of a gold standard to identify septic shock in claims data, we assessed agreement and

[Analysis of peripheral blood lymphocyte subsets in critical patients at ICU admission: A preliminary investigation of their role in the prediction of sepsis during ICU stay.](#)

Frattari, A. et al

International Journal of Immunopathology and Pharmacology January 2018

A better knowledge of factors predicting the development of sepsis in patients hospitalized in intensive care unit (ICU) might help deploy more targeted preventive and therapeutic strategies. In addition to the known clinical and demographic predictors of septic syndromes, in this study, we investigated whether measuring T and B lymphocyte subsets upon admission in the ICU may help individualize the prediction of ensuing sepsis during ICU stay. Our data provide preliminary evidence that immune characterization of critically ill patients on ICU admission may help personalize the prediction of ensuing sepsis during their ICU stay. Further polycentric evaluation of the true potential of this new tool is warranted.

[Effect of Rosuvastatin on Acute Kidney Injury in Sepsis-Associated Acute Respiratory Distress Syndrome](#)

Hsu, R.K. et al

Can J Kidney Health Dis. 2018; 5: 2054358118789158.

Acute kidney injury (AKI) commonly occurs in patients with sepsis and acute respiratory distress syndrome (ARDS). Investigates whether statin treatment is protective against AKI in sepsis-associated ARDS. Concludes that treatment with rosuvastatin in patients with sepsis-associated ARDS did not protect against de novo AKI or worsening of pre-existing AKI.

stability of hospital mortality performance under different case definitions. Risk-standardized septic shock mortality rates varied considerably between hospitals, suggesting that septic shock is an important performance target. However, efforts to profile hospital performance were sensitive to septic shock case definitions, suggesting that septic shock mortality is not currently ready for widespread use as a hospital quality measure.

[Echocardiogram-guided resuscitation versus early goal-directed therapy in the treatment of septic shock: a randomized, controlled, feasibility trial](#)

Lanspa, M.J. et al

Journal of Intensive Care 2018 6:50

Echocardiography is often used to guide septic shock resuscitation, but without evidence for efficacy. We conducted an intensive care unit (ICU)-based randomized controlled feasibility trial comparing echocardiography-guided septic shock resuscitation (ECHO) with early goal-directed therapy (EGDT). No experimental separation was observed in this randomized, controlled feasibility trial. Early lactate clearance, coupled with substantial fluid administration before randomization, suggests that patients were already resuscitated before arrival in the ICU. Future trials of echocardiogram-guided sepsis resuscitation will likely need to enroll in the emergency department.

[Hospital sepsis deaths 'jump by a third'](#)

Bloch-Budzier, S.

BBC News 3 August 2018

Sepsis deaths recorded in England's hospitals have risen by more than a third in two years, according to data collected by a leading safety expert. In the year ending April 2017, there were 15,722 deaths in hospital or within 30 days of discharge, where sepsis was the leading cause.

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