

News Release Embargoed until Monday, September 10, 2018, 12:01 a.m. ET

Please credit CMAJ, not the Canadian Medical Association (CMA). CMAJ is an independent medical journal; views expressed do not necessarily reflect those of its owner, Joule Inc., a CMA company, or CMA.

■ SEPSIS

Sepsis issue:

- Patients with sepsis at higher risk of stroke, heart attack after hospital discharge**
- Acute critical illness increases risk of kidney complications and death**
- Smart technology to help diagnose sepsis in children in Canada —
PODCAST**

Patients with sepsis at higher risk of stroke, heart attack after hospital discharge

Patients with sepsis are at increased risk of stroke or myocardial infarction (heart attack) in the first 4 weeks after hospital discharge, according to a large Taiwanese study published in *CMAJ (Canadian Medical Association Journal)*.

Sepsis accounts for an estimated 8 million deaths worldwide, and in Canada causes more than half of all deaths from infectious diseases.

Researchers looked at data on more than 1 million people in Taiwan, of whom 42 316 patients had sepsis, matched with control patients in the hospital and the general population. All sepsis patients had at least one organ dysfunction, 35% were in the intensive care unit and 22% died within 30 days of admission. In the total group of patients with sepsis, 1012 had a cardiovascular event, 831 had a stroke and 184 had a myocardial infarction within 180 days of discharge from hospital. Risk was highest in the first 7 days after discharge, with more than one-quarter (26%) of myocardial infarction or stroke occurring in the immediate period and 51% occurring within 35 days.

“We found that within the first 4 weeks after discharge from hospital was the critical period with a markedly elevated risk of [myocardial infarction] and stroke,” writes Dr. Chien-Chang Lee, Department of Emergency Medicine, National Taiwan University Hospital, Taipei, Taiwan, with coauthors.

The authors also found that younger patients with sepsis aged 20 to 45 years were at higher risk of heart attack or stroke compared to patients over age 75.

This study extends the findings of a Danish study that reported similar trends.

“Based on our study (Han Chinese) and the study in Denmark (European) that reported similar findings for two different ethnic groups, it is likely that these results are generalizable to different populations,” write the authors.

They call for further validation of their findings in different populations.

MEDIA NOTE: Please use the following public links after the embargo lift:

Research: <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.171284>

“Susceptible period for cardiovascular complications in patients recovering from sepsis” is published September 10, 2018.

Acute critical illness increases risk of kidney complications and death

Acute critical illness in people without previous renal disease puts them at risk of kidney complications as well as death, according to a study published in *CMAJ (Canadian Medical Association Journal)*.

“[P]atients with acute critical illness without apparent underlying renal disease — a group traditionally considered to be at low risk of renal diseases — have clinically relevant long-term renal risks,” write Dr. Shih-Ting Huang and Dr. Chia-Hung Kao, Taichung Veterans General Hospital and China Medical University, Taichung, Taiwan, with coauthors.

Most studies have looked at patients with pre-existing kidney disease, while this study looked at data on 33 613 Taiwanese patients with critical acute illness and no pre-existing kidney disease compared with 63 148 controls for medium-term renal outcome. More than half the patients (53%) were over age 65 and two-thirds (67%) had high blood pressure. Patients who had experienced acute kidney illness were at increased risk of renal complications, developing chronic kidney disease and end-stage renal disease, with septicemia and septic shock being the strongest risk factors. Of the critically ill patients in the study, 335 developed end-stage renal disease, with a rate of 21 per 10 000 person-years compared with 4.9 per 10 000 person-years in the control group.

Patients who developed chronic kidney disease and end-stage renal disease were at a higher risk of death.

The authors suggest clinicians monitor kidney function at 30–90 days in patients with acute critical illness without preexisting renal disease and then at least yearly afterwards.

“Renal complications and subsequent mortality in acute critically ill patients without pre-existing renal disease” is published September 10, 2018.

MEDIA NOTE: Please use the following public links after the embargo lift:

Research: <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.171382>

Smart technology to help diagnose sepsis in children in Canada

Podcast pre-embargo link: <https://soundcloud.com/cmajpodcasts/180434-com/s-TZsi8>

Smart technology and artificial intelligence could be used to improve detection of sepsis in children in Canada, write authors of a commentary in *CMAJ (Canadian Medical Association Journal)*.

Canadian physicians do not often encounter children with sepsis, because pediatric sepsis in Canada is uncommon, unlike in developing countries. However, several recent deaths highlight the need for reliable, fast identification of early sepsis, as the condition can be lethal if not treated quickly.

“The optimal sepsis trigger tool needs to be rapid, objective, accurate and low cost; must easily integrate into the current workflow of a busy clinical setting; should require minimal training and require minimal additional effort; and offer a clear clinical benefit, particularly in community settings where the prevalence and clinical experience with sepsis is likely to be low,” writes Mark Ansermino, University of British Columbia and BC Children’s Hospital, Vancouver, BC, with coauthors.

The authors suggest that current smart technologies, like those used to program washing machines and automate medical imaging processing, could be utilized to automate data combinations of sepsis symptoms and other relevant information.

“The recognition and anticipation of sepsis represents an important opportunity for artificial intelligence to revolutionize health care, by optimizing algorithms to a degree of accuracy that would avoid alert fatigue and optimize efficiencies in work flow,” they write.

Better collection of patient outcome data and integration into medical records is needed.

“*We need smarter trigger tools for diagnosing sepsis in children in Canada*” is published September 10, 2018.

MEDIA NOTE: Please use the following public links after the embargo lift:

Commentary: <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.180434>

Podcast permanent link: <https://soundcloud.com/cmajpodcasts/180434-com>

Media contact: Jane Campbell, BC Children's Hospital, jcampbell@bcchr.ca

General media contact: Kim Barnhardt, Communications, *CMAJ*,
kim.barnhardt@cmaj.ca
[@CMAJ](#)

© 2018 Joule Inc. or its licensors | 1031 Bank St., Ottawa, ON, K1S 3W7, 866-971-9171

To modify or cancel your subscription to these email alerts, email

kim.barnhardt@cmaj.ca