



### New Study Ties Blood Infection Sepsis to Heart Attack and Stroke

A new study suggests that patients who are recovering from sepsis are at increased risk for experiencing a myocardial infarction (MI) or a stroke. The Centers for Disease Control and Prevention (CDC) defines sepsis (MS-DRGs 870, 871 and 872)<sup>1</sup> as the “body’s extreme response to an infection” which can lead to tissue and organ failure, and potentially death. In fact, it is a leading cause of death in the United States, with 1.7 million cases each year. 270,000 people die in the U.S. each year from sepsis, and one in three patient deaths in hospitals are attributable to it.<sup>2</sup>

The retrospective population-based cohort study was published on September 10, 2018, in the *Canadian Medical Association Journal*.<sup>3</sup> The researchers looked at 42,300 patients in Taiwan with sepsis, who were sourced from among one million patients in the Longitudinal Health Insurance Database between 2000 and 2011. The patients were identified using the National Health Insurance Research Database, which includes data from the country’s 23 million participants in its national health insurance program. All patients had at least one organ dysfunction, and 34.6 percent were admitted to an intensive care unit.

The researchers estimated risk by comparing a sepsis cohort to a matched population and hospital control cohort. Patients were identified using the ICD-9-CM<sup>4</sup> codes for an infectious process with at least one diagnosis of acute organ dysfunction. Of the cohort, within 180 days of discharge, 831 patients experienced a stroke, and 184 an MI.

Patients were most likely to experience either within the first week of discharge, and this risk decreased until the 28<sup>th</sup> day after discharge. 26 percent of cases occurred within the first week of discharge, and 51 percent occurred within 25 days. In addition, younger patients, particularly those aged between 20 and 45, were associated with a higher risk than older patients.

The researchers suggest that closer supervision and pharmacological prevention within the first four weeks may be of benefit to patients recovering from sepsis. Their observed critical period between 28 to 36 days after admission aligns with the findings of other studies. Additionally, patients who have recovered from sepsis are at a higher risk for short-term mortality (under 180 days) than long-term mortality.

The researchers point out the weaknesses of other similar studies and specify that the similarities between this study and one from Denmark<sup>5</sup> suggest that the results may be generalized to account for ethnic differences across patient populations. However, they recommend the study of additional patient populations. Finally, they specify limitations of the available data and the need to conduct randomized controlled trials in order to accurately portray the effectiveness of potential preventive measures.

<sup>1</sup> CMS, "Draft ICD-10-CM/PCS MS-DRGv32 Definitions Manual." [www.cms.gov/ICD10Manual/version32-fullcode-cms/fullcode\\_cms/P0326.html](http://www.cms.gov/ICD10Manual/version32-fullcode-cms/fullcode_cms/P0326.html)

<sup>2</sup> CDC, "What is sepsis?" [www.cdc.gov/sepsis/what-is-sepsis.html](http://www.cdc.gov/sepsis/what-is-sepsis.html)

<sup>3</sup> Canadian Medical Association Journal, <http://www.cmaj.ca/>

<sup>4</sup> Clinical modification of the International Classification of Diseases - 9<sup>th</sup> Edition

<sup>5</sup> Dalager-Pedersen et al. "Risk for myocardial infarction and stroke after community-acquired bacteremia: a 20-year population-based cohort study." *Circulation* 2014; 129:1387–96, <https://www.ahajournals.org/doi/full/10.1161/CIRCULATIONAHA.113.006699>

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