

Infection Tied to Higher Mortality in Pancreatitis

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Patients with acute pancreatitis who develop a hospital-acquired infection have significantly higher mortality and health care costs, as well as longer hospital stays, compared with similar patients without infection.

Using the Cardinal Health Clinical Outcomes Research Database (a large database that tracks information on hospitalized patients), Dr. Bechien U. Wu and colleagues identified 11,046 cases of acute pancreatitis at 177 hospitals between January 2004 and January 2005. Of those, 81 patients who developed a hospital-acquired infection (HAI) were each matched with 5 similar patients who did not have a HAI.

The HAI patients and the controls were propensity matched according to their likelihood to develop an infection.

The median age was 53 years in the larger cohort, 60 years in the control patients, and 63 years in the patients with HAI.

Mortality in the patients with HAI was 28%, compared with 11% in the 405 control patients and 1% in the overall acute pancreatitis population.

About half of the patients were men.

Mortality in the patients with HAI was 28%, compared with 11% in the 405 control patients and 1% in the overall acute pancreatitis population, according to Dr. Wu of Harvard Medical School

and the division of gastroenterology at Brigham and Women's Hospital, both in Boston, and colleagues. Of the 150 deaths in the entire group of acute pancreatitis patients, 23 (15%) were in HAI patients.

Because HAI may be associated with other factors that could affect mortality, the researchers examined initial disease severity, organ failure, and invasive procedures performed in these patients. Compared with all acute pancreatitis patients, HAI patients had higher initial disease scores on the APACHE (Acute Physiology and Chronic Health Evaluation) II measure; had greater frequency of procedures that indicated organ failure, such as mechanical ventilation and hemodialysis; and more often received placement of central venous catheters and total parenteral nutrition. However, these differences were not significant when the HAI patients were compared with the control patients. Therefore, the authors concluded that the higher mortality was not the result of more severe disease in the HAI group (Clin. Gastroenterol. Hepatol. 2008 September [doi:10.1053/j.gastro.2008.05.053]).

Hospital-acquired infection was defined as "a localized or systemic infection resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that was not present or incubating at the time of hospital admission," they wrote.

One limitation was that all the infections in the study were catheter- or ventilator-associated HAI, and other types of HAI

were not investigated. In this study, catheter-associated urinary tract infections accounted for 36% of HAI, catheter-associated bloodstream infections accounted for 35%, ventilator-associated pneumonia accounted for 11%, and 16% of the infections occurred at multiple sites.

Mortality was highest (33%) for the nine patients with ventilator-associated pneumonia. The 31 patients with urinary tract infections had a mortality of 27%, and the 29 patients with bloodstream infections

had a mortality of 28%, they reported.

Mean length of hospital stay in the overall group was 5.6 days, compared with 13.1 days in the control acute pancreatitis patients and 34.5 days in the patients with HAI. The mean health care bill came to \$28,749 in the overall group, \$102,607 in control patients, and \$275,580 in HAI patients. These differences were significant.

Effective methods for reducing the incidence of HAI in acute pancreatitis patients have yet to be determined. In the only two

randomized, controlled studies to date, prophylactic antibiotics did not reduce extrapancreatic infection or mortality, the investigators said.

HAI is an independent contributor to worse outcomes in acute pancreatitis patients, and "aggressive efforts to reduce HAI may lead to significantly improved outcomes for patients with acute pancreatitis," Dr. Wu and colleagues concluded.

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The Office of the Surgeon General's Call to Action Against Deep Vein Thrombosis and Pulmonary Embolism

The high incidence of deep vein thrombosis (DVT) and pulmonary embolism (PE), collectively known as venous thromboembolism (VTE), has a devastating effect on patients and their families. The Surgeon General has announced a Call to Action to raise awareness about the risk factors and prevention of VTE.

"DVT/PE are major national health problems that have a dramatic, negative impact on the lives of hundreds of thousands of Americans each year."¹

Rear Admiral Steven K. Galson, MD, MPH, US Public Health Service, Acting Surgeon General

According to the Surgeon General's Call to Action, VTE is a major cause of morbidity and mortality among hospitalized patients.^{1,2} It is the third leading cause of cardiovascular death in the United States, following myocardial infarction and stroke.²

- There are up to 600,000 cases of DVT and PE annually, resulting in at least 100,000 deaths per year¹
- More annual deaths are attributed to VTE than breast cancer and AIDS combined³
- Many patients with VTE do not have any clinical signs or symptoms, with 25% of patients presenting with sudden death⁴

Even when accurately diagnosed, complications due to VTE can be long-standing and reduce quality of life, despite adequate treatment. The first step in reducing the incidence of DVT is to increase awareness among the public as well as health care providers about risk factors that may lead to DVT. By understanding patient risk factors, appropriate prophylaxis may be initiated.

"The majority of DVT/PE events are related to specific, identifiable triggering events..."¹

Partial list of risk factors associated with DVT and PE^{5,6}

- | | |
|-----------------------|--|
| • Restricted mobility | • Prior history of VTE (DVT and/or PE) |
| • Age >40 years | • Chronic lung disease |
| • ICU admission | • Inflammatory bowel disease |
| • Obesity | • Smoking |
| • Surgery | |
| • Varicose veins | |

Table 1. Partial list of risk factors. Clinicians are advised to consider other risk factors or conditions that may predispose to DVT/PE.

"Much is known today about how to prevent DVT/PE, and how to minimize the impact for those patients who suffer from these conditions. If this knowledge were applied consistently, the burden could be reduced substantially."¹

Advancing DVT Awareness

According to the American Public Health Association Deep-Vein Thrombosis Omnibus Survey, 74% of adults had very little or no awareness of DVT.⁷ Even among those mindful of DVT, 57% did not know of any risk factors associated with DVT. Surprisingly, 95% of respondents said their physician had never discussed the importance of DVT with them.⁷

Both patients and physicians must educate themselves about the dangers of DVT. It is important for health care providers to routinely assess DVT risk in hospitalized patients as well as screen high-risk patients more thoroughly. All hospitalized patients are at risk of developing DVT. Patients not receiving prophylaxis and undergoing certain general, urologic, gynecologic, or surgical procedures have a 15% to 40% risk of developing DVT.⁵ For hospitalized acutely ill medical patients, the risk is 10% to 20%. Patients having hip or knee arthroplasty are at even higher risk, 40% to 60% without prophylaxis.⁵ Given the high prevalence of DVT in hospitalized patients, all patients should periodically be risk assessed for DVT.

"Individuals, families, and their communities need to understand DVT and PE, the risk factors for these diseases, and how to reduce these risks."¹

DVT Prophylaxis Reduces the Incidence of DVT, Which May Lead to PE

The use of anticoagulation therapy has been shown to significantly reduce the risk of VTE by as much as 52%⁸; however, implementation and lack of appropriate prophylaxis in at-risk medical patients continue to be problematic,⁹ despite evidence-based DVT/PE guidelines (Table 2).

Please see a brief summary of prescribing information, including boxed WARNING, at the end of the article.