Low health literacy may be a risk factor for postoperative infection

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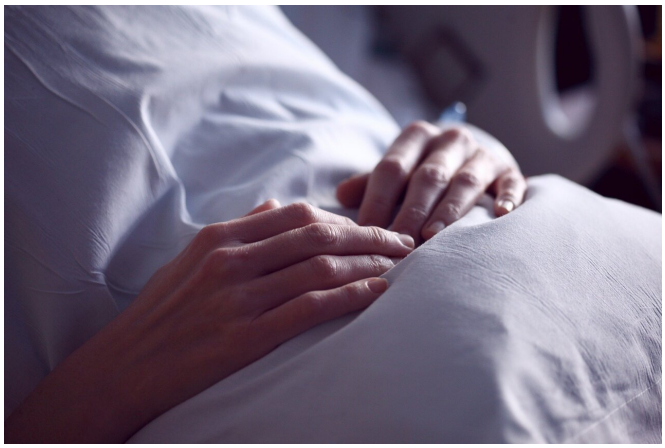

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Surgical patients are more likely to experience a postoperative infection if they have low health literacy, which is a limited capacity to understand and act on health information, according to results of a new study presented at the American College of Surgeons (ACS) 2020 Quality and Safety Conference VIRTUAL.

The study was performed by researchers at the University of Alabama at Birmingham (UAB) Hospital who looked at data from 270 patients undergoing colon and rectal operations. They found the odds of having an infectious complication within a month after the operation were 4.5 times higher in patients with low health literacy compared with patients whose health literacy was adequate.

"It's important to understand that patients with limited health literacy might be at higher risk for an infection after surgery, so we can start to understand why and design interventions and tools to better support those patients," said lead investigator Lauren Theiss, MD, a third-year surgical resident at UAB School of Medicine.

Low or limited health literacy is common among U.S. adults and may affect health outcomes in many ways, according to the government's Healthy People 2020. Although patient-level factors such as education, socioeconomic status, older age, and language and cultural barriers can contribute to low health literacy, the complexity of the health information that patients receive also contributes to the problem.

"For many patients, the surgical journey can be very confusing," said Daniel Chu, MD, FACS, a colorectal surgeon at UAB Medicine and the study's senior investigator.

Impact of study results

Dr. Chu said their research findings help fill the gaps in surgeons' knowledge about the relationship of low health literacy to surgical outcomes.

The authors of prior studies suggest that low health literacy is linked to a longer hospitalization and an increased rate of minor complications. Their new study findings, Dr. Theiss said, show that "some of the infections are very, very serious."

Infections ranged from pneumonia, septic shock, and deep-space infections inside the belly to superficial wound infections and urinary tract infections.

Infections are among the most common preventable postoperative complications, the Patient Safety Network reports.

Besides 30-day complications, the investigators collected data on the length of hospital stay, readmissions, and deaths recorded from 2018 to 2019 in the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database. The NSQIP database is the leading nationally validated, risk-adjusted, outcomes-based program to measure and improve

the quality of surgical care.

Using NSQIP data and medical records, the research team also studied patients' compliance rates with the hospital's enhanced recovery program (ERP). This program employs a collection of best practices that global research findings show improve surgical outcomes, Dr. Theiss said.

The researchers assessed health literacy using the four-question Brief Health Literacy Screening Tool. Among 270 patients, most (78.9 percent, or 213) had adequate health literacy, 38 patients (14.1 percent) had marginal health literacy, and 19 patients (7 percent) had low health literacy, the researchers reported.

Dr. Theiss said that there was a significant difference in the rate of infectious complications but no statistically significant difference in other complications or outcomes analyzed. Whereas postoperative infection occurred in 13.6 percent of patients with adequate health literacy, 36.8 percent of those with low health literacy had an infection postoperatively, according to the study abstract. After controlling for multiple factors that may influence infection rates, the researchers still found a higher risk of postoperative infection in patients with low health literacy (odds ratio, 4.49).

They were unable to determine from the dataset whether infections occurred in the hospital or at home after the patients left the hospital, she said.

Surprisingly, ERP compliance did not differ by health literacy level, including for preoperative bowel preparation, Dr. Theiss said. However, she explained that they studied the rate of prescription of bowel-emptying preparations, not patients' compliance with using the bowel preparation. If low health literacy patients have difficulty correctly taking the bowel preparation, it could place them at higher risk of infections after surgery.

Creating a health-literate surgical program

The UAB surgery department is working to improve surgical patient outcomes by "creating a more health-literate surgical program," Dr. Theiss said. "Our goal is not to modify a patient's health literacy, but modify the way that we interact and communicate with patients and provide them with health information."

They are creating this program in several ways, she said. They revised patient education and discharge materials to be more easily understandable and more visual. Also, through a patient engagement app, some patients receive helpful educational content and checklists throughout their surgical experience. With permission, the researchers are recording and studying patient-surgeon conversations during visits to find ways to teach providers how to better communicate with patients.

Furthermore, if patients do not understand the health information the surgeon has provided, they should communicate that to the provider, Dr. Theiss said. "But the burden should not be on the patient. As providers, we should interact with patients assuming they have limited health literacy. It's our responsibility to engage patients and make sure they understand what's being communicated to them."

Many health literacy toolkits are available, Dr. Chu said, and interventions can be as simple as a surgeon speaking more slowly and illustrating a surgical procedure by drawing it on a piece of paper.

"The beautiful thing about health literacy is that interventions can be done without a lot of money or new technologies," he said.

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