

Five Factors Seen To Help Guide Treatment Plan for C. Difficile

Chattanooga, Tenn.—*Clostridium difficile* infection (CDI) has become one of the most common nosocomial infections encountered by the clinician, but the development of treatment guidelines has been hindered by a lack of reliable and widely accepted severity prediction models.

Researchers at the University of Tennessee College of Medicine in Chattanooga, however, have identified five variables that may help develop a clinical prediction tool for guiding treatment decisions in severe cases: age older than 60 years, use of vasopressor agents at time of diagnosis, acute or chronic renal disease at time of diagnosis and albumin less than 3.0 g/dL.

“The surgical literature has shown early surgical intervention to lower mortality, but typically the operations in the most severe cases include a total abdominal colectomy, which is a very morbid procedure,” said Matthew Figh, MD, chief surgery resident at that institution, who presented the group’s results at the Southeastern Surgical Congress.

“We would like to identify and isolate the patients who would benefit from this. The ultimate question now is when is a case likely futile? A clinical prediction tool would be very useful in helping to identify those patients,” he said.

There are clinical prediction models currently available, but Dr. Figh and his colleagues believe they are of little help. “The main issue with them is that they use the ICU admission and surgical intervention as their end points. Since a clinical prediction tool is used to make treatment decisions based on an algorithm, it seems a circular argument to base your end points of that treatment,” he said. “These models are typically better at predicting who will do well, not who will do poorly.”

The primary objective of their study was to determine a combination of risk factors that would identify patients most likely to die with surgical intervention. The researchers examined data on 876 patients with CDI between 2003 and 2010, of whom 82 (9.3%) died. They conducted a complete chart review of 274 of those patients, including all deaths.

“We looked at 32 variables taken at the time of admission, the time of diagnosis of CDI and 48 hours after CDI diagnosis,” Dr. Figh said. Of those 32 variables, the five listed above emerged as being statistically significant and, in combination, predictive of mortality.

“Most of these are actually comorbidities, but our aim was to find risk factors associated with morbidity and mortality,” Dr. Figh said. The five variables “represent an overall deterioration of normal physiology, and they do not exist in a vacuum. We believe it is a combination of these factors [that determines] the overall severity.”

Dr. Figh concluded that defining the five variables, easy to identify at bedside, is the first step in his institution’s goal of creating a clinical prediction tool. “This will ultimately allow better classification of severity and help surgeons identify patients who would benefit from early surgical intervention. It will also help us identify patients who would benefit better from medical treatment and avoid the morbidity associated with aggressive treatments like total abdominal colectomy,” he said.

Denis W. Ashley, MD, Milford B. Hatcher Professor and chair of the Department of Surgery at Mercer University School of Medicine, in Macon, Ga., reviewed the study ahead of time. He challenged several points of the statistical analysis, all of which Dr. Figh answered to his satisfaction (e.g., the variables were not taken into groups, each variable was considered independently for its predictive ability; the researchers used a multivariate, not a multivariable logistic regression).

However, Dr. Ashley also had a practical, clinical question. “What do we take home from this paper, and how can we use it to manage our patients?” he asked. “If we have a patient over 60, on vasopressors and steroids at the time of diagnosis, what do we do?”

Most surgeons, he posited, would classify this type of patient as critically ill and consider surgical intervention expecting a high likelihood of death. “Does this tell us something we don’t already know? Should we continue to look for variables that so far have been elusive that would help us identify patients with a high risk for mortality before they get so sick?” he asked. “Dr. Figh alluded in his presentation that this is a first step, and I would agree with that.”

Dr. Figh pointed out that the availability of a prediction tool may help physicians explain treatment options to patients and their families. “In a situation where you have all five of these variables present, being able to give them statistical information as far as expected mortality can help the family come to a better understanding of your treatment suggestions,” he said.