The perfect way to predict the severity of acute pancreatitis: The search continues

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ARTICLE

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ARTICLE SUMMARY

This study was designed to determine the clinical utility of three rating scales (Ranson's, Acute Physiology And Chronic Health Evaluation [APACHE] II and Glasgow) in predicting the severity of acute pancreatitis experienced by patients known to have human immunodeficiency virus (HIV) or acquired immunodeficiency syndrome (AIDS). A retrospective analysis identified 73 patients with both acute pancreatitis and HIV who had been admitted to two Canadian hospitals between 1989 and 1999. Of those 73, 11 (15%) went on to have a clinical course consistent with a diagnosis of severe pancreatitis. For the purposes of the study, severe pancreatitis was defined by the occurrence of death, intensive care unit admission, surgical intervention or significant symptomatic local complications (necrosis, abscess or pseudocyst). The authors found that the APACHE II and Ranson's scores had a sensitivity of 100% and specificities of 70% and 33% for severe pancreatitis, respectively. The Glasgow score had a statistically poorer diagnostic performance.

COMMENTARY

Severe pancreatitis was defined by the 1992 Atlanta Consensus Conference as any episode that leads to specific local and systemic complications or organ failure (1). Up to 20% of patients presenting to a tertiary care centre with acute pancreatitis suffer a stormy clinical course requiring intensive medical and surgical intervention. Over the past decade, clinical experience with severe pancreatitis has demonstrated the value of endoscopic, radiological and nutritional interventions. For these interventions to be useful, however, they need to be initiated

early in the course of the disease. Thus, a simple, noninvasive test that could be used to predict the development of severe pancreatitis would have great clinical utility.

A number of predictive strategies have been proposed, including clinical observation, formal rating scales (eg, Glasgow, Imrie, Ranson's and APACHE II), specific biochemical tests, radiological imaging and peritoneal lavage. To date, none has proven to be consistently reliable in predicting clinical course. The time-honoured Ranson's scale continues to be widely used. It is intuitive in nature and easily remembered, but can be calculated only after 48 h of hospitalization. The APACHE II score, while used routinely in critical care settings, is less widely applied in cases of pancreatitis, mainly because it is cumbersome and difficult to calculate by memory. The advent of the PDA, however, should facilitate the use of this scale. Programs for calculating the APACHE II score are widely available on the Internet. (for example, see <<http://www.sfar.org/scores2/apache22.html>> or <http://www.pdacortex.com/Apache_II_Score_Download.htm>).

While the Ranson's and APACHE II scales exhibited high sensitivities in this study, the Ranson's specificity was only 33%. This lack of specificity might have resulted from the fact that rating scales like these are merely reflective of the physiological effects of the acute inflammatory process rather than actually predicting severe disease. On the other hand, it seems that measurement of parameters directly involved in the pancreatic inflammatory process should be truly predictive of future adverse clinical events. To that end, various pancreatic enzyme levels have been measured in relation to the progress of acute pancreatitis. One such factor is trypsinogen activation peptide, which is released upon conversion of trypsinogen to trypsin (the active form). In a recent study of 246 patients, trypsinogen activation peptide had reasonable predictive value but was no better than the APACHE II or Ranson's scales (2).

Structural evaluation of the pancreas, by computed tomography (CT) scanning, is commonly undertaken for patients with suspected severe pancreatitis. These scans are used to both evaluate pancreatic necrosis and identify peripancreatic fluid collections that could be aspirated. The CT

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severity index is another way of predicting the development of severe pancreatitis (3). However, its accuracy in clinical studies has not been encouraging (4). Magnetic resonance imaging (MRI) scanning has a potential advantage over CT imaging, because it does not involve either radiation exposure or potentially nephrotoxic contrast injections. In a recent study, 39 patients with acute pancreatitis underwent MRI on admission, along with intravenous secretin injection (5). This technique had a sensitivity of 83% and a specificity of 91% in the early detection of severe pancreatitis. In addition, pancreatic duct disruptions were detected in three patients. MRI requires further study but has shown promising early results.

CONCLUSION

In this study, the authors demonstrate the robustness of the Ranson's and APACHE II scores in patients with HIV, which is outside of their usual clinical application to cases of gallstone and alcohol induced pancreatitis. While the sensitivity of these tests is excellent, their low specificities mean that up to 60% of patients with acute pancreatitis might undergo further

investigations, such as CT scanning, unnecessarily. The search for a better predictive test – one that might lead to the judicious use of specific interventions that reduce the mortality from severe pancreatitis – continues.

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