New possibility to determine the severity of appendicitis

EurekAlert

The symptoms of appendicitis are often diffuse and it can be difficult to obtain an accurate diagnosis early in the course of the disease. It may be possible to predict the severity from a blood sample, and in this way determine the treatment on an individual basis. This is the conclusion of a thesis presented at the University of Gothenburg, sweden.

"We don't know what causes appendicitis. There is evidence that the cause may be multi-factorial, since some patients gets a perforated appendix while the course is less severe in others. The course of the disease is unpredictable and typical symptoms do not appear in a third of cases. It would be better", says Anna Solberg, one of the scientists at the Fibrinolysis Laboratory at the Sahlgrenska Academy, and specialist at the Surgical Clinic at Sahlgrenska University Hospital, "if we didn't treat all patients in the same way. Each case is unique."

Patients often are sent for surgery to be on the safe side, only to discover that the appendix was not inflamed. It is possible that antibiotics or observation alone would have been sufficient in many cases, and the patients would not have needed to undergo surgery. But the appendix perforates in 20% of patients leading to an increased risk for complications such as wound infections, abscesses in the abdominal cavity and the formation of adhesions, which can in turn lead to bowel obstruction and further surgery.

"The work presented in the thesis shows how enzymes known as proteases, which break down tissue, are distributed at and around the region which the appendix has perforated. Tissue samples have been taken at different grades or stages of appendicitis in order to investigate whether the quantities of proteases are correlated with the severity of the inflammation," says Anna Solberg.

The results show that there is an imbalance between the proteases and the anti-protease, TIMP-1, with the task to inhibit the enzymes that break down tissue. It turns out that this imbalance is important for how damage to the tissue can lead to perforation of the appendix.

"This means that we know more about the molecular mechanisms behind the process that can lead to a perforated appendix", says Anna Solberg.

Furthermore, TIMP-1 reflected the degree of inflammation in the blood at the time for surgery. It is possible that a blood sample measuring the amount of TIMP-1 could become a part of the clinical diagnostic process in the future, and thus determines the severity of the inflammation. However, Anna Solberg points out that more studies with repeated blood samples taken during the course of the disease are

required.

"I plan to continue research in the field in order to see whether TIMP-1 can function as a marker of inflammation, in order to determine the diagnosis and predict the disease course. This could lead to more focussed surgery, fewer complications and shorter hospital stays, and it could improve the possibility of giving individual treatment, which also considers the risk of increased resistance to antibiotics."

SOURCE [1]

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