

### **Peritoneal fibrinolytic activity and adhesiogenesis**

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### **Abstract**

*Introduction:* Postoperative adhesions after abdominal or pelvic surgery remain an important clinical problem causing infertility, pain and bowel obstruction. Their prevention and treatment remains poorly understood and inadequate. The formation of adhesions is caused by the organization of a fibrin matrix, an organization that takes place during the coagulation process when there is suppression of fibrinolysis.

*Methods:* In this study peritoneal tissue and peritoneal fluid from two groups of patients were sampled and analysed. The first group comprised of 12 patients undergoing abdominal surgery for an acute abdomen during which known peritoneal factors of aggression (trauma, chemical, bacterial) were present which are known to increase the propensity for peritoneal adhesion formation. A second group consisting of 6 patients undergoing surgery in the absence of these peritoneal aggression factors acted as a reference control group. Each patient had peritoneal tissue sampled at the time of surgery and analysed for levels of gene expression of tissue plasminogen activator (tPA) and plasminogen activator inhibitor-1 (PAI-1). Patients also had peritoneal drain fluid collected postoperatively and analysed for quantities of fibrin degradation products (FDPs) and fibrinogen.

*Results:* The aim of this study was to evaluate the role of PAI-1 and tPA genes at peritoneal tissue level. Peritoneal tissue was obtained during surgery and the variation of expression of PAI-1 and tPA genes was quantified. The obtained results highlighted an increase of expression in PAI-1 gene and decrease of expression in tPA gene in patients with increased factors of peritoneal aggression compared to patients without, indicating a decreased fibrinolytic potential in patients with increased peritoneal adhesion propensity. Increased factors of peritoneal aggression also resulted in increased levels of FDPs and fibrinogen in peritoneal exudates.

**Key words:** adhesions, fibrinolysis, tPA, PAI-1

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