

PREDICTION OF ENDOMETRIOSIS WITH SERUM AND PERITONEAL FLUID MARKERS: A PROSPECTIVE CONTROLLED TRIAL

Mohamed Ali Bedaiwy, Tommaso Falcone, Jeffery Goldberg, Marjan Attaran, David Nelson, Ashok Agarwal,
Cleveland Clinic Foundation

Objective:

The quest to find a nonsurgical diagnostic tool has led researchers to consider why endometriosis occurs. Ample evidence suggests that the immune system may be responsible. Different serum and peritoneal fluid cytokines are implicated in etiopathogenesis of the disease. The objectives of this study were (1) to evaluate a group of cytokines both in the peritoneal fluid and serum of endometriosis patients and in control patients without endometriosis throughout the menstrual cycle, (2) to evaluate ROS in the peritoneal fluid of endometriosis patients and controls, and (3) to assess whether any of these markers can non-surgically discriminate between patients with endometriosis and those without.

Design:

Prospective controlled study

Materials/Methods:

Serum and peritoneal fluid (PF) from 130 women were obtained while they underwent laparoscopy for pain, infertility, tubal ligation or sterilization reversal. We measured the concentrations of 6 cytokines (IL-1 β , IL-6, IL-8, IL-12, IL-13 and TNF- α) in serum and peritoneal fluid (PF) and reactive oxygen species (ROS) in PF and compared the levels among women, who were divided into groups according to their postsurgical diagnosis. Fifty-six patients were diagnosed with endometriosis, 8 were diagnosed with idiopathic infertility, 27 had undergone tubal ligation or reanastomosis (control group) and 39 were excluded due to bloody PF.

Results:

Only serum IL-6 and peritoneal fluid TNF- α were able to discriminate between patients with endometriosis and those without the disease with a high degree of sensitivity and specificity. A cut-off of 15 pg/mL of peritoneal fluid TNF- α provided 100% sensitivity and 89% specificity (positive likelihood ratio of 9.1 and negative likelihood ratio of 0). A cut off of 2 pg/mL for serum IL-6 provided a sensitivity of 90% and specificity of 67% (positive likelihood ratio of 2.7 and negative likelihood ratio of 0.14).

Conclusions:

By measuring serum IL-6 and peritoneal fluid TNF- α we were able to discriminate between patients with endometriosis and those without. Before these markers can be used as a non-surgical diagnostic tool, our results need to be verified in a larger study.

Supported by:

This study was supported by research grant from the Minimally Invasive Surgery Center (MISC) of the Cleveland Clinic Foundation (RPC#2156)