Objective: The study aimed to explore the type 1 and type 2 cytokines expression in the endometrium from women affected by endometriosis compared to controls. The expression of TSG-6, a multifunctional protein involved in several inflammatory disease, was also evaluated.

Patients: 10 patients affected by endometriosis (Endometriosis group) and 11 healthy women (Control group) were enrolled in the study. Patients and controls underwent to an ultrasound transvaginal examination and a diagnostic hysteroscopy in the follicular phase of the menstrual cycle, in order to exclude any uterine abnormality. Both groups, in the secretory phase of the cycle patients underwent endometrial biopsy using a Novak's curette.

Main outcome measures: The endometrial expression of type 1 (IL-1β, TNF-α, IL-8) and type 2 (IL-10) cytokines, and of TSG-6 was evaluated by immunohistochemistry and by real time PCR. The expression of TSG-6 was confirmed by western blot analysis.

Results: Results of PCR analysis and of immunohistochemistry revealed an increased expression of IL-1β, TNF-α, IL-8 and of TSG-6 in the endometrium of patients affected by endometriosis. IL-10 expression did not show any difference.

Conclusions: An increased expression of pro-inflammatory type 1 cytokines was demonstrated in the endometrium from patients affected by endometriosis, suggesting an endometrial environment harmful for implantation due to the prevalence of Th1 related immunity. An increased expression of TSG-6 was also demonstrated for the first time. Our findings concur to better define the inflammatory imbalance and the abnormal endometrial receptivity reported in literature, of the eutopic endometrium of women affected by endometriosis.