Introduction: Endometrial receptivity to embryos depends on several inflammatory proteins and neutrophil activation.

Objective: The aim of this study was to determine whether serum levels of C-reactive protein (CRP), leukocytes, fibrinogen and D-dimers influence reproductive success in women undergoing assisted reproductive techniques.

Methods: Prospective study of 107 consecutive ovarian hyperstimulation cycles for IVF/ICSI performed in the Reproductive Medicine unit of a tertiary university hospital. Serum levels of CRP, leukocytes, fibrinogen and D-dimers were measured on cycle days 3, 8 and on oocyte retrieval day, and compared among the three time points between the group with and without pregnancy.

Results: In this sample, the pregnancy rate was 23.4%. Mean age (33.4±3.5 vs. 33.9±3.5 years-old) and mean body mass index (23.3±3.7 vs. 24.5±4.1Kg/m²) of pregnant women were not significantly different from non-pregnant women. Ovarian hyperstimulation protocols and gonadotropins doses were similar in both groups. CRP levels were higher in the group who did not achieve pregnancy at all the tested time points, with statistical significance on cycle day 8 (0.1±0.1 vs. 0.2±0.2 mg/dl, p = 0.03) and on oocyte retrieval day (0.2±0.1 vs. 0.6±0.9mg/dl, p = 0.044). Levels of white blood cells and fibrinogen did not show statistically significant differences between the two groups. D-dimers levels were higher in the group without pregnancy on cycle day 8 (0.2±0.1 vs. 0.3±0.2g/ml, p = 0.045). Average number of oocytes collected (9.8±5.5 vs. 6.6±4.8, p = 0.05), and embryos transferred (2.6±0.6 vs. 2.0±0.9, p = 0.03) was significantly higher in women who conceived.

Conclusions: The present study shows higher levels of CRP in the non-pregnant group. Thus an inflammatory state, characterized by increased CRP levels, may be indicative of reproductive failure.