Background: Integrins are important markers of endometrial receptivity that will be recognized by the embryo and facilitate its growth, differentiation and implantation. In addition, Apoptosis is one of the most important topics that plays an important role during early stage of implantation but the relationship between ovarian stimulation and apoptosis is still a matter of debate.

Methods: Six-week-old NMRI female mice were stimulated using an intrapritoneal injection of 0 (solvent as control), 7, 10 and 12 IU PMSG followed by another injection of 10 IU hCG after 48 h. then the mice were rendered pseudopregnant. Samples were obtained from 1/3 middle part of uterine horns. Integrins and Apoptosis were assessed in four groups at peri-implantation period using Real-time PCR, Immunohistochemistry and Tunel staining imaging analysis.

Results: Quantitive and qualitative analysis indicate that the endometrial integrin β9, βv, β1, β3 expression and distribution in the peri-implantation phase were lower in stimulated cycles compared to controls (P<=0.05). TUNEL analysis indicate that the percentage of TUNEL-positive cells was higher in stimulated group compared to control group (P<=0.05). The ratio of apoptosis was the highest in 12 IU PMSG stimulated group (P<=0.05).

Conclusion: The ovarian stimulation could change the expression and distribution of Endometrial integrin β9, βv, β1, β3 and enhanced the incidence of endometrial apoptosis at peri-implantation period; therefore, it could affect on the endometrial receptivity and implantation rate.

Keywords: Stimulation, Apoptosis, TUNEL, Integrin, endometrial.