

NEUTROPHILS, DO THEY REALLY PLAY A ROLE IN OVULATION? A REVISITED QUESTION.

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Introduction: Ovulation has been described as an inflammation-like process in which the white blood cells play a pivotal role. Although the effect of macrophages and eosinophils has been better characterized, there exist contradicting results regarding the role of neutrophils 1,2 . Aim: To evaluate the role of neutrophils in ovulation by replicating previous experiments in rodent models using modern molecular biology techniques. Methods: Ovulation was induced in immature Sprague-Dawley rats which four days before were randomly allocated to receive saline or 4 different doses of neutropenia-inducing agents during 4 days (n=15/group): Group 1- 0.2 ml of 0.9% NaCl (Control); group 2-vinblastine 0.4mg/kg (V0.4); group 3-vinblastine 0.8mg/kg (V0.8); group 4-cyclophosphamide 8mg/kg (C8) and group 5-cyclophosphamide 80mg/kg (C80). Twenty hours after ovulation induction, animals were euthanized and the oocytes present in the Fallopian tubes were counted. Gene expression of Myeloperoxidase (MPO) and elastase (Neutrophil expressed, ELANE) was used as neutrophil infiltration marker in the ovary. Results: Only the administration of vinblastine led to complete neutropenia, and only animals in group V0.8 ovulated less oocytes than controls (Control: 20.4±12.0 vs V0.8: 9.7±9.0, p=0.017). The MPO and ELANE expression was significantly decreased in the V0.4 as compared to controls, but animals in the V0.8 group showed similar levels. Conclusion: The results of the present study suggest that the ovulation process is not entirely dependent on neutrophil infiltration/activation.