

## Ovarian Hyper Stimulation Syndrome Prevention By Corticosteroids In Rats

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### Abstract

Ovarian hyper-stimulation syndrome (OHSS) is a severe iatrogenic potentially lifethreatening complication of controlled ovarian stimulation. The primary risk factors for OHSS are young age, low body mass index, polycystic ovarian syndrome (PCOS), and history of previous OHSS. Ovarian hyper secretion of vascular endothelial growth factor (VEGF) has been identified as a prime causative factor, playing a major role in the observed increases in angiogenesis and vascular permeability that are the pathophysiological components of OHSS. The pathogenesis of OHSS induced by either exogenous or endogenous human chorionic gonadotropin (HCG) triggers the syndrome. As HCG alone doesn't exert a vascular activity, at least one angiogenic substance must be released from the ovary in response to gonadotropins. Subsequent studies have focused on substances present in the follicular and ascitic fluid of hyper-stimulated women. Cytokines and growth factors (interleukins IL-2, IL-6, IL-8, IL-10, IL18 and VEGF) are known to be implicated in the inflammatory processes associated with late follicular maturation, ovulation, and corpus luteum function and embryo implantation. These factors were reported to mediate the vascular permeability in response to HCG. Several pharmacologic interventions have been proven to be effective in OHSS prevention, but randomized controlled trials have seldom compared multiple drugs' effectiveness in preventing OHSS (primary outcome) and their influence on pregnancy rate as a secondary outcome. Five pharmacologic interventions were superior to placebo in decreasing OHSS incidence were cabergoline, metformin, aspirin, intravenous calcium, and hydroxyethyl starch. Glucocorticoid administration can presumably be linked to both beneficial and harmful effects on fertility and pregnancy, depending on individual woman immune parameters and effects of glucocorticoids on immune cells in the peri-implantation endometrium. Immune cells including T cells, NK cells, dendritic cells and macrophages are all required for embryo implantation and robust placental development. Glucocorticoids affect the generation, recruitment, activation phenotypes and function of different immune cells in various ways. The assumed possible protective effect of corticosteroids in OHSS is based on previous studies reporting inhibition of VEGF-gene expression, VEGF-induced vascular leakage and their current clinical use in the local management of diabetic retinopathy neovascularization and macular edema. The present study compared the effects of hydrocortisone sodium succinate,

methylprednisolone and dexamethasone systemic pre-treatment on induced severe OHSS model in female albino rats. Then the effect of methyl-prednisolone on severe OHSS prevention and endometrium immune cells infiltration were compared to cabergoline use alone and their combination.



### Biography:

Dr. Eman Ibrahim Anwar has received Doctorate in Clinical Pharmacology. Current affiliation is Lecturer of Clinical Pharmacology in Alexandria University. Research interests are ovarian hyper stimulation, PCOS and many more.

### Speaker Publications:

1. "Anti-Diabetic Drugs & Cancer Risk Challenge"
2. "ECG signals for human identification based on fiducial and non-fiducial approaches"

[3<sup>rd</sup> World Congress on Polycystic Ovarian Syndrome and Fertility](#), Webinar, November 26-27, 2020

### Abstract Citation:

Dr. Eman Ibrahim Anwar, Ovarian Hyper Stimulation Syndrome Prevention by Corticosteroids in Rats, 3<sup>rd</sup> World Congress on Polycystic Ovarian Syndrome and Fertility, Webinar, November 26-27, 2020

<https://pcos.healthconferences.org/2020>