## I S—33 EFFECT OF CLONIDINE ON PITUITARY HORMONES IN WOMEN WITH NORMAL MENSTRUATION AND SECONDARY AMENORRHEA

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A selective noradrenergic receptor agonist, clonidine, has been recently used by the endocrinologist for evaluation the pituitary reserve of growth hormone (GH) as a differentiating indicator of the sensitivity of infertile women to hMG administration. However, its effect on the other pituitary hormones has not been well investigated. For this reason, we compared six women with secondary amenorrhea and 7 normal cycling women with 300 mg clonidine provocation orally on the day of 5 after menstruation or withdrawal bleeding with progesterone. Blood samples were taken at 0, 30, 60, 90 and 120 minutes and responses of GH, prolactin (PRL), luteinizing hormone (LH) and follicle-stimulating hormones (FSH) were measured. Basal estrone, estradiol, androstenedione, testosterone and dehydroepiandrosterone sulfate were also determined by RIA. Significant increases ($P<0.001$) of GH and decreases ($P<0.05$) of PRL responses after clonidine were seen in both study groups as compared with the corresponding basal levels. The LH and FSH levels were also decreased after clonidine stimulation in both groups. There were no significant difference in the basal levels of sex steroids between the two groups. These results suggest that noradrenergic neurotransmitter is not only involvement on the modulation of GH and PRL but also on the regulation of LH and FSH in the early follicular phase.

## I S—34 CYTOLOGIC LOCALIZATION OF MACROPHAGES IN THE HUMAN OVARY: IMPLICATIONS FOR STEROIDOGENIC ROLE

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Immunohistochemical studies were performed on human ovarian tissues from 27 subjects, with ages ranging from 20 weeks age of gestation to 71 years old using antibodies for lysozyme and macrophages. Positive immunostaining for both antibodies were observed in the ovaries of menstruating subjects but not in ovarian tissues from the embryo, the premenarcheal and postmenopausal subjects. Tertiary or pre-ovulatory follicles but not viable follicles in earlier stages stained positively for both antibodies. In tertiary follicles, positive staining for the antibodies were localized to theca and surrounding stromal cell during the early proliferatve phase; during the late proliferative phase, positive staining was localized to all follicular layers including the granulosa. The number and size of macrophages increased in the corpus luteum, then decline in the corpus albicans. In all cases where positive staining for macrophages were observed, positive for lysozyme was also obtained indicating that the macrophages constantly possess phagocytic ability. However, during the period when macrophages increased in number, size and staining intensity, there was a slight decline in the number , size and staining intensity of lysozyme. These results provide for the first time an in-vivo scenario which defines the ages, the follicular stages and the ovarian cell layers where macrophages may exert their non-phagocytic influence in the human ovary. The findings also support a strong link between macrophage and human ovarian steroidogenesis as indicated by the limitation of macrophage presence in the ovary of women in the reproductive ages only, the cytologic localization of macrophages in the layers of steroidogenic ovarian cells, and the increase in the number and size of macrophages in these layers during the periods when ovarian steroidogenesis is rising. The presence of macrophages in tertiary follicle but not in the follicles in the primordial through secondary stages, also suggest that the non-phagocytic role of macrophages in the human ovary is focused to the differentiated function of the follicle and not to follicular growth or cell proliferation.