Different endocrine secretion of cultured human granulosa luteinized cells of women aged over 35 years undergoing FSH- and FSH/LH-stimulation

Linek Bartosz [1], Turley Heiko (DE) [2], Schorsch Martin (DE) [3], Seufert Rudolf (DE) [4]

Many investigations show, that there is a benefit of using combined FSH/LH-stimulation by women aged over 35 years undergoing IVF-treatment, but convene only to the closeness to nature.

Is there any difference between the granulosa cells (GC) of different stimulations?

Secretion rates of progesterone, VEGF and Inhibin A had been determined for three different time points at a minimum of three independent runs. Also cAMP and cGMP concentrations were measured.

A matched pair analysis of 78 over 35 year-old women undergoing a short-antagonist protocol with recombinant FSH (Gonal-f) or combined recombinant FSH/LH (Pergoveris) for ICSI-treatment because of male infertility was performed.

Primary granulosa luteinized cells were collected from follicle puncture fluid and from denudation of the oocyte-cumulus complex and cultured for 1-5 days.

Higher secretion rates of progesterone and VEGF were observed by the GC of the FSH/LH stimulation, especially by the cumulus cells, where two-fold secretion rates were noticed. Contrary the secretion rate of Inhibin A is decreased by 25 % by the GC of the FSH/LH stimulation. cAMP measurement was same, but cGMP concentrations were higher by the GC of the FSH/LH stimulation.

A combined FSH/LH stimulation results a better endocrine function of the granulosa cells. The results show that the type of ovarian stimulation determines the quality of the luteal phase to a large extent.

The findings suggest a better endocrine function of the GC and conclude a supported luteal phase. Therefore the combined FSH/LH-stimulation represents an interesting therapeutic option for all women aged over 35 years. Whether these improvements are also associated with increased pregnancy rates must be verified by further studies.

INSTITUTE: