

5<sup>th</sup> Asia Pacific

## GYNECOLOGY AND OBSTETRICS CONGRESS

August 22-23, 2018 Tokyo, Japan

**Freezing ovarian tissue and simultaneously obtaining an average of 8 mature oocytes without ovarian stimulation: Is it a reality?****Dmitry Nikiforov<sup>1,2</sup>, Cheng Junping<sup>1,3</sup>, Pors Susanne Elisabeth<sup>1</sup>, Gruhn Jenny<sup>2</sup>, Kristensen Stine Gry<sup>1</sup> and Andersen Claus Yding<sup>1</sup>**<sup>1</sup>University Hospital of Copenhagen, Denmark<sup>2</sup>University of Teramo, Italy<sup>3</sup>People's Hospital of Guangxi Autonomous Region, China

Can immature oocytes found in the medium after cortical tissue preparation for fertility preservation, constitute a reliable source of mature eggs? GV oocytes released during cortical tissue preparation and mature to MII stage with an average 23% success rate, resulting in average 8 MII oocytes per patient. Cryopreservation of ovarian tissue by slow freezing has become a reliable method of fertility preservation for many groups of the patients. During the procedure of cortical tissue preparation, many small antral follicles within the tissue are cut open resulting in release of immature oocytes into the medium. These oocytes have the potential to develop into mature oocytes that may be used for fertility purposes. The aim of present study was to improve the IVM protocol for oocytes deriving from small follicles which was previously rarely used in the context of fertility utilization. Oocyte-Cumulus Complexes (COCs) were collected into HEPES-buffered medium supplemented with 10 mg/mL of human serum albumin and cultured following an IVM protocol established in our laboratory (315 oocytes). After 48 hours oocytes were denuded and assessed for maturation stage 22. A total of 9 patients aged 21-36 years (mean age 29) who had one ovary excised for fertility preservation were included. After collection GV oocytes were divided into one of three groups: COCs with large amount of cumulus cells, small amount of cumulus cells and naked oocytes. After maturation measurements of oocyte diameter, diameter of egg's cytoplasm and zona pellucida thickness were taken and related to the maturation status of the oocyte. On average, 35 immature oocytes per patient from one ovary were collected with the range of 13-60 oocytes. 23% (N=74) of all oocytes matured to the MII stage within 48 hours. On average each patient had 8.2 mature oocytes. Maturation rate for the oocytes from large COCs was 37.5%, small COCs matured with the rate of 22.7%, while success rate for the naked ones was only 6.3% ( $p<0.001$ ). Our morphometric observations showed how diverse the pool of immature oocytes was. All found oocytes were within the range of 114-167  $\mu\text{m}$  in diameter (including Zona Pellucida-ZP). Oocytes matured to MII had a significantly larger Diameter than MI and GV ones ( $p<0.001$ ). No differences were found in relation between zona pellucida thickness and different stages. No significant relationship was observed between the number of collected oocytes and the age of patients. More patients are needed to evaluate the developmental potential of oocytes obtained by the described method. The unexpected developmental capacity of immature oocytes from small antral follicles is likely to augment chances for conception in this group of patients in addition to the cortical tissue. The use of IVM oocytes collected from small antral follicles during normal IVF treatment may be of interest in the future.

dnikiforov@unite.it