

A HIGHER PROPORTION OF MEIOTIC SPINDLE DEVIATION FROM FIRST POLAR BODY LOCATION OCCURED IN WOMEN OF ADVANCED AGE

Chun-Chia Huang², Hsiu-Hui Chen¹, Chung-I Chen¹, Ming-Chou Hung¹, Lii-Sheng Huang³, Maw-Sheng Lee⁴

¹ Division of Infertility, Lee Women'S Hospital (Taiwan)

² Department of Biotechnology, Central Taiwan University Of Science And Technology (Taiwan)

³ Institute of Medicine, Chung Shan Medical University (Taiwan)

⁴ Department of Obstetrics And Gynecology, Chung-Shan Medical University Hospital (Taiwan)

Purpose: This study was to analyze the influence of women age on the appearance /location of meiotic spindle deviation from the first PB location and IVF-ICSI outcome.

Materials and methods: There 834 mature oocytes were collected from 255 women underwent IVF in this study and they were further divided into two groups: group A (female age $\geq$ 38 year, 126 cycles) and group B (female age <38 years, 129 cycles) patients underwent ICSI with microscopic digital imaging (ICSI-Guard, OCTAX EyeWare) for spindle observation. Meiotic spindles were evaluated before ICSI in all metaphase II oocytes. Oocytes were further divided into 3 groups according to the angle of spindle deviation from the PB position. The angle of deviation was $\leq 15^\circ$, 16-60 $^\circ$ and $>60^\circ$ for groups I to III respectively.

Results: 80.6% (672/834) of MII oocytes showed spindle appearance and 67.9% (456/672) out of these oocytes showed deviation from the PB position. There were no significant differences between the group A and B in terms of fertilization rates (69.1% vs. 69.9%) and cleavage rates (98.2% vs. 97.3%). However, women with age $\geq$ 38 years (group A) have a significantly higher rate of angle deviation $>60^\circ$ (35.3%, 112/317) than women with age<38 years (18.9%, 67/355; $p<0.01$). The normal fertilization rates were not different between groups I ($\leq 15^\circ$), II (16-60 $^\circ$) and III ($>60^\circ$). No relationship was found between the angle of meiotic spindle deviation and day 2 embryo quality.

Conclusion: The ICSI-Guard is a usefully approach to observe appearance/location of spindle and to avoid damage of spindle during microinjection procedure, especially in older women, who showed a higher deviation of spindle position from PB ($>60^\circ$) within the oocytes than younger women.