

## ABSTRACT

### MECHANISM OF DECREASING INTRAFOLLICULAR MPF EXPRESSION BY CORTISOL, HSP70, TORC1 AND ENaC PATHWAY IN DISTRESS DUE TO CHRONIC STRESSOR

**Revi Gama Hatta Novika**

**Introduction :** In vitro fertilization (IVF) implementation requires an in vitro embryo with good quality by observing spermatozoa and oocyte maturation. Many factors are present in the oocyte microenvironment which greatly influences the expression of several proteins, which in turn causes functional changes needed for oocyte maturation.

**Methods :** Experimental laboratory with Randomized Post Test Only Control Group Design. Divided into two groups, experimental and control groups. The experimental group was given a 95 dB 4 hours/day noisy exposure for 5 days. Both of group were examined for cortisol levels, HSP70 expression, ENaC expression, TORC1 expression and MPF expression. Data analyzed by multivariate analysis. The effect of a variable on other variables was assessed using path analysis in SPSS.

**Result :** The analysis showed that stressors exposure increased cortisol levels ( $6.98 \pm 1.14$  vs  $10.4 \pm 1.02$ ,  $p=0,000$ ), HSP70 expression ( $7.16 \pm 0.6$  vs  $11.45 \pm 0.72$  ,  $p=0,000$ ), and decreased the expression of TORC1 ( $11.35 \pm 0.89$  vs  $7.93 \pm 0.66$ ,  $p=0,000$ ), MPF expression ( $6.16 \pm 1.68$  vs  $2.11 \pm 0.85$  ,  $p=0,000$ ), and no effect on ENaC expression ( $10.82 \pm 1.57$  vs  $11.69 \pm 0.55$ ,  $p=0.115$ ). Path analysis showed that stressors exposure affects the increase in cortisol levels ( $\beta=0.845$ ), cortisol affects the increase in HSP70 expression ( $\beta=0.767$ ), HSP70 affects the decrease in TORC1 expression ( $\beta=0.810$ ), TORC1 affects the decrease MPF expression ( $\beta=0.769$ ).

**Conclusion :** The study conclude that distress decreased MPF expression through cortisol, HSP70 and TORC1.

**Keywords :** Distress, oocyte, Maturation Promoting Factor