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Poster Presentations

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TNP1 as a biomarker in fertilization failure patients following ICSI

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Background: Fertilization failure has been majority attributed to the sperm's inability to stimulate oocyte activation with incidence of 1-3% following ICSI cycles. Phospholipase C zeta (PLCZ1) is considered to be main candidates in sperm for the induction of oocyte activation during fertilization. Transition nuclear protein 1(TNP1) is taking responsibility for condensed structure of the sperm nuclear chromatin. Dysregulation of this gene may results in fertilization failure.

Objective: The aim of present study was to assess the expression *PLCZ1* and *TNP1* genes in patients with failed fertilization undergoing ICSI cycles in comparison with healthy fertile men. In addition, the relationship between expression of these genes and DNA fragmentation was evaluated.

Materials and Methods: In this experimental study, semen samples of 10 fertilization failure men and 15 healthy fertile men were collected. Expression of PLCZ1 and TNP1 were assessed by Real-time PCR. DNA fragmentation of sperm were assessed by SCD method.

Results: Expression of both *PLCZ1* and *TNP1* genes were significantly reduced in fertilization failure patients undergoing ICSI cycles compared to healthy fertile men ($p < 0.01$). Expression of the genes was not correlated with DNA fragmentation of sperm.

Conclusion: The result of our study indicated TNP1 and PLCZ1 may provide useful markers for the fertilization capacity of sperm in fertilization failure patients undergoing ICSI cycles.

Key words: *Fertilization failure, PLCZ1, TNP1.*