

The Investigation of the Levels of Seminal 5'tRF-Glu-CTC from Infertile Men

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Abstract

Aim: Analyzing semen parameters as the initial step in assessing male infertility yields valuable information. However, it is not a complete measurement of the reproductive capabilities of men. Possible markers for male infertility and reproductive health issues might be found in the complicated composition of human seminal plasma. tRNA-derived fragments (tRFs) are the products of tRNAs processing and actively function in the cell. tRFs regulate gene expression by binding to proteins of the Argonaute family proteins, increasing rRNA levels, and preventing apoptosis. This study aimed to compare the expressions of 5'tRF-Glu-CTC in infertile men.

Methods: Twenty-one normozoospermic (group 1) and 12 oligozoospermic (group 2) infertile men from the couples who applied to Ondokuz Mayıs University IVF Center were included in the study. Total RNA, including tRNA, was isolated from seminal plasma samples. Reverse transcription was performed with specific stem-loop oligomer probes. Expression of 5'tRF-Glu-CTC analysis with quantitative real-time PCR was performed, and then fold changes were analyzed using the formula $2^{-(\Delta\Delta Ct)}$ by normalizing miR-320. The comparison of group means was evaluated with the Mann-Whitney U test.

Results and Conclusion: The mean of delta Ct's of group 1 and group 2 were determined as 10.84 ± 3.20 and 14.18 ± 4.06 , respectively ($p=0.03$) (Figure 1). The expression level of 5'tRF-Glu-CTC in group 2 was found to be increased compared to that in group 1 (fold change=1.741). The findings of this study point to the fact that tRFs in seminal plasma may indicate their possible application as non-invasive detection tools for male infertility.

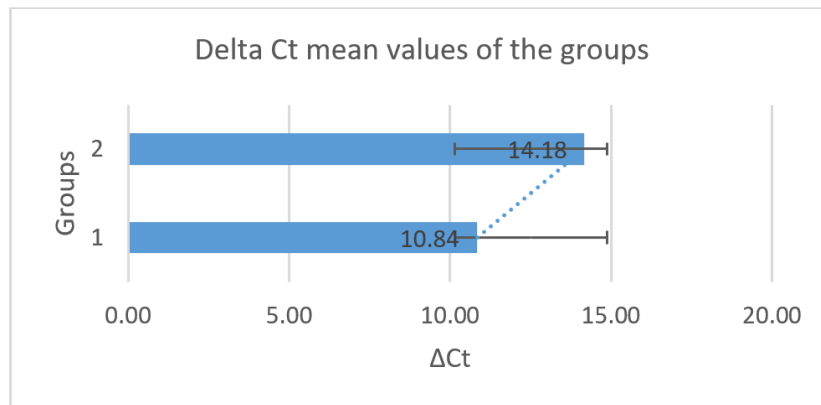


Figure 1. Expressions of normozoospermic and oligozoospermic men