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A study of associations between DROSHA (rs10719), DICER (rs3742330), RAN (rs14035) and XPO5 (rs11077) polymorphic variants and recurrent pregnancy loss in Southeast Iranian women

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Background

DROSHA, DICER, RAN and XPO5 are factors which involved in microRNA biogenesis and have a potential physiological role in placental development. Genetic polymorphisms in these genes may affect the reproductive-related molecular pathways, thereby predisposing pregnant women to recurrent pregnancy loss (RPL). The aim was to investigate four single nucleotide polymorphisms (SNPs) of DROSHA (rs10719), DICER (rs3742330), RAN (rs14035) ,XPO5 (rs11077) genes in southeast Iranian women with RPL.

Materials and Methods

In this study, we recruited 100 proven RPL women (mean age 32.27 ± 4.43 years) and 100 control women (mean age 31.68 ± 5.23 years) with normal pregnancy history from southeast Iranian population. Genomic DNA from whole blood was extracted and the polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) technique was used for the selected polymorphisms.

Results

A significant difference was found in the C-allele and CC genotype frequency of DROSHA rs10719 polymorphism in RPL group compared to healthy subjects (p-value<0.05 before and after adjustment). Multinomial regression analysis showed that an association of rs10719 with risk of RPL in the recessive model after adjustment (p-value=0.009). Regarding the RAN rs14035 polymorphism, the prevalence of T-allele compared to C-allele was significantly different between two groups (p-value<0.001 before and after adjustment). As well, the CT and TT genotypes of rs14035 were associated with RPL. The genetic polymorphisms of DICER rs374233 and XPO5 rs11077 reflected no association with RPL.

Conclusion

The results of this study revealed that the DROSHA rs10719 and RAN rs14035 gene polymorphisms might serve as predisposing factor for RPL in Iranian women.

References

1. G. Fu, J. Brkić, H. Hayder, and C. Peng, “MicroRNAs in human placental development and pregnancy complications,” *International Journal of Molecular Sciences*, vol. 14, no.3. Int J Mol Sci, , Mar, 2013, pp. 5519–5544.

2. Z. Mortazavifar, H. Ashrafzadeh, S. M. Seifati, and N. Ghasemi, “Frequency of the rs 14035 polymorphism of RAN gen in recurrent pregnancy loss: A case-control study,” *Int. J. Reprod. Biomed.*,2020, vol. 18, no. 5, pp. 359–366.