

SINGLE NUCLEOTIDE POLYMORPHISM OF VARIOUS GENES AND MALE INFERTILITY

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During the past decades infertility of various populations around the World is growing. Usually the risk factors for male's subfertility are unknown. However, genetic polymorphisms in methylenetetrahydrofolate reductase (*MTHFR*) and *TP53* are suspected to have a role in idiopathic male infertility. The purpose of this study was to analyze the distribution of *MTHFR* 677C>T and *TP53* 72Arg>Pro polymorphisms amongst idiopathic infertile Lithuanian men whose partners were undergoing *in vitro* fertilization (IVF) treatment and to find associations between these polymorphisms and various clinical data.

61 men from Fertility Center Santara were included and all of them signed Informed consent before the study (permission of Vilnius Regional Committee of Bioethics No 158200-14-743-260). After IVF, remaining sperm cells were collected and transported to the Biobank (Vilnius, Lithuania) for the future analysis. The sperm quality was evaluated according to the World Health Organization criteria and separated into four groups: normospermic, polyspermic, asthenospermic and oligoasthenospermic. The presence of *MTHFR* 677C>T and *TP53* 72Arg>Pro polymorphisms was analysed by PCR and PCR-RFLP after extracting genomic DNA from sperm cells. The frequency of polymorphic variants and their distribution according to sperm quality was calculated using statistical analysis.

After sperm evaluation from 61 men, 33 were normospermic, 8 polyspermic, 15 asthenospermic and 4 oligoasthenospermic. 8% of all men had *TP53* 72ProPro genotype, 89% - 72ProArg and 3% - 72ArgArg genotype. When only asthenospermic and oligoasthenospermic patients were taken into consideration, the distribution of genotypes was 10%, 85% and 5% respectively.

33% of all men had *MTHFR* 677CC genotype, 57% - 677CT and 10% - 677TT genotype. When only asthenospermic and oligoasthenospermic patients were taken into consideration, the distribution of genotypes was 35%, 59% and 6% respectively.

Statistical analysis showed that there were no significant differences in *MTHFR* 677C>T and *TP53* 72Arg>Pro polymorphism's distribution between patients with different sperm quality.

In our pilot study we did not find any statistical differences in the distribution of polymorphic variants *MTHFR* 677C>T and *TP53* 72Arg>Pro according to men sperm quality results. However, more clinical samples needed to be included in the analysis, especially men who are asthenospermic, oligospermic or oligoasthenospermic.