

## BSTR-40

### The Association between HIF-1 and VEGFA Genes Polymorphisms and In Vitro Fertilisation Efficiency in Humans

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#### Background & Hypothesis:

The contribution of genetic factors to reproductive disorders is up to 20%. *HIF-1 $\alpha$*  and *VEGFA* genes regulate the processes of implantation and angiogenesis. This study determines the significance of the allelic variants of *HIF-1 $\alpha$*  and *VEGFA* genes in patients' implantation pathogenesis during an in vitro fertilisation (IVF) programme with infertility of different genesis.

#### Methods:

Venous blood samples were obtained from 84 patients (43 couples) with infertility diagnosis. All patients gave a written informed consent to participate in the study. After undergoing IVF cycles, patients with increased chorionic gonadotropin (10 couples) were included in the control group, while patients with hCG less than 10 (33 couples) formed the study group. Polymorphisms *HIF-1 $\alpha$*  (*rs11549465*) and *VEGFA* (*rs2146323*) were detected by allele-specific polymerase chain reaction method using SNP-express reaction kits (Syntol, Russia).

#### Results:

Among the control group of patients whose heterozygotes for polymorphisms of *HIF-1 $\alpha$*  were not identified, ratio of C/C and T/T homozygotes was 88.9% and 11.1%, respectively. The study group showed 17.5% of heterozygotes, and the ratio of C/C and T/T homozygotes was 74.6% and 7.9%, respectively. For *VEGFA* in the control group, genotype C/A prevailed (57.2%). Frequency of C/C and A/A homozygous genotypes was accounted with 21.4% each. In the study group, their genotype frequencies were as follows: C/C 33.3%, A/A 35.4%, C/A 31.3%.

#### Discussion & Conclusion:

Heterozygous genotype of *HIF-1 $\alpha$*  may reduce the chance of embryo implantation while heterozygous genotype of *VEGFA* may produce positive effects. This study was supported by the federal assignment №6.98.2014/K from Russian Ministry of Science and Education and carried out Center for collective use High Technology of SFedU.