

# ASSOCIATION OF ANGIOGENESIS WITH RECURRENT ABORTIONS: THE USE OF BIOMARKERS IN THE CREATION OF A PERSONALIZED GENETIC PROFILE

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## Abstract Body

The causes of recurrent miscarriages may be due to genetic, endocrine, anatomical, inflammatory or autoimmune mechanisms. Successful implantation requires trophoblastic growth, endometrial invasion and stimulation of angiogenesis. Genetic factors that regulate the processes of invasion and angiogenesis are critical in embryo implantation. Nitric oxide (NO), participates in different regulatory mechanisms of reproduction including blastocyst implantation. The biosynthesis of soluble NO is catalyzed by a family of enzymes called nitric oxide synthases (NOSs). Alteration of normal NO levels, could be partially explained by eNOS genetic polymorphisms that alter the expression and/or activity of the protein. Polymorphisms -786T>C (rs2070744), 4b/a and 894G>T (rs1799983) have been shown to lead to altered expression and activity of the eNOS enzyme and increased risk of miscarriage.

The aim of the study is to investigate the possible association of the eNOS polymorphisms -786T> C (rs2070744), 4b/a and 894G> T (rs1799983) with recurrent miscarriages.

Peripheral blood samples were collected from 100 women with recurrent miscarriages and 100 fertile women with no pregnancy loss. Polymerase Chain Reaction (PCR) with specific primers was applied. Restriction enzymes were also used to detect the presence of polymorphism. SPSS version 2.0 software was used.

A statistically significant association was found for rs2070744 and eNOS 4b/a. For rs2070744 the TT genotype is associated with an increased probability of miscarriage (P = 0.0445) while the presence of 4b/a is also associated with recurrent miscarriages (p=0.025).

The above results demonstrate the possibility of creating a genetic profile related to recurrent miscarriages. Consequently, its use in the context of laboratory tests may improve personalized treatment for women with recurrent miscarriages. The creation of genetic panels related to infertility issues leads to more effective solutions to achieve pregnancy.