

9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Key Lectures

K-74

Genetic impairments of implantation failure

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Embryo implantation is a critical stage of pregnancy, and failure in implantation is a main factor in early pregnancy loss or assisted reproductive failure. In humans, natural pregnancy per cycle is poor (~30%), and 75% of pregnancy are terminated because of implantation failure.

A variety of cellular actions and molecular pathways implicated in embryo-uterine interaction during implantation have been recognized, which through gene expression and genetically engineered mouse models studies was found.

However, multiple molecules are engaged in the control of implantation, but their particular actions stay uncertain. Successful implantation of a good quality human embryo in a receptive endometrium needs a

significant and complicated cooperation of factors. Studies on gene- and protein expression have guided to recognition of many endometrial biomarkers and genes of both successful and unsuccessful implantations.

The functions of many candidate genes stayed important because their knocked out commanded to embryonic lethality or systemic faults. Increasing numbers of studies represented that genetic factors influence invasion and angiogenesis developments and they are crucial in embryo implantation. Molecular and genetic studies specify that ovarian hormones produced signaling molecules, containing cytokines, growth factors, homeobox transcription factors, lipid mediators and morphogen genes, work by way of autocrine, paracrine and juxtacrine relations to indicate the complex process of implantation. However, the categorized environment of the molecular signaling pathways that administrate embryo-uterine interactions in early pregnancy remains to be discovered in depth. This could be so, genetic defects and even genetic polymorphisms of genes involved in the developments of implantation could control, or at least intensify effects to implantation failure.