

[Reprod Biomed Online](#). 2011 Jun;22(6):603-14. Epub 2011 Mar 9.

Folate-metabolizing gene variants and pregnancy outcome of IVF.

[Laanpere M](#), [Altmäe S](#), [Kart T](#), [Stavreus-Evers A](#), [Nilsson TK](#), [Salumets A](#).

Department of Biotechnology, Institute of Molecular and Cell Biology,
University of Tartu, Riia 23, Tartu, Estonia. margitL@gmail.com

Abstract

There is growing evidence that folate status and variation in folate-metabolizing genes are involved in female reproductive functions. This study evaluated the influence of maternal blood folate, vitamin B(12), homocysteine and 10 folate pathway gene variants on IVF outcome. Also, the prevalence of these polymorphisms was compared in 439 female IVF patients and 225 fertile controls. MTHFR 677 CT heterozygotes had a higher proportion of good-quality embryos and an increased chance of pregnancy. MTHFR 1793 GA heterozygosity was associated with a lower percentage of previously failed IVF treatments. Heterozygosity for FOLR1 1816 C/delC and 1841 G/A was associated with a raised risk of pregnancy loss. The CTH 1208 GT genotype was associated with an increased chance of pregnancy and a smaller number of previously failed IVF cycles and the genotype frequency was lower in IVF patients with three or more previously failed IVF treatments compared with fertile controls. SLC19A1 80 GA heterozygotes had a decreased number of previously failed IVF treatments and were more prevalent among fertile controls. In conclusion, polymorphisms in folate-metabolizing genes may affect ovarian stimulation and pregnancy outcome of IVF, and heterozygous individuals, rather than the wild-type homozygotes, appeared to have more favourable outcomes.

Copyright © 2011 Reproductive Healthcare Ltd. Published by Elsevier Ltd. All rights reserved.