IGF-1 and IGFBP-1 in peripheral blood and decidua of early miscarriages with euploid embryos: comparison between women with and without PCOS

Lu Luo1, Qiong Wang1, Minghui Chen1, Guangqing Yuan2, Zengyan Wang1, and Canquan Zhou1

1Reproductive Medicine Center and Guangdong Provincial Key Laboratory of Reproductive Medicine, The First Affiliated Hospital of Sun Yat-Sen University, Guangzhou, Guangdong, P.R. China and 2Teaching and Researching Section of Molecular Medicine, Zhongshan School of Medicine, Sun Yat-Sen University, Guangzhou, Guangdong, P.R. China

Abstract
This study aims to demonstrate the possible relationship between the insulin-like growth factor (IGF) system and early miscarriage in polycystic ovarian syndrome (PCOS) patients with euploid embryos. 40 pregnant women included. 9 had PCOS and miscarried; 20 had PCOS and a successful ongoing pregnancy; the remaining 11 women did not have PCOS and miscarried. An ultrasound scan was performed to prove clinical pregnancy and a blood sample was taken on day 55 ± 4 of gestation. Serum samples of IGF-1, insulin-like growth factor binding protein-1 (IGFBP-1), total testosterone, serum hormone binding protein (SHBG), leptin and soluble leptin receptor (sOb-R) were obtained. In miscarriages, samples of decidua were obtained during vacuum curettage. Embryonic chromosomes in all miscarriages were proven to be normal. The expression of IGF-1, IGFBP-1, leptin, long-form leptin receptor and androge sOb-R n receptor (AR) were examined in the decidua. We found that miscarried PCOS patients showed significantly increased free androgen index and free IGF index, as well as decreased SHBG and IGFBP-1 than other two groups in peripheral blood. In the decidua, miscarried PCOS patients showed significantly increased expression of IGF-1 and decreased IGFBP-1 when compared with non-PCOS. AR was not expressed in the decidua of either group. Our results suggest that early miscarriage is associated with increased IGF-1 and decreased IGFBP-1 in PCOS patients.

Keywords
Early miscarriage, IGF-1, IGFBP-1, polycystic ovary syndrome
PCOS 与非 PCOS 患者的整倍体胚胎早期流产妇女的外周血和蜕膜中的 IGF-1 和 IGFBP-1 水平比较

Lu Luo¹, Qiong Wang¹, Minghui Chen¹, Guangqing Yuan², Zengyan Wang¹, and Canquan Zhou¹

译者 李雪，审校者 阮祥燕

¹Reproductive Medicine Center and Guangdong Provincial Key Laboratory of Reproductive Medicine, The First Affiliated Hospital of Sun Yat-Sen University, Guangzhou, Guangdong, P.R. China and ²Teaching and Researching Section of Molecular Medicine, Zhongshan School of Medicine, Sun Yat-Sen University, Guangzhou, Guangdong, P.R. China

摘要

本研究旨在证明胰岛素样生长因子（IGF）系统和多囊性卵巢综合征（PCOS）患者整倍体胚胎的早期流产的可能性。共纳入 40 例孕妇。其中，9 例 PCOS 孕妇出现了流产；20 例 PCOS 孕妇怀孕过程正常，其余的 11 例为非 PCOS 患者出现了流产。在怀孕 55±4 天的时候通过超声扫描证明临床妊娠，并抽取血液样本。获取血清样本中的 IGF-1、胰岛素样生长因子结合蛋白 1（IGFBP-1）、总睾酮、血清激素结合蛋白（SHBG）、瘦素和可溶性瘦素受体（sOb-R）水平。在宫腔刮除术中留取流产孕妇的蜕膜样本。所有流产胚胎的染色体均正常。检测蜕膜中 IGF-1、IGFBP-1、瘦素、长型瘦素受体和雄激素 sOb-R 受体（AR）的表达。我们发现流产的 PCOS 患者外周血中游离雄激素指数和游离 IGF 指数明显升高，而 SHBG 和 IGFBP-1 水平比其他两组明显降低。相比于非 PCOS 流产患者，PCOS 流产患者蜕膜中的 IGF-1 表达明显升高，而 IGFBP-1 的表达降低。AR 在各组中均未表达。我们的结果表明 PCOS 患者的早期流产与 IGF-1 水平增加和 IGFBP-1 水平降低有关。

关键词

早期流产，IGF-1，IGFBP-1，多囊卵巢综合征