Circulating levels of hormones and cytokine in first-trimester pregnancies complicated by threatened abortion

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Context: The purpose of study was to examine hormones and cytokines in serum of first-trimester pregnancies complicated by threatened abortion (TACP).

Patients: 24 women with TACP and adverse outcome (group I), 35 women with TACP and successful outcome (II) and 26 women with uncomplicated pregnancy (III).

Methods: Serum levels of IL-2 and -6, tumor necrosis factor alpha (TNF-?), corticotropin-releasing hormone (CRH), activin A, vascular endothelial growth factor (VEGF), placental growth factor (PlGF) and the soluble variant of VEGF receptor-1 (sFlt-1) were measured by ELISA. Spearmen, Wilcoxon tests, ROC curves were applied to compare differences between groups.

Results: There were no differences in IL-2, -6 and activin A levels between groups. TNF-? level in group II was significantly lower compared with group III. sFlt-1 level was two-fold higher in group III as opposed to those found in groups I and II. In collating with III group, VEGF and CRH levels were definitely lower in II group and higher in I group. The PIGF level was significantly lower in II and I groups, compared with III group. According to the results of Roc analysis the optimum parameter for difference between I and III groups is sFlt-1 <= 0,392 ng/mL, II and III groups is PIGF <= 21,38 ng/mL. There is a difference in multiple markers between groups I and III: ratio VEGF/sFlt-1, CRH/sFlt-1, sFlt-1/PIGH, IL-6/VEGF.

Conclusions: In first-trimester TACP with adverse outcome, alteration of maternal angiogenic factors, TNF-? and CRH levels, compared to first-trimester uncomplicated pregnancy and TACP with successful outcome, is relevant to the missed abortion occurrence.