

# CLINICAL SIGNIFICANCE OF CHANGES IN PRO- AND ANTI-INFLAMMATORY CYTOKINES IN PHYSIOLOGICAL PREGNANCY

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## Abstract

Pregnancy is a unique physiological condition accompanied by a profound restructuring of the woman's immune system aimed at ensuring immunological tolerance to the semi-allogenic fetus.

## Introduction

### Background:

Pregnancy is a unique physiological condition accompanied by a profound restructuring of the woman's immune system aimed at ensuring immunological tolerance to the semi-allogenic fetus. This process requires a delicate balance between pro- and anti-inflammatory responses to simultaneously maintain the mother's immune defenses and prevent immune rejection of the developing fetus. trimesters, but this approach has significant limitations. It does not allow you to identify short-term but significant peaks and troughs in cytokine concentrations, which reflect critical stages of the gestational process, such as placentation, formation and remodeling of the vasculature, as well as key phases of the mother's immune adaptation. It is during these "critical windows" that the greatest changes in immune regulation occur, and any deviation from the physiological norm during this period can serve as an early harbinger of pregnancy complications. For women in the Bukhara region, the normative values of cytokine status by weeks of pregnancy have not been established before. The lack of such data complicates timely clinical diagnosis, reduces the accuracy of predicting possible complications and limits the possibilities of personalized pregnancy management. Conducting such studies will make it possible to develop regionally

adapted standards, which will increase the effectiveness of preventive and therapeutic measures aimed at preserving the health of the mother and fetus.

### **Objective:**

To determine the dynamics of IL-1 $\beta$ , IL-6 and IL-8 by weeks of gestation in physiological pregnancy and to establish their normative values for women in the Bukhara region.

### **Materials and methods:**

The study included 245 women: 180 pregnant women, 28 in labor (38–40 weeks) and 37 controls. Cytokines were determined by ELISA. Distribution by terms: 5–7, 8–11, 12–15, 16–19, 20–23, 24–27, 28–31, 32–35, 36–40 weeks.

### **Results and discussion: IL-1 $\beta$ :**

control —  $22.7 \pm 1.2$ ; peak at 28–31 weeks —  $212.7 \pm 6.1$ ; growth before delivery —  $273.6 \pm 7.5$ . **IL-6:** control —  $27.3 \pm 1.3$ ; maximum at weeks 12–15 —  $113.6 \pm 4.5$ ; decrease by weeks 36–40 —  $34.9 \pm 3.0$ . **IL-8:** control —  $17.5 \pm 0.9$ ; peak at weeks 12–15 —  $98.5 \pm 3.5$ ; low at weeks 36–40 —  $19.8 \pm 1.5$ .

### **Findings:**

1. The weekly analysis method reflects phase changes in immunity during pregnancy more accurately than the trimester approach.
2. Cytokine standards for weeks of gestation for women in the Bukhara region have been established.
3. The data can be used for early detection and prevention of complications.