Provisionally accepted for publication

Comparative assessment of intracellular cytokine production by endometrial lymphocytes in thin endometrium and Asherman's syndrome

Gaini **Anartayeva** [1,*], Almagul **Kurmanova** [1], Gaukhar **Kurmanova** [1], Nagima **Mamedalieva** [1], Saltanat **Baikoshkarova** [2]

[1]Department of Clinical Disciplines, Al-Farabi Kazakh National University, Almaty, Republic of Kazakhstan

[2]Clinic "Ecomed", Almaty, Republic of Kazakhstan

Doi: 10.36129/jog.2024.173

ABSTRACT

During in vitro fertilization and embryo implantation, the thickness of the endometrium plays a crucial role in successful pregnancies. Immunocompetent cells and their cytokines influence these processes significantly. This study aimed to investigate the relationship between trophoblast implantation failures, endometrial thickness, cytotoxic lymphocyte presence, and cytokine production. Patients with recurrent miscarriages and failed implantations underwent screening via ultrasonography, biopsy, karyotyping, and histological studies. Immunocompetent cells were isolated from endometrial tissue through homogenization and centrifugation. Flow cytofluorometry using specific monoclonal antibodies assessed cell markers and cytokine levels. Patients diagnosed with thin endometrial syndrome consistently exhibited an average endometrial thickness of 6 mm, indicating a common feature in cases of non-pregnancy. Cytotoxic lymphocytes expressing CD8, CD16, and CD56 receptors were present but significantly reduced in number compared to controls. Synthesized cytokine levels, particularly interleukin-1 and gamma interferon, were markedly lower in thin endometrial syndrome, with interleukin-10 showing reduced levels correlating with failed fetal implantation and recurrent pregnancy loss. The findings highlight the dysfunction of immunocompetent cells in thin endometrium, suggesting these parameters as potential prognostic markers for non-pregnancy in clinical settings.

Key words

interleukin; interferon gamma; endometrium; immunocompetent cells; non-pregnancy.

INTRODUCTION

Asherman's syndrome, also known as thin endometrial syndrome, is an uncommon and intricate gynaecological condition. Endometrial injury can result from various sources, including invasive operations like hysteromyomectomy or caesarean section, leading to its occurrence. This condition is characterised by the formation of adhesions within the uterus. Often, the cause of adhesions may be chronic inflammation of the endometrium caused by severe infectious diseases (such as tuberculosis). Adhesions result in the partial or total blockage of the cervical canal and uterine cavity, leading to an elevated risk of placental abruption.

The consequences of this pathology are recurrent pregnancy loss (RPL), hypomenorrhea, amenorrhea, and miscarriage. Riemma *et al.* [1] conducted a randomized trial to evaluate the efficacy of Echinacea angustifolia (EA) and Echinacea purpurea (EP) supplementation combined with vaginal hyaluronic acid

***Corresponding author:** Gaini **Anartayeva**, Department of Clinical Disciplines, Al-Farabi Kazakh National University, 050040, 71 al-Farabi Ave., Almaty, Republic of Kazakhstan.
Email: g_anartayeva@outlook.com
ORCID: 0000-0003-2398-8640.