Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2015; 3(8A):2783-2785 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2015.v03i08.010

Research Article

Indicators of Systemic Immunity in Women with Infertility of Tubal Origin

Bakun OV, Medhavi Gajera, Dipti Mehta, Megha Mittal, Priya Patel
Department of obstetrics and gynecology, Bukovinian state medical university, Chernivtsi, Ukraine

***Corresponding author**
Bakun OV
Email: kupchanko06@gmail.com

Abstract: The aim of examination: examine indicators of systemic immunity in women with infertility of tubal origin Criteria for selection of patients for the study: Patients aged 18 to 39 years. Infertility was the main complaint. Infertility associated with tubal factor. Lack of obvious signs of infection at the time of the survey (colpitis, cystitis, chronic pyelonephritis in the acute stage).Absence of pathogens IPPSSH (chlamydia, mycoplasma, ureaplasma, viruses), presence vitro fertilization attempts in history. By the examination of immune status in infertile women listed in the programme of in vitro impregnation and undergone plasmopheresis the decrease of activity in complement system and immune coefficient, the improvement of immunoregulative function of T- lymphocytes-T-helpers/inductors have been registered.
Keywords: infertility, immunology, lymphocytes

INTRODUCTION

Over the past four decades has increased the understanding that most diseases are associated, at least in part, from disorders of the immune system, rather than its inherent security features of the life and health of the body, allows samoruynuyuchi immune processes. Efferent therapy (plasmapheresis) in such cases is, not only pathogenic but etiotropic treatment because the output from the body of toxic compounds allergen or eliminate the source of the disease and helps quickly enough to restore tissue disorders, if not having irreversible organic lesion [1, 2, 4].

Significant role in the positive impact of plasma exchange on the state of T- and B-lymphocyte immunity probably plays accelerate blood circulation, improve micro circulation [1,2]. All cells have the ability to migrate and recycling. We can say that the ability of lymphocytes to recycling underlying functional unity and cooperation of all parts of the immune system.

MATERIALS AND METHODS

A survey of 48 women who were divided into 2 groups. The first group consisted of women with infertility of tubal origin (38 women) who were treated in the traditional. Women group 2 (10 patients), along with traditional training scheme to fertilize them plasmapheresis sessions were held. Age of women in the first group was 28,7 ± 1,2 years, and the second - 30,1 ± 1,2 years, duration of infertility, respectively, 6,9 ± 0,7 and 7,1 ± 1,4 years. All patients were somatically healthy. Population and subpopulation composition of blood immune cells was assessed by indirect immunofluorescence using monoclonal antibodies [3]. State of nonspecific effector immune defense system and the factors and mechanisms specific immune defense evaluated the main indicators of absolute and relative number of major immune cells in peripheral blood. Statistical analysis of the data was performed by variational statistics using Student's t test, Fisher. Results considered likely at a value of $P < 0.05$. Statistical analysis of the data in small groups ($n = 10$) performed nonparametric methods by Mann-Whitney.

RESULTS & DISCUSSION

The first stage in studying of the immune status of infertile women was the determination of absolute and relative concentration of basic immunocompetent cells.

Absolute and relative number of basic immunocompetent cells in periheric blood in women under study. All the obtained and given data in infertile women go to the fact that there are disorders of absolute and relative quantity of immunocompetent cells in peripheric blood. Thus, in infertile women the absolute number of leucocytes (by 6,1%), relative number of monocytes (by 42,7%) and lymphocytes (by 14,6%) are decreased. Against this background the relative number of segmented neutrophils increases. These changes signal that in infertile women a process

is taking place which is caused by microorganisms persisting in the women's organisms. This fact is corroborated by the rise of leukocytic index by 40,56% and the index of immunoreactivity of women's organisms by 31,24% and the reduction of allergization index by 34,74%. And so, the changes of absolute and relative quantity of basic immunocompetent cells, allergization and immunoreactivity indeces as well as leucocytic intoxication index testify to a possible persisting infection of microbic origin. The changes of this kind (the reduction of general absolute number of leucocytes and monocytes) prove possible changes of nonspecific anti-infectious protection. Basic indeces of factors of nonspecific effectory system of anti-infectious protection of infertile women.

The obtained and given data point to the fact that in infertile women the relative number of O-lymphocytes increases by 25,7%, the titer of normal antibodies – 4,4% and immunologic coefficient by 12,0%. Other indeces of antiinfectious protection either decrease (reserve of bactericidal activity of phagocytizing cells, coefficient of phagocytosis activity and activity of the compliment system) or tend to reduce: phagocytosis activity, phagocytic index, phagocytosis potential to decrease. The relative number of O-lymphocytes, immunologic coefficient and concentration of normal antibodies increases against this background.

The reduction of general relative quantity of lymphocytes, absolute quantity of leucocytes, allergization index and increase of immunoreactivity index give evidence of possible changes in indeces of cellular and humoral sections of the systemic immunity.Therefore, at the following stage there was determined the condition of the cellular section and humoral section of the immunity system.

The results show that in infertile women the reduction of lymphocytes number takes place on the account of general pull of T-lymphocytes (by 12,6%), and the reduction of relative number of T-lymphocytes occurs due to CD3+ lymphocytes (T-cytolytic lymphocytes). This can be explained by the fact that in this case the persistence of viral infection is possible at which these forms a cellular immune response involving preferably CD3+ lymphocytes. Thus, in infertile women these decreases the relative quantity of general T-lymphocytes at the expence of CD8+ cytolytic lymphocytes, takes place a tendency of identificational processes (the reduction of relative number of CD4+ lymphocytes-helpers/inductors)to reduce. At the same time, the immunoregulatory index does not change in fact,though there is some tendency to rise.

The obtained and presented results of the studies of the humoral section of systemic immunity testify that in the majority of cases the indeces for infertile women don't differ from the indices in practically healthy women, with the exception of the decrease of serum immunoglobulin A concentration.

Thus, in infertile women there in the blood decreases the concentration of immunoglobulin A at the expense of the reduction of its secretion by B-lymphocytes. Equal concentration of circulating immune complexes in the blood serum confirms equal efficacy of humoral immune response to the antigen in infertile women in comparison with practically healthy women.

Cytokines are secreted, mainly, by the cells of blood and immune system and have autocrine and paracrine action. One part of the cytokines have pluripotent action, the other- specific action on definite cellular lines. The influence of cytokines on the differentiation and proliferation of immunocompetent cells submits to the corresponding sequence. The concentration and combination of active cytokines are significant to a certain extent. According to the effect on the inflammatory process the cytokines are divided into 2 large groups:inflammatory and anti-inflammatory. They can also be divided into several "families":interleukins, interferons, factors of tumor necrosis, transforming growth factors, chemokins and actually growth factors and other. Whith the aim to determine the role of inflammatory and anti-inflammatory cytokins in infertile women, we have studied the concentration of anti-inflammatory cytokine interleukin-4 (IL4) and inflammatory factor of tumours – alpha necrosis (FNT-α). FNT-α(kahexin) is produced by various cells including T- and B-lymphocytes by their stimulation and has many-sided action depending on its concentration. It contributes to the proliferation of T- and B- lymphocytes, activation of natural killers (NK) and macrophages, intensifies the production of prostaglandins, synthesis of adhesive molecules on endothelial cells, that enables neutrophils to fasten to the vascular wall at the site of inflammation, activates respiratory explosion in neutrophils and intensifies kinin potency of phagocytizing cells and production of interleukin-1 (IL-1) and interleukin-6 (IL-6).

Antiinflammatory cytokine interleukin4 (IL-4) is produced by activated CD-4 + lymphocytes of the 2 type (Th-2). Its main function is to help the plasmatic cells switch from immunoglobulin synthesis G1 (Ig G1) into synthesis Ig G4 and immunoglobulin E (Ig E) and to intensity the proliferation of B-lymphocytes. Interleukin-4 is antagonist of gammainterferon, inhibits the oroduction of interleukin-1 (IL-1), FNT-α (cahexin), interleukins-6,8, cytolytic activity CD8+ lymphocytes and macrophages. Taking into account the above-

mentioned, with the aim to determine the referent concentration of inflammatory and anti-inflammatory cytokins in infertile women, these very cytokins have been chosen by us.

The obtained and given results of the study of inflammatory cytokine (FNT-α) and anti-inflammatory (IL-4) concentration have shown that in infertile women the concentration of these cytokins does not differ from the same index of practically healthy women, but there have been established a tendency of anti-inflammatory IL-4 concentration to increase (by 13,3%) and inflammatory FNT-α concentration to decrease (by 4,2%).

CONCLUSIONS

1. In women with infertility decreases the absolute number of white blood cells, the relative number of monocytes and the total pool of lymphocytes, the latter by T-lymphocytes and slightly by B-lymphocytes, reduced activity coefficient of phagocytosis by reducing the activity of the complement system and bactericidal activity of phagocytic cells, reducing the concentration of immunoglobulin A.
2. In infertile women formed latent immunodeficiency condition which does not manifest clinical symptoms.
3. Growth leukocytic intoxication index, the relative number of neutrophilic leukocytes index immunoreactivity, immunological factor indicative of the possible persistence conditionally likely intracellular, the pathogen that persists for epitheliocytes mucosal women surveyed, which requires the use of some modern highly informative methods of detection of these pathogens.

REFERENCES

1. American Society for Reproductive Medicine Practice Committee Report; Antiphospholipid Antibodies do not Affect IVF Success. ASRM Practice Committee, Birmingham, Alabama, USA, 1999; pp. 1–3.
2. American Society for Reproductive Immunology Antiphospholipid Antibody Committee; A rational basis for antiphospholipid antibody testing and selective immunotherapy in assisted reproduction: a rebuttal to the American Society for Reproductive Medicine Practice Committee Opinion. Fertil. Steril., 2000; 74:631–634.
3. Balasch J, Creus M, Fabrigues F, Font J, Martorell J, Vanrell JA; Intravenous immunoglobulin preceding in vitro fertilization–embryo transfer for patients with repeated failure of embryo transfer. Fertil. Steril., 2006; 65:655–658.
4. Bals-Pratsch M, Dören M, Karbowski B, Schneider HPG, Nieschlag E; Cyclic corticosteroid immunosuppression is unsuccessful in the treatment of sperm antibody-related male infertility: a controlled study. Human Reproduction, 1992; 7(1):99-104.