International Science Group

ISG-KONF.COM

TOPICAL ISSUES OF SCIENCE AND PRACTICE

VII

SCIENTIFIC AND PRACTICAL CONFERENCE

02-06 November

London, Great Britain

DOI 10.46299/ISG.2020.II.VII

ISBN 978-1-63649-929-1

SOME FEATURES OF IMMUNOLOGICAL BLOOD PARAMETERS IN WOMEN LIVING IN BIG URBAN CENTER SUFFERING FROM UTERINE LEIOMYOMA

Beniuk Vasyl
M.D., professor, Head of the Department
of Obstetrics and Gynecology No. 3
Bogomolets National Medical University, Kyiv

Drupp Yurii
Ph.D., Associate Professor
Department of Obstetrics and Gynecology No. 3
Bogomolets National Medical University, Kyiv

Niki Abedi Astaneg
Postgraduate student
Department of Obstetrics and Gynecology No. 3
Bogomolets National Medical University, Kyiv

In present studies there are only a few papers devoted to immunological features characteristic of the growth of uterine leiomyoma. Considering the leading role of the immune system in the control of genetic homeostasis, and therefore the importance of its functional state in the control of tissue growth, the study of the body's natural resistance is expected to clarify one more aspect of uterine leiomyoma, especially in women living under the conditions of ecological crisis [1, 2, 3, 4].

Unfortunately, such statements as "compared to the morning indicators, the air conditions in Kyiv has improved, and in the world rankings the Ukrainian capital has moved to the third dozen cities with the worst air quality" sound like news from the front [5] ..... "In the world ranking of air pollution in the cities of Kyiv rose to third place. Now the index of air pollution in Kyiv is 159 at a rate of 50." [6].

Thus, it is clear that the health issues of people living in big urban centers have their distinctive characteristics coming from the impact of environmental factors on the state of all organs and systems, especially the immune system.

Therefore, **the aim** of this paper was studying leukogram parameters and the pool of natural killers in women with uterine leiomyoma living in big urban centers.

Materials and methods: 75 women were examined, among which 25 were apparently healthy (control group) and 50 lived in Kyiv and presented with uterine leiomyoma living in Kyiv. The average age in examined women was 41±0.7 years. All procedures were performed in patients at the initial visit to the family doctor. At the

same time, the anamnesis showed that 70% of sick women already had signs of allergic diseases.

Blood samples were taken from the ulnar vein on an empty stomach at 9 o'clock in the morning. Using the conventional methods, the number of peripheral blood leukocytes was evaluated, and leukogram parameters, including large granular lymphocytes analogs of natural killers, were analyzed.

Additionally, the amount of natural killers was calculated on the basis of the expression of antigen receptors by membranes of lymphocytes in the peripheral blood using monoclonal antibodies method to the cluster of differentiation CD 3+ and CD 16+. The latter was carried out by means of indirect immunofluorescence, utilizing commercial monoclonal antibodies CD 4+, CD 8+.

F (ab') fragments of goat anti-mouse serum labeled with fluorescein isocyanate (FITC) were used as secondary antibodies.

The obtained results were processed using methods of variation statistics.

Results and discussion: Studies have shown that the examined women did not have a decrease in the number of leukocytes. At the same time, an increase in the amount of peripheral blood leukocytes was observed in 33% of the cases. The average number of leukocytes was 5.5 ± 0.23 G/l, and 5.16 ± 0.09 G/l in the control group. Individual parameters ranged from 3,6 to 9,9 G/l.

The average content of band neutrophils - 0.19 ± 0.05 G/l was slightly higher than the regional norm of 0.14 ± 0.02 G/l. In 11% of the examined women the content of band neutrophils was higher than in the women of the control group. The fluctuations of this leukogram parameter ranged from 0.04 G/l to 0.35 G/l.

In 22% of the subjects natural resistance was decreased due to a decrease in the number of neutrophils, while in 44% of individuals an increased amount of neutrophils was noted. The average number of neutrophils in peripheral blood was as high as 6.43 ± 0.68 G/l, in comparison to apparently healthy women living in Kyiv having 2.82 ± 0.08 G/l ($P < 0.05$) and had a discrepancy from 1.46 G/l to 7.03 G/l.

Moreover, the amount of band and hypersegmented neutrophils in peripheral blood turned out to be increased in case of leiomyoma accompanied by bleeding and during the exacerbation of the associated chronic inflammatory process of the reproductive organs.

The amount of eosinophils (0.16 G/l) almost doubled the average of 0.08 ± 0.01 G/l noted in women from the control group. At the same time, in 33% of women the number of eosinophils was near the upper limit of normal, and in 11% it exceeded the norm. It fluctuated from 0.10 G/l to 0.34 G/l.

The amount of lymphocytes was, on average, 1.76 ± 0.2 G/l, with the norm being 2.24 ± 0.09 G/l, fluctuating from 1.15 G/l to 2.87 G/l. Simultaneously, lymphocyte insufficiency was observed in 33% of women, and an increase was noted in 11% of the examined patients.

The amount of monocytes never exceeded the regional norm in all women presenting with leiomyoma. The average number of monocytes in peripheral blood tended to increase and was noted to be 0.20 ± 0.05 G/l. The amplitude of oscillation of these cells ranged from 0.05 G/l to 0.46 G/l.

Large granular lymphocytes were found in only 22% of patients. Their amount did not exceed 0.03 ± 0.01 G/l and 0.06 ± 0.01 G/l in the control group, which reflected the probable (P < 0,05) decrease in this population of mononuclear cells that provide natural resistance of the organism.

Evaluation of the amount of natural killers with the use of monoclonal antibodies also showed almost twofold reduction. The content of this pool of lymphocytes ranged individually from 0.06 G/l to 0.47 G/l. The number of natural killers in 15% of women was increased, and in 85% it was detected to be significantly lower than normal. On average, the content of natural killers in women with leiomyoma almost halved and amounted to 0.17 ± 0.05 G/l, with the norm being 0.35 ± 0.03 G/l.

Thus, the distinctive features of peripheral blood leukogram - a probable increase in the pool of neutrophils and a decrease in the pool of lymphocytes and natural killers were determined. Besides, a decrease in natural non-specific resistance of the organism was detected on the basis of mini-leukogram analysis and natural killer pool analysis carried out by traditional light-optical methods and luminescent microscopy. Therefore, it indicates the role of decreased nonspecific resistance in the development of leiomyoma in women from the eco-crisis metropolis and requires additional research and development of adequate methods of immunocorrection.

Conclusions: Women with leiomyoma living in an environmentally unfavorable city have differences in the leukogram, compared with apparently healthy women in this metropolis. The specified changes indicate a decrease in natural nonspecific resistance in women with uterine leiomyoma, which is manifested by a decrease in the content of lymphocytes and natural killers and requires further study and the development of methods for adequate immunocorrection.

REFERENCES

1, М.А. Флаксенберг Морфологічні особливості ендо- та міометрія у пацієнток з лейоміомою матки і безплідністю // Здоровье женщины №5-6 (151-152)/2020.-С.33-37.

2. Хворостухина Н.Ф., Столярова У.В., Новичков Д.А., Островская А.Е. Причины дисфункции иммунной системы у больных миомой матки, осложненной геморрагическим синдромом // Электронный научный журнал Современные проблемы науки и образования.–2015.–№4. URL:http:// www.science-education.ru/ru/article/view?id=20803.

3. Коган Е.А.,Аскольская С.И., Попов Ю.В., Соломахина М.А., Файзуллина Н.М., Лейомиомы матки больших размеров: патогенетические механизмы роста // Клиническая практика № 1, 2016.-С.42-48.

4. Сидорова И.С., Коган Е.А., Унанян А.Л., Киселев В.И., Агеев М.Б. Клинико-морфологические параллели различных вариантов роста миомы матки // Российский вестник акушера-гинеколога 2019, Т. 19, № 3, с. 29-36

5. Укрінформ мультимедійна платформа іномовлення України (четвер, 29.10.2020,8:12)https://www.ukrinform.ua/rubric-kyiv/3008755-povitra-u-kievi-talocistise-svitovij-rejting.html

6. Матрица свободы, 29.10.2020, Киев, Украина https://myc.news/obshestvo/kiev_v_tope_samyh_gryaznyh_gorodov_mira