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PECULIARITIES OF THE MICROBIOCENESIS IN WOMEN DURING THE GERONTOLOGICAL PERIOD

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ABSTRACT

In the study, the peculiarities of the formation of microecological systems of the intestine in elderly and senile women living in the Uzgen region were studied.

The study of the composition of intestinal microflora attracts special attention from researchers, since bacteria of the gastrointestinal tract play an important role in various processes of human life. Normal intestinal microflora plays an important multiple role in the human body: it activates immunological reactions, maintains vitamin and hormonal balances, stimulates the antitoxic function of the liver, participates in metabolism, and promotes digestion. The work studied the features of the formation of intestinal microecological systems in elderly and senile women living in the Uzgen region. It has been established that the microflora of elderly and senile people is a normal microflora, which undergoes changes with age; putrefactive bacteria begin to predominate in it.

Correcting the time and conditions of transmission of an opportunistic infection in elderly women in order to form a normal biocenosis and improve the environment, through sanitary and hygienic therapeutic measures, a balanced diet will preserve the health of elderly women and reduce the possible costs of treatment for infectious diseases.

Keywords: Microflora, Elderly Women, Putrefactive Bacteria, Candida, Biocenosis, Aging, Digestion, Ecology, Hygiene, Infection.

I. INTRODUCTION

The aging process is a complex of changes that occur as a result of time. Aging is a process of accumulation of various age-related changes. These changes are manifested at the cellular, molecular and tissue levels. Aging is a general biological pattern, which is characterized by a significant weakening of the functional capabilities of all systems of the human body.

Changes, of course, also occur in the digestive system. The gastric mucosa becomes thinner, and the cells become less differentiated.

All this leads to the fact that the secretory and motor functions of the stomach are reduced. In addition to these functions, the acidity level of gastric juice, which affects the state of the intestinal microflora, is also reduced. Therefore, due to the low acidity of gastric juice, putrefactive microbes predominate in the microflora. The number of active enzymes in the human pancreas is significantly reduced. Excess weight also affects the development of processes leading to aging.

In old age, in order to maintain the normal condition and performance of the body, it is necessary to eat properly. If the diet is balanced, it significantly affects the development of the aging process of the body.

As is known, the species composition of the human body microflora is constantly changing, and its stability is relative. The issue of the relationship between microflora and non-specific resistance factors remains unexplored. There are no works in the literature devoted to a comprehensive study of the state of microflora in elderly and old women .

THE PURPOSE AND OBJECTIVES OF THE STUDY

The aim of this study is to determine the role of microbiological systems in elderly and senile women.

In accordance with the stated goal, the following research objectives were formulated:

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To study the features of the formation and functioning of intestinal microecological systems in elderly and senile women living in the Uzgen region.

To determine quantitative and qualitative changes in microflora depending on age and living conditions.

To assess the influence of factors such as nutrition, sanitary and hygienic conditions and lifestyle on the state of the intestinal microbiota.

To develop recommendations for maintaining normal microbiocenosis in women of gerontological age, taking into account the identified features.

SCIENTIFIC NOVELTY OF THE OBTAINED RESULTS

It has been established that elderly and senile women experience characteristic changes in the composition of their intestinal microflora. Normal microflora undergoes transformation with age: the number of beneficial bifido- and lactobacilli decreases, and putrefactive and opportunistic bacteria begin to predominate. This indicates a disruption of the microbial balance, which can contribute to the development of various age-associated diseases.

The novelty of the study lies in identifying the relationship between age-related changes in the body and shifts in the microbiocenosis, as well as in clarifying the role of external factors (nutrition, hygiene, lifestyle) in the formation of microecological disorders. The data obtained can be used to develop preventive and therapeutic measures aimed at maintaining the intestinal microbiome in women of gerontological age.

PERSONAL CONTRIBUTION

The authors of the work conducted a comprehensive information and analytical search on the topic of the study, independently organized and carried out the collection of biological material from elderly and senile respondents. A thorough statistical processing and analysis of the obtained data was carried out using modern biostatistics methods. The results were interpreted taking into account age-related physiological changes and the characteristics of the intestinal microbial composition. The work demonstrates a high level of independence, scientific approach and analytical thinking on the part of the authors, which emphasizes its practical and scientific significance.

ECONOMIC SIGNIFICANCE OF THE RESULTS OBTAINED

The economic significance of the obtained results is that timely correction of the conditions for the transmission of opportunistic microflora in elderly women contributes to the formation of a stable normal intestinal biocenosis, reduces the risk of infectious and inflammatory diseases. Implementation of sanitary and hygienic and preventive measures, organization of balanced nutrition and improvement of conditions for care of elderly patients will reduce the cost of treating infectious complications, reduce the need for expensive drugs and reduce the burden on the health care system. Thus, the implementation of the obtained recommendations in practice will not only improve the quality of life of elderly women, but will also have a positive impact on the health care economy.

Aging is a universal endogenous destructive process, manifested in an increase in the probability of death. The aging process is a continuous gradual transition from stage to stage: optimal health - the presence of risk factors for the development of diseases - the appearance of signs of pathology - loss of working capacity - death.

The rate of aging can be expressed quantitatively using indicators that reflect the decrease in viability and increase in damage to the organism. One such parameter is age. Age is the duration of an organism's existence from birth to the present. The current age standards in force to date were adopted by the WHO Regional Office for Europe in 2019.

Young age - 18-29; Mature age -30-44; Middle age 45-59; Elderly age - 60-74; Old age - 75-89; Centenarians - 90 and older.

Currently, there are more than 380 million people in the world whose age exceeds 65 years. In Kyrgyzstan, one fifth of the entire population is made up of elderly and old people. In the next 10 years, the number of elderly citizens is expected to increase by approximately 2 times, i.e. 40% of the population will be in the elderly and old age category. The incidence rate in elderly people is 2 times higher than in younger people, and 6 times higher in old age.

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As is known, the species composition of the human body microflora is constantly changingchanges, and its stability is relative. The general reactivity of the organism can be judged by the change in the normal microflora of any cavity of the human body. Violation of the quantitative and qualitative composition of the normal microflora - dysbiosis is difficult to treat and aggravates the course of other diseases, including extragenital diseases of elderly women [2]. It is known that the human body is colonized by approximately 500 species of microorganisms that make up the system of its normal microflora, in the form of a community of microorganisms. In a healthy person, they are in a state of equilibrium with each other and the human body. Most of these microorganisms are commensals, absent in the lungs, uterus and all internal organs. At the same time, a distinction is made between the normal microflora of various biotopes: skin, mucous membranes of the mouth, upper respiratory tract, digestive tract and genitourinary system [6].

It is necessary to take into account that permanent and transient microflora are distinguished in the human body. The first is resident, indigenous, or autochthonous microflora, represented by microorganisms that are constantly present in the body. Transient (non-permanent, allochthonous) microflora is not capable of long-term existence in the body. Permanent microflora can be divided into obligatory and facultative. Obligatory microflora (bifidobacteria, lactobacilli, peptostreptococci, E. coli, etc.) is the basis of the microbiocenosis, and facultative microflora includes: staphylococci, streptococci, klebsiella, clostridia, some fungi, etc., they make up a smaller part of the microbiocenosis. The peculiarity of the microflora is also determined by the ability to provide itself with energy resources. For example, for microbes on the surface of the skin, there are four endogenous sources of nutrition: secreted water-soluble substances, secreted fat-soluble substances, keratin breakdown products and cell fragments, excretory substances, and the breakdown products of the microbes themselves [2].

II. MATERIAL AND METHODS OF THE RESEARCH

Our research was conducted in the southern region of Kyrgyzstan: Uzgen district (Kurshab a.o.).

The work is based on a survey of 34 women aged 23 to 80 years.

The isolated microbial cultures must be identified using classical methods based on reference materials by D. Bergi (1997), M.O. Birger (1992).

In order to identify dysbacteriosis, bacteriological studies were conducted in accordance with the methodological recommendations proposed by R.V. Litvak and F.P. Vilshanskaya (1977).

Table 1: Bacteriological culture studies.

	Name of the analysis	**Women of the elderly and senile age**
1	Kaproculture	34

The amount of material was sufficient to conduct the study. Native material was delivered to the laboratory as soon as possible (for most samples, no later than 1 hour after receipt). The material was stored in refrigerators at 40C. When delivering material from remote areas, thermal containers and transport media were used; the biological material was stored for 2-4 hours.

Biomaterials for culturing strict anaerobes were transported to the laboratory, maximally protecting them from the effects of atmospheric oxygen (anaerobic conditions). An accompanying document (map) was attached to the material.

To carry out microbiologicalThe morning portion of feces 5-10 g was taken in a specially prepared bottle for the study. Feces were examined to assess the state of the intestinal microbiocenosis. Bacteriological studies were conducted in the bacteriological laboratory of the Institute of Medical and Biological Problems of the South Ossetian National Academy of Sciences of the Kyrgyz Republic.

Methodology for studying feces. Feces delivered without preservative, in an amount of approximately 1 g. were placed in a test tube with 9-10 ml. of isotonic sodium chloride solution, thoroughly mixed and left for 10-15 min. at room temperature. Sowing of 1-2 drops of feces suspension was carried out on a number of elective and differential media.

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FEATURES OF THE MICROBIOLOGICAL PROFILE OF INTESTINAL CONTENTS IN ELDERLY AND SENILE WOMEN LIVING IN THE UZGEN REGION :

The normal microflora of the gastrointestinal tract is, in essence, the primary target of application of any compound entering with food or water, the metabolic organ that is first involved in the transformation of natural and foreign substances, the structure on which primary absorption occurs and through which beneficial and potentially harmful agents are translocated.

Six types of microorganisms and two types of candidal infection were studied in the feces of elderly and senile women. Fig. 1.

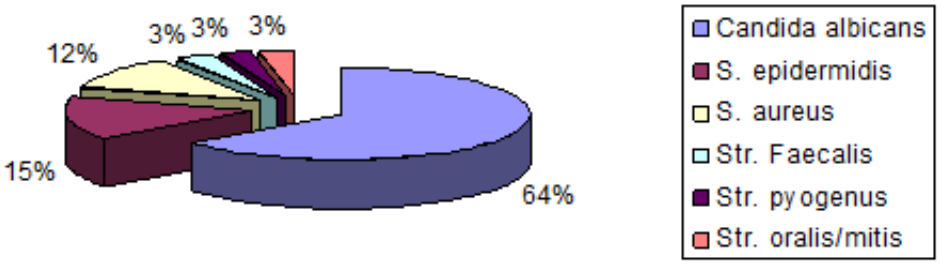

Fig 1:

Drawing1 Gastrointestinal tract n=34

During microbiological examination of feces, 34 (100%) women were diagnosed with grade 1-2 dysbacteriosis according to microbial indicators, in 23 (68%) with a predominance of yeast flora: milky-white colonies of Candida fungi in an amount of more than 104 CFU/g, deficiency of intestinal normobiota - obligate E. coli, bifidobacteria, lactobacilli.

Based on the results of the study, changes in the intestinal microbiocenosis can be traced. In 100% of cases, the examined women have intestinal dysbiosis according to microbiological characteristics, and in 68% with an overwhelming growth of Candida fungi. In 85% of cases, changes in the intestinal normobiota are observed, with a predominance of yeast flora in 64%.

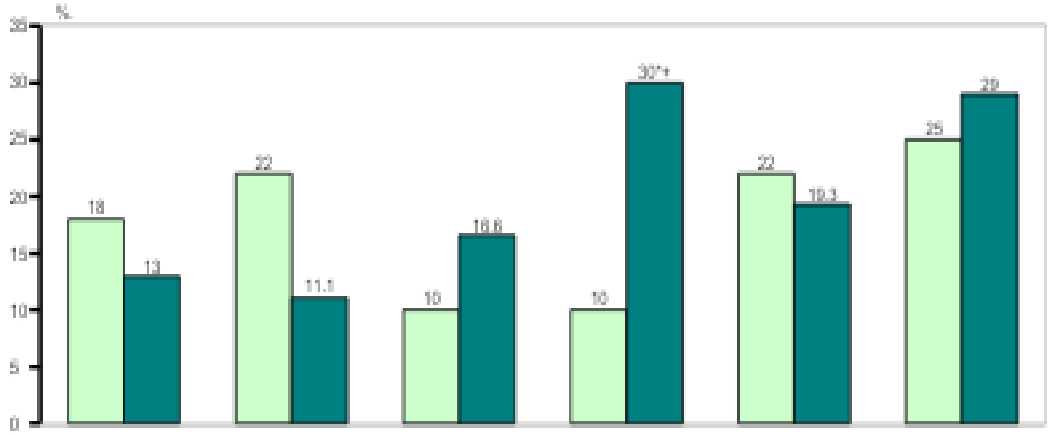

Fig 2: Frequency of cases of candidal infection from the intestinal ecosystem in young and elderly women.

Note: * - P<0.05 significantly in the elderly women group;

+ - reliable in relation to young women.

Against the background of the ongoing changes in the anaerobic link, a 4-fold increase in the frequency of detection of Candida fungi is noted. The described phenomena allow us to consider them as age-related features., (Lebedeva O.V., 2019).

Candida is a conditionally pathogenic component of normal intestinal microflora and can be on the surface of the gastrointestinal tract mucosa without causing damage. As a mechanism for the development of candidal intestinal dysbiosis in the women we examined, we can consider changes that have a certain significance in the

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stability of microbiocenosis indicators. Thus, we consider candidiasis as changes at the level of intestinal microbiocenosis, the occurrence of its dysbiosis, which is closely related to the disorder.

III. CONCLUSION

Based on the conducted research, the following can be concluded: Women who do not follow a balanced diet and personal hygiene rules experience changes in the qualitative and quantitative composition of intestinal microflora. These disorders create favorable conditions for the growth and activation of pathogenic properties of opportunistic (saprophytic) microorganisms.

In elderly and senile people, there is an age-related change in the composition of normal microflora. Against the background of a decrease in the body's defense mechanisms, putrefactive microflora begins to predominate in the intestinal microbiocenosis, which can contribute to the development of chronic inflammatory processes and disruption of the digestive system.

PRACTICAL RECOMMENDATIONS

The results of the study allow us to recommend the creation of a favorable and supportive environment for elderly and senile women. It is necessary to ensure: comfortable living conditions with optimal air temperature;

balanced and regular nutrition, rich in vitamins and probiotics; a good night's sleep;

maintaining personal and sanitary hygiene; psycho-emotional support and attention from loved ones and medical staff.

Such measures help maintain normal microbiocenosis, strengthen the immune system and are an important factor in maintaining health and active longevity.

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