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POLYDEFICIENCY STATE IN ELDERLY AND SENILE PEOPLE AFTER COVID-19

Boltayev K.J., Jarilkasinova G.J.

DSc, Associate Professor, Bukhara State Medical Institute

kamol.boltayev@bsmi.uz,

Abstract: The COVID-19 pandemic has challenged health professionals and patients suffering from hematological diseases with embarrassed diagnosis, treatment, surveillance, social distancing and other constraints. Of particular importance is the homeostasis of the most important hematopoietic factors, that is, the problem of storing iron, copper, zinc, etc. during aging. The study evaluated the incidence of polydeficitis in the elderly and the elderly with respect to gender. During the research work, 325 elderly (65-74 years old) and 65 elderly (75-90 years old) were examined. Analysis of gender differences in the elderly in the determination of various forms of anemia showed that these indicators are cultivated differently than kari age group indicators. It was found that iron deficiency in both sexes and iron deficiency in elderly people is more common than in other forms of anemia, which is accompanied by a deficiency of vitamin B12, and in the same group there is a significant difference in sex.

Keywords: microelementlar, polydeficient state, zinc, women, men, iron, B 12, COVID-19

Relevance. The COVID-19 pandemic caused by the novel coronavirus SARS-CoV-2 has had a significant impact on the tactics of treating a number of non-communicable diseases, which, on the one hand, is associated with the severity the course of the infection itself in patients with somatic pathology, and on the other hand, with the forced redistribution of medical resources [1,18]. Today, there are more than 500 million people over the age of 65 in the world, and by 2030 their number will reach 1 billion, and by 2050 - 2 billion [1,2,16]. The incidence of anemia in people over 65 years is more than 10%, in people over 85 years - around 20%. Anemia is present in 40% of patients over 65 years of inpatient treatment and in 50-65% of outpatients. One-third of the world's population has anemia, which, together with other pathologies, reduces quality of life and increases the risk of death [3,7,17].

The main causes of anemia that develop in the elderly may be a deficiency of iron, vitamin B 12 and folic acid (1/3 of cases), chronic non-communicable diseases, including renal pathology (1/3 of patients). In many cases, the cause of anemia in the elderly and the elderly remains unknown. Excluding hemoblastosis, the number of elderly patients with anemia of unknown etiology is approximately 25% [4,13,15]. Chronic anemia (CA) is the most common anemia in the world (second only to iron deficiency anemia) and has developed and spreads along with infectious, rheumatic

and tumor diseases, chronic heart failure, chronic kidney disease, diabetes, liver cirrhosis and others [8,12,14].

The presence of anemia leads to a decrease in oxygenation of organs and tissues, a decrease in physical activity, the emergence of weakness and a deterioration in quality of life. It should be borne in mind that patients with CA often have a complex pathology - impaired function of the kidneys, heart, liver, and others.

The elderly and the elderly are the most vulnerable group at high risk of developing hypomicroelementosis [5,11,14]. Deficiency of vital hematopoietic micronutrients such as iron, copper, zinc is also noted, resulting in a weakening of the body's compensatory and adaptive capacity during aging, which in turn complicates the metabolism of micronutrients [6,9,10,].

The aim of the study was to assess the prevalence of polydeficiency cases in the elderly and the senile people according to gender after COVID-19.

Materials and methods. During the study, we examined 325 elderly (65-74 years old) and 65 elderly people (75-90 years old). All respondents were randomly selected. Of the total number of seniors surveyed, 120 (36.92%) were male and 205 (63.08%) were female; of the elderly, 28 (43.07%) were male and 37 (56.93%) were female.

In estimating the frequency of detection of various forms of anemia among the controlled contingent, a percentage of the total number of subjects ($n = 325$) was deducted, as such a division reflects the actual state of affairs. The results showed that in older men, IDA and concomitant anemia with IDA concentration and Vit.B12 deficiency were almost identical and did not differ significantly from each other ($p > 0.05$). Anemia of mixed etiology due to iron, zinc, copper, vitamin B12, folate and protein deficiency was $2.8 \pm 0.9\%$ ($n=9$), which is 3.75-4.39 times lower than other anemic parameters ($P < 0.001$).

The situation is slightly different in older women, anemia with IDA and IDA + vitamin B12 is almost the same, the differences in the results of the comparative study are not significant, respectively $23.1 \pm 2.3\%$ and 24.9 ± 2.4 , respectively ($P > 0.05$). Other anemias of mixed etiology, as shown in Table 1, were -1.97 and 6.79 times lower than IDA ($P < 0.001$).

It should be noted that polydeficit due to deficiency of iron, zinc, copper, vitamin B12, folate and protein is $2.8 \pm 0.9\%$ ($n=9$) in women and 3.4 ± 1 in men, respectively, compared to other mixed anemias. Less common in 0% ($n=11$) cases. Both rates are significantly lower than other forms of anemia shown in Table 3.1. ($P > 0.05$).

The results of a comparative analysis between men and women show that IDA and concomitant anemias due to iron and vitamin B12 deficiency are more pronounced in women, with a significant difference of 1.88 and 2.18 times, respectively ($p < 0.001$). A comparative analysis between other forms of anemia showed that there were no gender differences in their occurrence ($p > 0.05$).

Thus, iron and concomitant iron and vitamin B 12 deficiency in both sexes were more common in the elderly than in other forms of anemia, and it was found that there was a significant gender difference in this group.

Summarizing all the studied forms of anemia, it should be noted that the incidence of anemia of mixed etiology was 1.71 times higher in women than in men, and amounted to 63.1% and 36.9%, respectively.

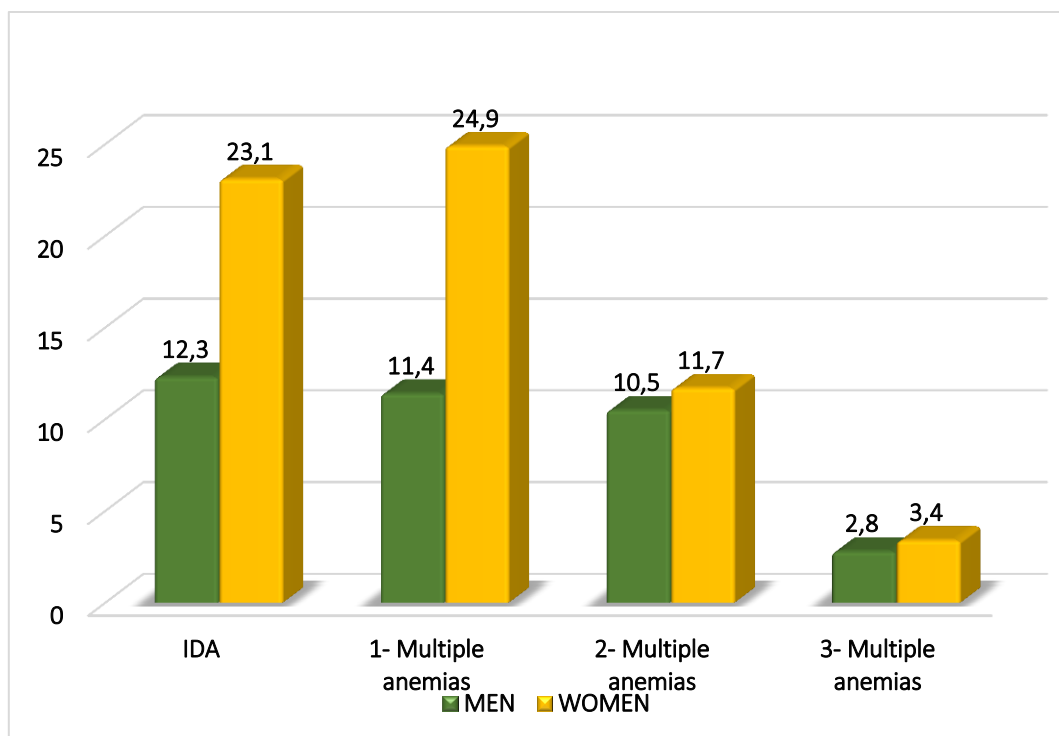


Figure 1. Comparative parameters of the occurrence of forms of anemia in older men and women

Note: first anemia - anemia caused by iron and B12 deficiency; the second co-anemia is anemia caused by iron, zinc, copper, vitamin B12 and folate deficiency; the third co-anemia is caused by iron, zinc, copper, vitamin B12, folate and protein deficiency. Results on the frequency of occurrence of various forms of anemia due to deficiency of certain hematopoietic micronutrients, vitamins and proteins among the elderly (75 to 90 years) were studied. As can be seen from Table 2, IDA also predominates in the incidence of anemia observed in the elderly involved in the study, which was detected in $15.4 \pm 4.5\%$ of cases ($n=10$). The next is anemia, which develops as a result of a combination of iron and vitamin B12 deficiency, and this form of anemia was detected in $13.9 \pm 4.3\%$ of cases ($n=9$). Significantly, polydeficit anemia was detected at a much higher frequency among the elderly due to micronutrient, vitamin B12, folate, and protein deficiencies, a pattern that was detected in $10.8 \pm 3.8\%$ of cases ($n=7$).

2-Table

The incidence of various forms of anemia in the elderly group

The type of anemia	Older people			
	Men		Women	
	Abs	%	Abs	%
IDA	10	15,4±4,5	18	27,7±5,6* ↑
Anemia accompanied by iron deficiency and vitamin B12 deficiency	9	13,9±4,3	13	20,0±5,0 ↑
Anemia accompanied by iron, copper, zinc, vitamin B12 and folate deficiency	2	3,1±2,1 [^]	3	4,6±2,6 [^] ↔
Anemia accompanied by iron, copper, zinc, vitamin B12, folate and protein deficiency	7	10,8±3,8	3	4,6±2,6 [^] ↓
Total	28	43,1±6,1	37	59,6±6,1 ↑

Note: * - Significant differences in the indicators of women from the data of men; - [^] significant difference between forms of anemia; ↑, ↔ - direction of change.

The table shows that the least common type of anemia in the elderly was 3.1±2.1% (n=2) due to a deficiency of trace elements (iron, zinc, copper), vitamin B12 and folate. This form occurred much less frequently than IDA.

Analysis of gender differences in the elderly in identifying different forms of anemia showed that these indicators were different from those of the older age group. A significant difference was detected only in IDA ($p < 0.05$), but due to the small number of observations (n=65) it was not possible to generate real reliability.

A comparative trend in the intensity of gender differences in forms of anemia in the elderly and senile people is shown in Figure 3.2.

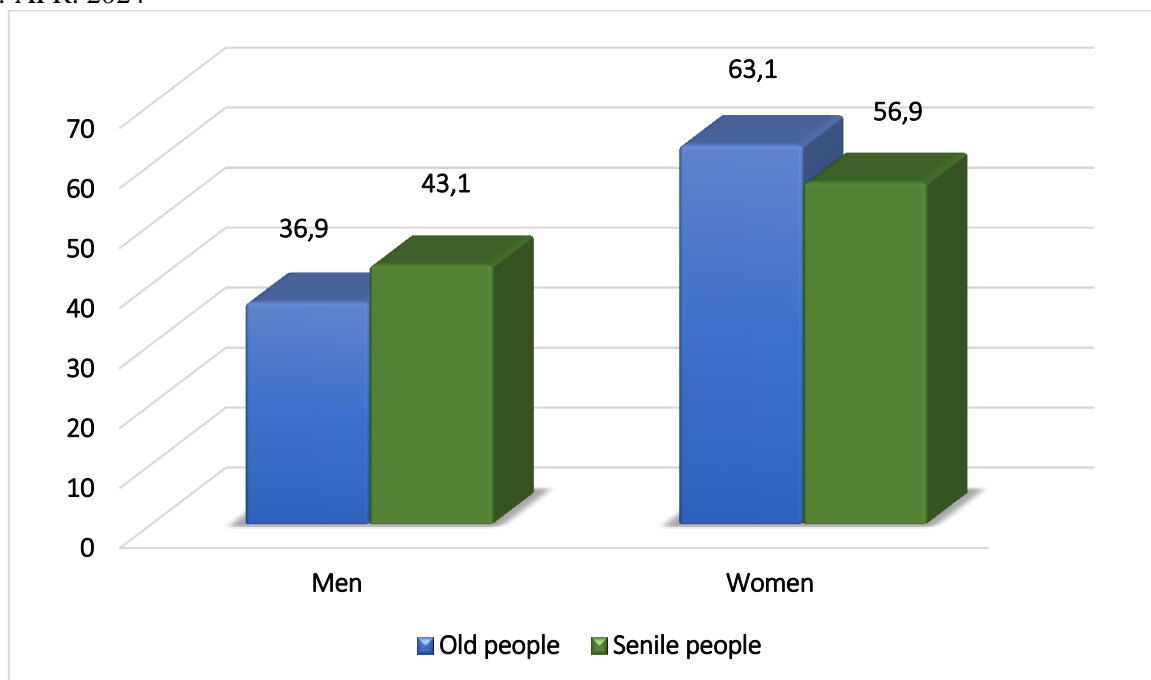


Figure 2. Intensity of gender differences in the occurrence of different forms of anemia in the elderly and senile people, in %.

The most obvious reliable gender differences can be seen among older people and vaguely reliable gender differences in older people.

Thus, the occurrence of different forms of anemia indicates that the trend of changes is the same in the elderly. IDA was significantly 1.8 times more common in women than in men. Concomitant anemia due to iron, zinc, copper, vitamin B12, folate and protein deficiency alone was found to be 2.35 times more common in men than in women. In the elderly, anemia was more common in women than in men - from 56.9% to 43.1%. The identification of some forms of anemia due to deficiency of various hematopoietic factors for all elderly people of both sexes is shown separately. The results showed that the rate of occurrence of different forms of anemia in the elderly and the elderly has the same tendency to change. Anemia due to IDA and iron and vitamin B12 deficiency is common in both age groups and is significantly more common than other forms of anemia ($P < 0,05$).

Anemia due to deficiency of hematopoietic micronutrients (iron, zinc, copper), vitamin B12, folate and protein is more common in the elderly (43.1 compared to $35.4 \pm 2.6\%$ and $6.2 \pm 1.3\%$, respectively). $\pm 6.1\%$ and $15.4 \pm 4.5\%$, ($p < 0.05$), the other two groups of mixed anemias in the elderly were $36.1 \pm 2.7\%$ and 33.1 ± 2.5 , respectively, in the elderly % ($\pm 2.7\%$) more were detected. If we compare the incidence rate of mixed anemias studied in the age categories, it is 1: 1.02: 0.62: 0.18 and 1: 0.78: 0.18: 0.36 in the elderly (Figure 3.3).

These figures mean that they are one of the principles to be considered in the planning of treatment and prophylactic measures in geriatric patients, as well as in the

financing of medical services.

Conclusion. Thus, concomitant nutrient deficiencies in the elderly and the elderly are clinically formed due to various hematopoietic factors - micronutrient, vitamin and protein deficiencies and co-occurring with other chronic non-communicable diseases treatment and prevention of forms, in turn, require specific approaches.

The incidence of IDA in older women was 1.8 times higher than in men of the same age, and the incidence of anemias of mixed etiology was almost the same. However, polydeficitic anemia with iron, vitamin B 12, copper, zinc and protein deficiency was found to be 2.35 times more common in older men. This type of anemia was more common in women (56,9% and 43,1%) compared with those in the control group.

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