



Clinical Features of Rheumatoid Arthritis in Patients at the Age of Older 60 Years Old

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Abstract: It was examined clinical features, data of joint syndrome, neurotic changes and the level of hormones in blood in 48 patients with rheumatoid arthritis (RA) (women – 32, men – 16) in the age from 60 to 73 years old (in average $69,5 \pm 2,2$ years) and 40 patients (women – 31, men – 9) in the age from 16 to 59 years old. In patients older 60 years it was often determined the high level of the activity of the disease (according to DAS 28), significant deterioration of roentgenological signs and functional condition of the patients. For this disease it was typical more severe beginning, injures of the big joints such as knee joint, humeral and the ankle and the development of the significant component of exudation due to the asymmetric oligoarthritis. Most accompanying diseases were arterial hypertension (45,8%), ischemic heart disease (41,6%). The carried out research was promoted to reveal the neurotic disorders in 72,7% of patients: in 22,7% - weak, in 35,2% - moderate and in 14,8% - high degrees of disorders. In group of the patients in the age of till 60 years old neurotic symptoms were revealed in 60,0% of patients, and in group of the patients older than 60 years – in 83,3% of patients such symptoms were revealed in 1,4 times more often. In group of the patients older 60 years old the level thyrotrophin-releasing hormone (TRH), triiodothyronine, adrenocorticotrophic hormone (ACTH) and cortisol were authentic lower than in patients till 60 years old ($P < 0,05$ and $P < 0,02$), and the level thyroxine not always correlated with age and did not correspond to the level of TRH and triiodothyronine.

Key words: rheumatoid arthritis, geriatric features, neurotic disorders, change of hormones.

Rheumatoid arthritis (RA) belongs to the category of severe chronic diseases in older patients. The disease brings physical sufferings, limits the ability of patients to move and self-service worsens the

quality of life and more often leads to invalidisation of the patients (5; 9; 13; 14; 19).

The deterioration of clinical manifestation of RA is promoted by age changes of the joint system and physiological functions of the organism: it reduces the barrier and immune functions, reduces the synthesis of vitamin D, secretion of endorphins, reduction aerobic loading of the bone and muscle mass and the increasing level of adipose tissue. For the development of immunodeficiency it was influenced the following factors: most medications, such as immunodepressants, steroids, non-steroidal anti-inflammatory drugs and antibiotics, deficit and unbalanced nutrition, misbalance of pro- and anti-inflammatory steroids and neurotic disorders (ND) – asthenia, sleeping disorders, anxiety, fear, depression and so on. (1; 2; 3; 6; 7; 8).

At the same time there were not a carried out earlier researches regarding to the clinical features RA among patients in elderly and senile age. In addition there were not enough data about the neurotic disorders (ND) and its relationship with the duration of the disease, the level of the activity of the pathological process and the functional insufficiency of joints. Also in literature we could not find the full correlation analyzes between clinical, neurotical and hormonal indices of the disease.

According to what was said from the above the aim of our research work was to study the clinical features of RA in patients of the elderly and senile age in order to determine their relationship with neurotic and hormonal disorders.

Materials and methods of research

Under the investigation there were 88 patients: women 63 (71,6%), men 25 (28,4%). The age of the patients was 16-73 years old (on average – $42,1 \pm 1,3$ years old), the duration of the disease was from 6 months to 30 years (on average – $6,5 \pm 0,5$ years). All patients with RA were divided into 2 groups: the first group consist of 48 patients (women – 32, men – 16) at the age of 60-73 years old (on average – $69,5 \pm 2,2$ years old), the second group consist of 40 patients (women – 31, men – 9) at the age from 16 to 59 years old (on average – $34,2 \pm 3,2$ years old). According to the classification proposed by WHO, persons at the age until 45 years old are considered as a young people, persons at the age from 45 to 59 years old are considered as a people at the mature age, persons at the age from 60 to 74 years old are considered as people at the elderly age, persons at the age from 75 to 89 years old are considered as a people at the senile age and persons at the age older than 90 years old are considered as long-liver persons. In the practice of rheumatologist we seldom meet patients in the last age category. In that case for the presented materials we did not divide elderly and senile ages, we combined patients at the age of the older 60 years old and put them in the group of the elderly patients. By the duration of the disease ($5,9 \pm 0,8$ and $6,7 \pm 0,7$ years) 2 groups were comparable.

In order to make and formulate the correct diagnosis we took into account of the recommendation regarding to the nomenclature and classification of the diseases proposed by the Institute of the Rheumatology of Russian Academy of the Medical Science – RAMS (9). All patients were undergone to the clinical and laboratory investigations. Laboratory tests included blood analyses to determine the indices of “inflammation”, the levels of rheumatoid factor, circulated immune complexes (CIC) and immuglobulins In the blood serum it was investigated the level of the hormones of pituitary gland (ACTH, TRH and STH) and the hormones of thyroid gland (triiodothyronine, thyroxine, calcitonin). The blood for the investigation was taken in the morning between 7 and 9 a.m on an empty stomach. The level of the hormones was determined by using radio-immune methods in the laboratory of Scientific-Research Institute of Endocrinology of the Academy of Science of the Republic of Uzbekistan. (director – professor S.I. Ismailov). In order to determine the amount of hormones we used the special equipment of the following firms: «Interniational – CIS» (ACTH, cortisol), “Sorin TSN Mallinckrodt”, “SPAC Mallinckrodt” (TRH, triiodothyronine, thyroxine).

The diagnostic of ND was based on the recommendations which elaborated by Scientific-Research Institute of the General and Forensic Psychiatry named by V.P. Serbski (4). For the each patient it was made the unification chart which allowed us to differentiate ND and to determine the degree of these disorders. According to the clinical indications additionally it was carried out the EhoEG, EEG investigation. In all cases of ND in the moderate degree it was needed the consultation of neurologist and . In all cases of ND in the severe degree it was needed the consultation of psychologist or psychiatric.

Statistic processing of the results of investigation was made by using the packets of program Statistica version 6,0 for Windows. For all tests the differences were considered reliable when $P < 0,05$.

The results of investigation and their discussion

As our investigation showed that the aging changes have the direct influence in the worsening of the clinical manifestation of RA: it often registered the high level of disease activity (according to DAS 28), also it was significantly worsening the roentgenological signs and functional condition of the patients. For the patients in the elderly age it was characterized more severe beginning of the disease (in 32 patients, 66,7%), almost without prodroma. More often it was damaged the big joints – such as knee joint, humeral joint and the ankle (in 29 patients, 60,4%), arthritis of the small joints of hand and foot were determined in 12 patients (25,0%). The joint syndrome was taking with the development of significant exudation component with signs of asymmetric oligoarthritis sharp limitations of movement and the general constrained with full paralyses of moving. It was characterized by the high temperature until $37,5-38^{\circ}\text{C}$ (in 19 patients, 40,0%), development of vasculitis (in 15 patients, 31,3%), and lymphadenopathy (in 8 patients, 16,7%).

In all patients it was examined the accompanying diseases such as arterial hypertension (in 22 patients, 45,8%), ischemic hear disease (in 20 patients, 41,6%), obstructive lung disease (in 14 patients, 29,2%), gastro-duodenitis, colitis (in 13 patients, 27,1%), injures of the liver and biliar tract (in 11 patients, 23,0%), chronic infections of the urinary and genital tract (in 10 patients, 20,8%) и diabetes mellitus (in 7 patients, 14,5%).

Table 1. Clinical characteristics of the patients

Indices:		Groups of patients	
		Older than 60 years old	Until 60 years old
Activity according to DAS 28	DAS 28 < 3,2	7(14,6%)	13(32,5%)
	$3,2 \leq \text{DAS } 28 \leq 5,1$	21(43,8%)	20(50,0%)
	DAS 28 > 5,1	20(41,7%)	7(17,5%)
Joint injures	Mono-, oligoarthritis	29(60,4%)	14 (35,0%)
	Polyarthritis	19(39,6%)	26 (65,0%)
Immunologic characteristics	RF +	45 (93,8%)	36 (90,0%)
	RF -	3 (6,3%)	4 (10,0%)
Roentgenological stages due to Shteinbroker	I stage	-	4 (10,0%)
	II stage	10 (20,8%)	18 (45,0%)
	III stage	25 (52,1%)	12 (30,0%)
	IV stage	13 (27,1%)	6 (15,0%)
Functional class	I	4 (20,2%)	15 (37,5%)
	II	14 (29,2%)	13 (32,5%)
	III	23 (47,9%)	8 (20,0%)
	IV	7 (14,6%)	4 (10,0%)

In young patients with RA in the pathological process it was often involved the proximal interphalangeal, metacarpo-phalangeal joints of the hand, metatarso-phalangeal joints of foot and wrist joint. Almost in all patients the beginning of the RA was polyarticular with symmetric injuries of the small or middle joints. The joint syndrome was taking gradually with non-severe aches and the development constraint in joints with the signs of prodroma (weakness in muscles). The accompanying diseases had 12 patients (30,0%): chronic bronchitis (in 6 patients), chronic gastro-duodenitis (in 5 patients), infections of the urinary and genital tract (in 3 patients).

Among the quantitative indices of the joint syndrome (table 2) it was noticed the direct correlation between the high level of pain sensitivity of the patients (due to VASH) and the increasing of their age. Duration of the morning constraint in joints (in 1,27 times), the number of painful joints (in 1,33 times), the indices of the functional test due to P. Li (in 1,30 times) and the degree of the hand's manipulation disorders (in 1,13 times) were also significantly examined in patients of the older 60 years old.

Table 2. Correlation between joint syndromes with the age of patients

Indices:	Groups of patients	
	Older than 60 years old	Older than 60 years old
The morning constraint, min.	112,8±10,0*	88,7±11,2
The number of painful joints	17,2±1,2**	14,5±1,0
The number of swelling joints (max 28)	8,2±1,0	9,1±0,8
Index P. Li, 6	21,8±1,8*	16,6±1,5
Hand's manipulation ability, %	66,5±2,5*	75,6±3,2
Pain due to VASH, mm	76,3±5,1*	61,8±4,1

Note: * - $P < 0,05$; ** - $P < 0,02$

Our research investigation helped us to determine the neurotic disorders in 64 (72,7%) patients: in 20 patients (22,7%) – at the weak degree, in 31 patients (35,2%) – at the moderate degree and in 13 patients (14,8%) – at the severe degree. More often it was diagnosed the asteno-vegetative disorders (in 54 patients – 61,4%). In 23,9% of patients the symptoms of asteno-vegetative disorders combines with the emotional signs, in 14,8% of patients it was combined with hypochondria, in 9,1% of patients it was combined with hysteric signs and in 4,5% of patients it was combined with obtrusive disorders. The clinical manifestation of ND was characterized by the polymorphism and uncertainty of the pain sensitivity, and it also often characterized by the changes in location and the duration of the pain. The clinical symptoms were “mosaic”: it was simultaneously combined neurotic, arthrogenic and visceral elements. During the investigation of the localization place it was established that the pain was absent or it was hypertrophied into the sensor sensation (deficit or hypersensitivity). Additional investigations which were carried out in order to determine the character of the pain (ECG, ultrasound investigation, EchoEG, EEG) did not give us the concrete results. In group of patients at the age until 60 years old ND were determined in 60,0% of patients, and in group of patients at the age older 60 years old ND were determined in 1,4 times more, in 83,3% of patients.

Followed by the modern imagination about the role of nerve and endocrine systems in the regulation of the immune disorders (3; 12; 20) we were analyzed the correlation between the changes of thyroid hormones, ACTH and cortisol depending on the age of patients and the degree of disease activity. In sick patients compared with the healthy people the amount of TRH ($1,9 \pm 0,04$ hg/ml) was in 1,3 times lower, the amount of triiodothyronine ($2,1 \pm 0,04$ nmol/l) and thyroxine ($167,1 \pm 5,6$ nmol/l) – was in 1,2 and 1,4 times higher ($P < 0,05$). With the increasing of the age it was determined the reduction of the amount of thyroid hormones: in the group of patients at the age of older 60 years old the amount of TRH and triiodothyronine on average was $1,7 \pm 0,1$ mEd/l and $2,0 \pm 0,12$ nmol/l, which was significantly

lower than in patients at the age of until 60 years old ($P<0,05$ and $P<0,02$). However, the amount of thyroxine not always correlated with the age and it did not correspond to the amount of TRH and triiodothyronine. The amount of TRH and triiodothyronine was $163,2\pm10,7$ and $169,3\pm11,4$ nmol/l in the first and in the second groups of patients ($P>0,5$).

It was also noted the functional instability of the ACTH – cortisol system in RA. So the amounts of ACTH ($46,12\pm1,38$ ng/ml) and cortisol ($513,77\pm11,56$ nmol/l) were significantly in 1,31 and 1,12 times lower, than in healthy people ($P<0,05$; $P>0,5$). In patients at the age of older 60 years old the amounts of ACTH was $42,64\pm3,72$ ng/l and cortisol – $474,9\pm40,9$ nmol/l, which was in 1,3 and 1,2 times lower than in patients at the age of until 60 years old ($P<0,05$). The level of TRH, ACTH was in the contraindicate position. And the level of thyroxine was in the direct correlation with the activity degree of the disease.

The level of thyroid hormones is defined the reaction degree of the organism to the inflammation and it is a consequence of the reaction of the thyroid gland to the chronic inflammation. The type of hormone secretion which was determined by us have also noted for the presence of the chronic stress (11; 12; 15; 16; 17; 18), in which we have disorders in the interchanging of cellular processes of triiodothyronine and thyroxine. The stress reaction of the thyroid gland, in turn, brings an inability of the organism to regulate and suspend the immunopathological processes and promotes the reduction adaptive characteristics of the human organism.

The changes regarding to the decreasing level of ACTH and cortisol in RA which were determined by us are correspond to the data of literature (1; 19). In our observations in patients with the light and moderate degrees of ND it was noted the tendency for the increasing amount of ACTH and cortisol ($P>0,05$), and in patients with the severe degree of ND the amount of these hormones were significantly lower than in patients who did not have neurotic disorders ($P<0,05$). In our opinion the decreasing level of ACTH and cortisol in patients with the severe degree of ND was stipulated by the age of the patients (older than 60 years old), by using of steroids (in the case history and in the present time) and also by the presence of the chronic stress (worsening of the somatic factors). It was known during the long-term stress patients have the disorders of the perceptual structures of the cells, increases threshold of sensitivities for the different neuromediators, neuropeptides, steroids and lymphokins regarding to those the cells have the appropriate reception system (2; 3; 13). The discrepancy of the level of TRH and thyroxine in most patients can also be correlated to the changes of the threshold of sensitivity of the receptors for the action of the hormones.

So, among the signs of unfavorable prognosis in RA the one of the first place we can put the elderly age. Joint syndrome has a severe duration combined with the big amount of accompanying diseases. It was noted the inversion in the gender correlation male/female = 1:1, as soon as in the young age we examined a big amount of women instead of men (male/female = 1:3-4). For the quality of life of the elderly patients it has a big influence the neurotic and psychotic disorders which were characterized by loss of mood, absence of the previous interests, weakness, fatigue, sleep disorders, loss of appetite and the decreasing of the usual activity. In that case, the basic important part of the treating program for the elderly patients must be the methods for the restoration of psycho-emotional phone, physical and working activity, and also the correct nutrition. The special role for this contingent of patients plays the humane attitude to them from the medical personnel and particularly – from the relatives.

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