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Evolution of Perspectives on Clinical Features, Disease Progression, and Treatment Strategies for Multiple Sclerosis

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Abstract This article analyzes the clinical and radiological dissociative and associative forms of multiple sclerosis (MS) and the pharmacological measures used in their treatment. The study assessed the neurological, immunological and radiological conditions of patients and studied the effectiveness of modern therapeutic approaches. The results showed the effectiveness of treatment regimens using complex immunomodulatory therapy and glucocorticosteroids in the treatment of multiple sclerosis. The study is aimed at identifying effective treatment methods for each type of the disease, reducing relapses and improving the quality of life of patients. This study can be recommended as a scientific and practical guide to the treatment of multiple sclerosis.

Keywords Multiple sclerosis, Clinical-radiological dissociative form, Clinical-radiological associative form, Immunomodulatory therapy, Glucocorticosteroids, Kurtzke scale, MRI analysis

1. Introduction

Multiple sclerosis (MS) is a disease of the nervous system that occurs as a result of damage to the myelin sheath around nerve fibers in the brain and spinal cord of the central nervous system (CNS) [1]. This disease gradually leads to a decrease in functional capacity. The clinical course of the disease is characterized by a set of classic signs, which are Charcot's triad (nystagmus, intention tremor, and slurred speech) and Marburg's pentad (nystagmus, intention tremor, and slurred speech). tremor, slurred speech, optic nerve disc (OND) temporal atrophy, loss of abdominal reflexes) and Markov sexta (visual impairment (concentric narrowing of the visual field, scotomas), vestibular disorders, signs of damage to the eye motor nerve (ptosis, strabismus, diplopia, (sigh), pyramid disruptions, sensitive breakdowns (mostly vibration sensitivity), pelvic organs and mental disorders. However, given the somewhat peculiarities of the course of the disease today, the set of clinical symptoms in the initial and recurrent periods is somewhat different from the above-mentioned set of symptoms. In the initial period of TS, the following symptoms (polyneuropathy, myelopolyneuropathy, facial nerve neuropathy, afferent paresis, retrobulbar neuritis) may also appear in the form of a complex monosytoma [5,6].

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This disease mainly affects people aged 20-40 years and is more common in women. The clinical manifestations of multiple sclerosis are very diverse, since their expression depends on the individual patient and the stage of development of the disease. Clinical and radiological features of the disease dissociative and clinical -radiological associative shapes TC's complexity and diagnosis further makes it difficult [2].

In the last decade, a number of algorithms based on relapse frequency, disease progression, and MRI data have been adopted to evaluate the effectiveness of TS treatment. These algorithms require regular treatment, which helps to continuously monitor the effectiveness of the treatment [3-5]. The use of various approaches in the treatment of TS helps to effectively control the disease, reduce the number of relapses and positively affect the patient's quality of life.

Clinical and radiological dissociative forms, clinical and radiologist signs to each other suitable absence with is characterized. This case, some in patients radiologist inspections through observed changes in clinical symptomatology suitable absence possible means. Thus together, clinical- radiological associative forms, clinical and radiologist expressions to each other filling and their mutual connection exists to be with described [6].

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continuously monitor the effectiveness of the treatment [5]. The use of various approaches in the treatment of TS helps to effectively control the disease, reduce the number of relapses and positively affect the patient's quality of life. Man placental on the basis of hydrolyzate (BG). combined preparation - Laennec, the amount of BG in its composition is 112 mg to organize will. From now on outside of macroelements: N, P, C, S, Ci, Na, Mg, Ca, K; microelements: Zn, Br, Si, Fe, Mn, c, Se, Cr, V, Cu, Li, B, Co, low molecular regulatory peptides human growth factor as (GF): insulin similar (IGF), hepatocytic (HGF), fibroblasts (FGF), epidermal (EGF), nerve growth growth factor (NGF), granulocyte colonial growth factor (G-CSF) and macrophages (M-GSF), V 1 growth of cells transformable factor (TGF B1), growth factors PDGF-BB, vessels growth factor (VEGF), TNF-α, from this outside interleukins (IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-8, IL-10, IL-12), erythropoietin, interferon (IFN-γ), leptin, dehydroepiandrosterone, amino acids, and in exchange the ones that don't both (threonine, serine, proline, glycine, etc anine, methionine, lecine, isoleucine, valine, phenylalanine, histidine, lysine, arginine, taurine, aspartic acid, glutamine acid, cystine), nucleic acid, organic acids, nucleosides, glycosaminoglycans (glucuron and hyaluron acids, chondroitin sulfate), vitamins (PP, C, D and V group vitamins). of the drug the base organization doer important from the aspects one this placental of cells neurotrophic function. Placenta drugs this clearly neurotrophic function row scientific in research showing passed. Example for Ibanez CF Jekyll-Hyde of the spent experiences that showed that the laboratory in rats chair nerve from injury to recover was in progress of axons regenerative growth and the myelin sheath with wrapping in those who received stage BG one bath that it accelerated showed (r =0.001) [7]. Nerve growth growth factor (NGF) of the brain duties for important factor is, exactly in the placenta his/her humidity manager factor [6]. NGF neurotrophic from the function outside neuroprotector task both is, this process NGF cell internal signal receptor which is tyrosine kinase through the enzyme (TrkA). activates. Immunoplacental of preparations immunoregulator effect of the following impact mechanisms contained in the drug oh my god and his/her compounds and antioxidant properties to the surface arrival as a result to do increases [7]. The most important cell inside processes activation of JNK/SAPK signals through leukocytes transcription (NF- kappa B and AP-1) results in an increase in the amount of IL-8 increase with expression [8] Who is YS and others by in mice planted experience to the results according to the application of BG as a result peripheral of T- cells in the blood, to him similar harvest was cytokines and CD4(+) cells number decreased [9]. The neuroophthalmological effect of placental cell preparations was investigated in a study by Girotto G. and Malinverni W., in which the drug was prescribed to 54 patients with varying degrees of anatomical and functional changes in the eyes, various dystrophic processes of the retina (myopia, age-related changes) [10]. In the scientific work, the level of visual acuity, photosensitivity, electrophysiological activity of the retina checked. The drug was administered intramuscularly (3 ml/day) for 20 days, and the above parameters were checked before and after the treatment. According to the unique composition of Laennec, its anti-inflammatory properties slow down the "cytokine storm" process that occurs in TS and prevent the erosion of the myelin sheath. receives, as well as in the cells of the central and peripheral nervous system remyelination, neurotrophic and increases neuroprotective properties.

Taking into account the above-mentioned properties of Mavics and Laennec drugs and their neurometabolic synergism when used together, we developed a complex treatment regimen and obtained an invention patent (IAP07257). We used it in combination not only for TS, but also for RIS and KIS to prevent disease progression and ensure long-term remission.

Potentiated effects of Laennec and Maviks drugs

No.	Drugs used	Effects
1	LAENNECK	Immunoregulation+neuroprotection+ neurotropic
2	MAVIX	Neuroprotection + myelination
3	LAENNECK+MAVIX	therapeutic effect increase: Immunoregulation + neurotropism + myelination gerontoprotection

This in the article, clinical and radiological of TS dissociative and associative shapes and their medication cure that one above invention patent based on optimization analysis will be done. Of the disease in diagnostics improvement and treatment methods effective use, patients life to the quality good impact to show for important to the point owner. At this point by implication, of TS various forms analysis to do and for them the most effective treatment approaches to determine, this the disease further deeper to understand help gives.

Research purpose

Clinical and radiological aspects of multiple sclerosis (MS). dissociative and associative in the forms applicable medication treatment measures analysis from doing consists of.

2. Materials and Methods of the Study

All our patients with multiple sclerosis were treated in the departments of the 1st RKSH and in outpatient settings, a total of 64 subjects were enrolled. Patients with a diagnosis of multiple sclerosis were monitored for treatment measures. All patients in the divided clinical-radiological associative (CRA) and clinical-radiological dissociative (CRD) groups underwent outpatient and inpatient treatment at the 1st Republican Clinical Hospital. Clinical and neurological changes were assessed using Kurzke's FS and EDSS, MRI criteria for determining the degree of disability for, according to the McDonald 2017 MRI criteria. [4]; clinical-radiological associative types of TS developed based on the diagnosis: relapsing-remitting and secondary progressive types, in

addition, RIS and KIS were obtained from the clinical-radiological dissociative types. All patients examined were between 18 and 40 years old, and all were monitored during the period of the disease, the duration of which did not exceed 14 to 60 days. Our patients underwent MRI (with contrast) and immunological examination (between 3 and 6 months) before and after treatment, the degree of disability using the EDSS scale (days 1 and 35 of treatment, the functional state of the nervous system using the Kurzke scale, and the psychoemotional status using the HADS.

3. Results of the Study

Our patients received combined placental hydrolysate 2.0 + Monosialoganglioside GM1 40 mg (LAENNEK 2.0 ml intravenously and intramuscularly for 10 days) + (maviks-40 mg intravenously for 5 days) as a basic treatment, as well as symptomatic treatment (vitamin B complex, anticholinesterase, kentron). Before the observation phase of treatment, all of our patients were required to retrospectively refrain from taking the above drugs and GCS. All 64 patients in our study were between 18 and 40 years old, and we divided them into 2 large groups: Group 1 (n=34) is the CRD group, with radiological foci located mainly in the paraventricular, subcortical, and tentorial areas, with mild to moderate clinical symptom complexes, immunological humoral and autoreactive cells increased 1.5-2 times above normal, and patients with an EDSS score of up to 3.5 points received combined placental hydrolysate 2.0+Monosialoganglioside GM1 40 mg and symptomatic antioxidant (Droneuro), central and peripheral remyelinating drug (Kentron), vitamin B complex, and anticholinesterase (Neiromidin) therapy.

The second group (n=30) was CRD, with radiological MRI foci located in the occipital juxtocortical, cerebellar, dorsal brain, and brainstem, and with severe clinical and neurological symptom complexes (acute progressive vision loss, scotoma, pronounced atrophy of the optic nerve, impairment of all types of sensation, pronounced pyramidal and cerebellar dysfunction, immunological humoral and autoreactive cells increased 3-4 times above normal and EDSS score above 5.5 points). The treatment phase was initially hormonal therapy (500 mg Solu-Medrol for 3-5 days or GCS (prednisolone) 1-2 mg/kg) and after 1.5 months, GCS + base + neuroprotective (Maviks) therapy for immunomodulatory purposes (combined placental hydrolyzate 2.0+Monosialoganglioside GM1 40 mg) and symptomatic therapy was performed.

The purpose of our study was not to compare the treatments between these two groups, but to analyze the results of the combination developed on the basis of a patent for the invention, which was used to achieve remission without immunosuppression in the early stages of the disease, and in the group receiving hormonal therapy, to form a balance of the post-hormonal immune system, create a criterion for remission, prevent subsequent relapse, and provide a booster effect.

All groups of patients underwent regular clinical neurological and radiological and immunological, neuropsychological re-examination (from the first examination day and up to 60 days) in dynamics before and after treatment.

For group 1 (the scheme of drugs used by KRD: Laennek 2.0+sodium chloride 0.9%-100.0 v/i drip No. 5 and 2.0 m/o No. 5, recommended to patients. Basic therapy Maviks 40 mg+ of sodium chloride 0.9%-200.0v/i drip #5 every 10 days, vitamin V complex 2.0 m/o for 5 days, then 1 tab 2 times for 25 days, antioxidant-droneiro 4.0 (250mg) + sodium chloride 0.9%-100.0v/i drip for #5 day, kentron 40 mg m/o 10 days, neuromiddin 10 mg 2.0 m/o 10 days, then in the form of tablets 1 tab 2 times 25 recommended during the day.

2 For the (CRA) group, those who received pulse therapy (500 mg Solu-Medrol for 3-5 days). After pulse therapy (40 mg-) or those who did not receive it, GCS (prednisolone 5 mg) was given at a dose of 1 mg/kg (45 days). Patients who received GCS in tablet form were monitored throughout the course. After 45 days of hormonal therapy, treatment was continued for 10 days in the Laennec + Mavics complex.

All treated patients were examined using the clinical, neurological EDSS and FS [7] scales, and the dynamics were repeated on the 1st and 45th days. During the treatment, an ophthalmologist also examined the fundus, visual acuity, and visual field at the 1st and after treatment (on the 45th day). Blood immunological - IgM, IgG, CD4/CD8, CD16, CD20 ratio, cell apoptosis factor CD95, as well as cytokines IL-4, IL-6, IL-8, IL-10, TNF alpha, IFN gamma, intracellular immunity status, MRI markers to determine the complete cessation of the exacerbation process and the degree of remission were examined twice (1st during the exacerbation period of the disease and 3-6 months after treatment.

The clinical and neurological parameters of all patients were analyzed using the Expanded Disability Status Scale (EDSS). Analysis of the EDSS results. The mean EDSS score of the CRD group before treatment was 3.5±0.47, the mean EDSS score after treatment was 1.5±1.01, the mean improvement was 2.0 ±1.2. In this group, the effectiveness of Laennec and Mavics drugs, therapy was high, and the level of disability of the patients improved significantly. In both groups that received hormonal + combined treatment (immunomodulation), the mean EDSS score before treatment was 5.5±1.02, the mean EDSS score after treatment was 3.8±0.91, the mean improvement was 1.9±0.15. In this group, the effectiveness of immunomodulation (Laennek) therapy after GKS and basic treatment is also high, and the condition of patients has improved. Analysis summary: Patients in the complex immunomodulatory therapy group (KITG) and the glucocorticosteroid and subsequent immunomodulatory therapy group (GKITG) improved after treatment. Treatment efficiency was high in both groups.

These results demonstrate the effectiveness of the treatment measures and confirm the usefulness of these therapies in the treatment of multiple sclerosis.

Table 1. Clinical course of TS patients weight to the level according to treatment order

Treatment plan	CRD (Group 1)	CRA (Group 2)
Main drugs	Laennek 2.0 ml + sodium chloride 0.9% - 100.0 ml intravenous drip, No. 5; Laennec 2.0 ml m/o, #5; Maviks 40 mg + sodium chloride 0.9% - 200.0 ml intravenous drip, No. 5;	Solu-Medrol 500 mg pulse therapy (3-5 days) + tablet (40 mg); prednisolone 1 mg/kg tablet form
Additional treatment	vitamin B complex 2.0 ml m/o, for 5 days	Hormonal 45 days after therapy Laennec + Mavics complex for 10 days cure continue was taken
Applied antioxidants	Antioxidant Droneyro 4.0 ml (250 mg) + sodium chloride 0.9% - 100.0 ml intravenously, No. 5	pulse therapy later from hormones use, then complex therapy
Neurotropic therapy	Neuromidin 10 mg, 2.0 ml m/o 10 days; in the form of tablets 1 tab 2 times for 25 days	Pulse therapy or hormonal from therapy later under control conversations and treatment continue was taken
Additional recommendations	Vitamin V complex (in the form of tablets) 1 tab 2 times for 25 days	Clinic and neurological inspections EDSS and FS scales with was held
Inspections	Ophthalmological examination (eye) bottom, see sharpness, vision area) on the 1st and 45th days	Ophthalmological examination (eye) bottom, see sharpness, vision area) on the 1st and 45th days
MRI and immuno Gram	IgM, IgG, CD4/CD8, CD16, CD20, SD95, IL-4, IL-6, IL-8, IL-10, FNO alpha, IFN-gamma tests were performed twice.	The same measurements were taken twice before and after 1 examination and 3-6 months after treatment.

Table 2. Analysis of pre- and post-treatment outcomes between groups using the Kurzke Scale (EDSS)

Group	Number of patients	Kurzke scale EDSS result (before treatment)	Kurzke scale EDSS result (after treatment)	P-values
CRD group receiving complex immunomodulatory therapy (KITG)	30	3.5 ±0.47	1.5 ±1.01	0.005
CRA group receiving hormonal and subsequent complex immunomodulatory therapy (GKITG)	34	5.7 ±1.02	3.8 ±0.91	0.001

Table 3. Analysis of neuroophthalmological outcomes before and after treatment in groups

Group	Visual acuity (before treatment)	Visual acuity (after treatment)	Visual acuity efficiency (%)	P-values
KRD group with complex immunomodulatory therapy (KITG)	0.5 ±0.51	0.8 ±1.27	+60%	0.001
CRA group receiving glucocorticosteroid and subsequent immunomodulatory therapy (GKITG)	0.4 ±0.32	0.7 ±1.22	+75%	0.001

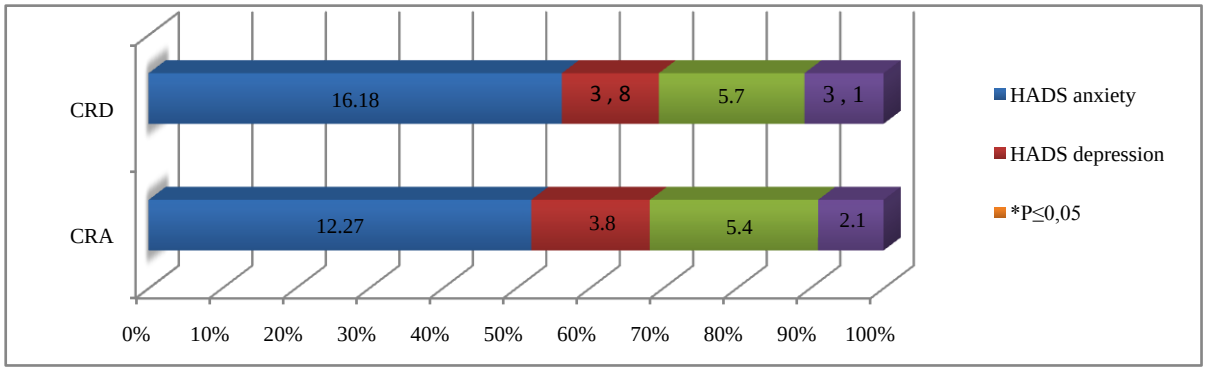

Figure 1. In monitoring groups Differences in psycho-emotional states after treatment according to the HADS (Hospital Anxiety and Depression Scale) scale

All patients in our study underwent neuro-ophthalmological examinations. These studies were evaluated based on pre- and post-treatment scores (Table 3).

In KITG, mean pre-treatment visual acuity was 0.5±0.51, and mean post-treatment visual acuity improved to 0.8±1.27, representing +60% efficacy. In this group (Laennec and Maviks), the effectiveness of the treatment was high, and the visual acuity of the patients improved significantly.

In GKITG, the mean visual acuity before treatment was 0.4±0.32, and the mean visual acuity after treatment reached 0.7±1.22, giving an efficacy of +75%. It can be seen that the effectiveness of the therapy was also high in this group. According to the results of neuroophthalmology, visual acuity significantly improved after treatment in both groups.

We analyzed neuropsychological indicators before and after treatment in both groups of patients and obtained the

following results (Figure 1).

In the diagram Changes in depression and anxiety scores on the HADS scale in patients in the CRA and CRD groups before and after treatment were described. In the CRA group, the level of anxiety decreased from 12.27 points to 3.8 points, which gave an efficiency of 67.3%, while in the CRD group this indicator was significantly higher - from 16.18 points after treatment Depression scale indicators are also 5.4 in the KRA group The results showed that the patients in the CRD and CRD groups had a significant difference in anxiety levels and treatment efficacy ($p<0.05$), which confirms the reliability of the results. shows that the treatment process had a positive effect on the psychoemotional state.

The chart below compares cognitive function measured by the Montreal Cognitive Assessment Scale (MoCA) before and after treatment in patients in the CRA and CRD groups. Minimal change in indicators and approximation to normal values after treatment All patients were explained by the anxiety states observed, which caused mild cognitive changes, mainly due to impaired operative memory. After the anxiety states were eliminated, we observed that the HADS indicators fell within the normal range and memory improved in both groups. A detailed analysis of cognitive function is presented in Figure 2.

Obtained were distributed in the groups as follows: CRA group - the MoCA score before treatment was 23.4±0.5 points, indicating mild cognitive impairment, after treatment this indicator increased to 27.4±0.6 points, this indicates that there is an improvement in cognitive functions ($P< 0.001$). The CRD group had a pre-treatment MoCA score of 25.4±0.6 points, slightly higher than the CRA group's score of 26±0.5 points, indicating improved cognitive function ($P< 0.001$).

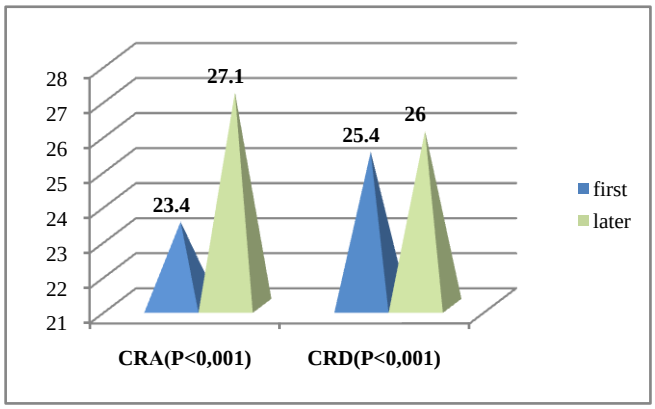

Figure 2. Dynamics of cognitive function assessment using the Montreal Cognitive Assessment (MoCA) scale before and after treatment in CRA and CRD

In conclusion, according to the results in the diagram, both the CRA and CRD groups showed an improvement in cognitive function after treatment, confirming the effectiveness of the treatment. Overall, the treatment helped improve cognitive function, with improvements in MoCA scores in both groups.

Table 4. The MRI results before and after treatment are shown in the table below

Group	Maximum lesion size (before treatment)	Lesions (after treatment)	Change in lesion site (%)	P-values
KRD group receiving complex immunoprotective therapy (KITG)	7.5 ± 2.1	4.2 ±1.32	44%	0.05
KRA group receiving glucocorticosteroid and subsequent immunoprotective therapy (GINTG)	7.8 ± 1.8	4.5 ±1.48	42%	0.05

Table 5. Post-treatment comparison analysis of autoreactive cells between groups

Indicators	From treatment before (KRA)	From treatment after (KRA)	Efficiency % KRA	From treatment before KRD	From treatment later KRD	Efficiency % KRD	P-values (KRA)	r-(KRA)	P-values (KRD)	r-(KRD)
IL4	60.48	20.0	-66.93	59.6	18.0	-69.8	0.03	0.72	0.03	0.71
IL6	11.01	7.0	-36.42	9.15	6.0	-34.43	0.04	0.85	0.05	0.86
IL8	22.77	10.0	-56.08	15.8	9.0	-43.04	0.02	0.9	0.02	0.88
IL10	12.73	18.0	41.4	12.72	17.0	33.65	0.01	0.88	0.01	0.87
TNF-alpha	12.57	7.0	-44.31	10.92	6.5	-40.48	0.03	0.75	0.04	0.74
IFN-γ	20.5	15.0	-26.83	13.35	13.0	-2.62	0.05	0.92	0.05	0.91
IgG	9.26	5.0	-46.0	1.09	4.0	266.97	0.02	0.81	0.02	0.82
IgM	6.8	4.5	-33.82	3.5	3.5	0.0	0.01	0.79	0.03	0.78
IgA	3.6	2.5	-30.56	0.85	2.0	135.29	0.03	0.85	0.03	0.84
CD4	48.2	25.0	-48.13	22.93	22.0	-4.06	0.04	0.78	0.05	0.77
CD8	34.64	15.0	-56.7	7.56	13.0	71.96	0.05	0.91	0.05	0.9
CD4/8	0.88	0.8	-9.09	0.3	0.7	133.33	0.02	0.82	0.02	0.83
CD16	33.06	20.0	-39.5	19.26	18.0	-6.54	0.03	0.77	0.03	0.76
CD20	890.0	500.0	-43.82	778.91	450.0	-42.23	0.01	0.83	0.02	0.82
CD95	44.86	20.0	-55.42	28.26	19.0	-32.77	0.04	0.9	0.04	0.89

In KITG, the average lesion size before treatment was 7.5±2.1, the average lesion size after treatment was 4.2±1.32, and the absorption of the lesion size was -44%, confirming the effectiveness of the drugs.

In GKITG, the mean lesion size before treatment was 7.8±1.8, the mean lesion size after treatment was 4.5±1.48, and the absorption of the lesion size was -42%. Even in this group, the lesion was significantly reduced after treatment. After GKS and basal treatment, the effectiveness of Laennec therapy was higher. According to MRI results, both groups showed an approach to paraclinical remission after treatment.

During the treatment of patients in the CRA and CRD groups, a certain degree of recovery of humoral and cellular immunity was observed. In particular, the total lymphocyte count (CD20) decreased by 1.78 and 1.73 times, and the number of T lymphocytes (CD16) decreased by 1.65 and 1.87 times, but while the number of CD20 cells tended to normalize, the number of CD16 cells remained statistically significantly lower. It should be noted that the CD4 cell count decreased by 1.21 times in the CRA group, while it did not change much in the CRD group and remained statistically significantly lower than the reference values in both groups. The high number of CD8 cells decreased by 2.31 times in the KDA group, while its low values increased by 1.71 times in the CRD group and did not differ from the reference values in both groups. These changes led to the immunoregulatory index remaining below the reference values. The high number of CD95 cells decreased by 2.24 and 1.49 times in the CRD and CRD groups after treatment, but remained above the reference values by 1.82 and 1.73 times.

Treatment of patients in the CRD and CRD groups reduced the high levels of pro-inflammatory cytokines. In particular, the level of IL- 6 decreased by 1.57 and 1.53 times, but remained 1.71 and 1.46 times higher than the norm. The high levels of IL -8 decreased by 2.28 and 1.76 times in the CRD and CRD groups after treatment, but remained 20 and 18 times higher than the norm. The level of TNF- α decreased by 1.8 and 1.68 times in the CRD and CRD groups after treatment, but remained 2 and 1.86 times higher than the norm. The results obtained indicate that chronic inflammatory processes persist in both groups of patients. The level of anti-inflammatory cytokines changed as follows. In particular, the level of IL4 decreased by 3.24 and 3.31 times in the CRD and CRD groups, but remained 3.45 and 3.1 times higher than the norm. The level of IL10 increased even more after treatment: it increased by 1.42 and 1.34 times in the CRD and CRD groups, and was 8.57 and 8.1 times higher than the norm. The level of IFN- γ decreased by 1.37 times after treatment in patients in the CRD group, but remained 1.25 times higher than the norm. In patients in the CRD group, this indicator did not change and did not differ from the norm.

According to the results of the post-hoc assessment, the average duration of relapses in the CRA group was 4.0±1.2 months (33%), the average duration of remissions was 8.0±1.5 months (67%), and the number of relapses was 2–3 times per year, while in the CRD group the average duration of relapses was 2.0±0.8 months (17%), the average duration of remissions was 10.0±1.3 months (83%), and the number of relapses was 1–2 times per year. The higher proportion of the total remission time in the CRD group indicates the superiority of the mild course of the disease over CRA, the absence of a hormonal stage of treatment, and this scientifically substantiates the need for immunomodulatory, neurometabolic and supportive therapy (placental hydrolysate-Laennec) treatment in accordance with the type and course of the disease.

4. Discussion

To summarize the results, significant changes were noted in the CRA and CRD groups before and after treatment (see Figure 2). In particular, the treatment did not significantly affect the FS index in the CRA and CRD groups, while the EDSS index decreased by 1.5 and 2.33 times in these groups. MRI criteria In the KRA and KRD groups it decreased by 1.86 and 1.79, while the neuroophthalmological results decreased by 1.5 and 2.0 times. Anxiety level decreased 1.23 and 1.35 times after treatment, depression index decreased 1.52 and 1.36 times, cognitive functions tended to increase in both groups, that is, KRD was lower compared to KRA group. These results demonstrate the effectiveness of the treatment process in the KRA and KRD groups, confirming the scientific validity of the investigations. According to the results of the post-hoc assessment, the average duration of relapses in the CRA group was 4.0±1.2 months (33%), the average duration of remissions was 8.0±1.5 months (67%), and the number of relapses was 2–3 times per year, while in the CRD group the average duration of relapses was 2.0±0.8 months (17%), the average duration of remissions was 10.0±1.3 months (83%), and the number of relapses was 1–2 times per year. The higher proportion of the total remission time in the CRD group indicates the superiority of the mild course of the disease over CRA, the absence of a hormonal stage of treatment, and this scientifically substantiates the need for immunomodulatory, neurometabolic and supportive therapy (placental hydrolysate-Laennec) treatment in accordance with the type and course of the disease.

5. Conclusions

The results of the study clearly showed the effectiveness of drug treatment measures used in various forms of multiple sclerosis (MS). It was found that treatment measures carried out on the basis of a special plan were highly effective in improving the general condition of patients in KRD (clinical-radiological dissociative) and KRA (clinical-radiological associative) groups.

In the CRD group, patients treated with the Laennec and Mavics-based complex immunomodulatory therapy (CIT) regimen showed a decrease in the level of disability (on the EDSS scale) from 3.5±0.47 to 1.5±1.01 points. The therapy helped restore the myelin layer, reduce immunological damage to nerve fibers, and reduce the risk of disease relapse. There

was also an improvement in the general psychoemotional state of the patients.

In the CRS group, a treatment plan was used, including glucocorticosteroids (GCS) followed by complex immunomodulatory therapy. In this group, the level of disability (on the EDSS scale) decreased from 5.7±1.02 to 3.8±0.91 points. During treatment with GCS, it was noted that the severity of acute attacks of the disease decreased, the state of the immune system was balanced, and the general functional state of the patients improved.

At the same time, it was found that the number of relapses decreased significantly in both groups over the last 6 months of treatment. This further confirms the effectiveness of the complex treatment measures used. These results demonstrate the importance of scientifically based approaches in the treatment of multiple sclerosis and the great potential of these treatment methods in improving the quality of life of patients.

Overall, the study opened up the possibility of effective management of clinical and radiological forms of the disease in patients with multiple sclerosis by using modern therapeutic approaches. This and future treatment measures further to improve basis as service does.

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