Treatment and Restoration Effect of RNA Nature Drugs in Various Neuropsychiatric Pathology

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Abstract:
The article presents clinical data substantiating the high therapeutic and restorative effect of officinal RNA preparations in patients with extensive neuropsychic pathology. It included schizophrenia, cerebral atherosclerosis, perinatal encephalopathy, cerebral palsy, mental retardation, spinal amyotrophy, and chronic alcoholism. The latter pathology is widespread among a large contingent of people, is characterized by low therapeutic effectiveness of the medical devices used, reduces the quality of life, the effectiveness of professional and labor activities. It should be especially taken into account that the use of nucleic acid preparations did not have any side effects on the human body and therefore they can be considered physiologically justified. Moreover, they are useful and highly effective for other health conditions.
Key words: *neuropsychic pathology, officinal RNA drugs, biodynamic effects of low molecular weight RNA*

Introduction

Sodium nucleinate (NN) is a sodium salt of low molecular weight yeast RNA, which is an officinal drug approved by the Russian Pharmaceutical Committee for clinical use in medicine.

For many years, a team of authors (1-5) has been studying NN in various aspects, during which it was possible to prove experimentally and clinically on a huge contingent of patients (more than 15,000 people) and in model systems the following phenomena:

1. An increase in antiviral and antibacterial resistance to various pathogens when RNA is injected by various methods: intravenous, intramuscular, subcutaneous, endolymphatic, intranasal, oral, inhalation, in the form of local applications, etc. (Staphylococcus, Vibrio cholerae, pathogenic Escherichia, Salmonella Typhi Abdominalis, Typhimurium, abortus Equi; Pseudomonas Aeruginosae, Klebsiellae pneumoniae and Ozenae, Proteus Vulgaris, Serratia marcescens, Shig Malellae Flexi virus, B. eastern and western equine encephalomyelitis, influenza APR8, herpes simplex viruses types 1 and 2, mumps viruses). Reducing the incidence of acute respiratory viral infections in humans and restoring impaired immunity in workers in hazardous chemical industries, increasing the effectiveness of vaccination with standard vaccines in the appropriate contingents of individuals.

2. Direct virucidal effect on mumps viruses, etc.

3. Elimination of secondary immunodeficiencies (influence on cellular, humoral, and phagocytic immune links).

4. Strengthening anti-tumor immunity (activation of LAK cells and natural killer cells).

5. Detoxification of bacterial exo- and endotoxins (causative agents of gas gangrene, staphylococci, salmonella, escherichia, etc.), cytostatics, hormones, antibiotics, and other drugs with toxic effects.

6. Induction of endogenous interferon 5-6 hours after administration by various methods.

7. Strengthening the regeneration of damaged tissues, including trophic ulcers, reparation of tissue damage.

8. Normalization of various types of impaired cell metabolism (oxygen metabolism, protein, and nucleic acid synthesis, hexose monophosphate shunt, glycolysis, oxidative phosphorylation, Krebs cycle, urea cycle,

and amino acid catabolism, lysosomal hydrolases, fatty acid metabolism enzymes, activation of detoxification enzymes of superoxide dismutase and glutathione peroxidase).

9. Suppression of various allergic reactions (delayed and immediate hypersensitivity).

10. Strengthening the migration and cooperation of various types of cells (T- and B-lymphocytes, stem cells, phagocytic cells), and many others.

This report provides published, highly practical clinical information on this issue.

Schizophrenia treatment

In the studies of S.V. Shestakov (6), 142 patients aged 19-60 years participated. The duration of treatment ranged from two to 26 years, with the majority lasting more than 10 years. The patients were divided into two groups - group A consisted of 79 patients suffering from a continuously progressive form, 63 patients from group B had an intermittently progressive form of the disease.

All patients showed a decline in psychological activity, emotional impoverishment, impaired thinking, lethargy, inactivity, indifference to others, slovenliness, poverty of emotional manifestations, loss of emotional resonance, paradoxical, torn thinking. The states were hallucinatory-paraphrenic, catatonic-rapanoid, catatonic-paraphrenic. The duration of the follow-up ranged from 6 months to 3 years.

When treating patients with sodium nucleinate and patients with traditional therapy, the dynamics of the clinical state was assessed according to the Malawud-Sands scale as modified by M.M.Kabanov, L.K.Bagatskaya, K.V. Korabelnikova, and in the NN treatment group, patients received the drug 0.5 -2 g per day for 20-60 days. Group A was divided into several subgroups. Thus, 1 subgroup of 17 patients received one NN, and the patients were followed up for 6-7 weeks. All patients showed positive changes in the state, which was expressed in a decrease in prolonged inhibition, the appearance of greater mobility, sometimes excessive, the appearance of sociability. Their delusional ideas did not change, and at 3-4 weeks they even intensified, which necessitated the use of antipsychotics. Four patients were discharged in good condition, one for 1.5 years and the other for 6 months, but one returned to the clinic.

The 2nd subgroup consisted of 41 patients who received a combination of NN with traditional therapy (haloperidol, trifluoperazine, chlorpromazine according to the usual standard regimens). The 3rd subgroup of 21 patients received one conventional therapy (antipsychotics alone without the use of NN). After treatment from 2-3 weeks in patients taking NN, there was a significant positive dynamics of signs according to the criteria: "appearance", "motor retardation", "sociability", "nature of affect", "work", "reaction to the environment." The results of comparative studies of patients are presented in Table 1.

Table 1. The results of treatment of patients with a continuously progressive form of schizophrenia

Clinical Outcomes of Patient Treatment		
Indicators	Traditional therapy + HH,% patients	Traditional therapy,% patients
Good effect	19,5	0
Satisfactory effect	63,4	0
Remission is good	19,5	0
Remission is satisfactory	63,4	33
Lack of remission	17,1	67
Duration of remission		
up to 1 month	5	4
1-6 months	16	3
7-12 months	10	0
>12 месяцев > 12 months	3	0
No remission after > 12 months	7	14

63 patients of group B, with an intermittently progressive course of schizophrenia, were divided into two subgroups - 44 patients of the 1st subgroup received NN together with psychotropic drugs, and 19 patients of the 2nd subgroup only psychotropic drugs without NN. In all patients, the duration of the disease was more than 10 years.

After application of the combined therapy with sodium nucleinate to the patients of the experimental group, they showed a significant improvement in signs in comparison with the control according to the criteria: "sociability", "thinking", "appearance", "character of affect", "motor retardation", "work". The results of comparative studies of patients are presented in Table 2.

Table 2. Treatment outcomes for patients with intermittent schizophrenia

Clinical Outcomes of Patient Treatment		
Indicators	Traditional therapy + HH,% patients	Traditional therapy,% patients
Remission quality		
Good	54,5	10,5
Satisfactory	45,5	89,5
Duration ≥ 6 months	59,1	15,8

Thus, in patients with intermittent-progressive, in comparison with continuous-flowing schizophrenia, after treatment with NN, the clinical dynamics was more favorable - "the head cleared up", "the veil of thoughts fell," "there was a feeling of relief", "the desire to do something" - 42 of 44 patients were involved in the labor process, all 44 patients were discharged from the hospital.

On the background of NN treatment, clinical improvement came from lower doses of psychotropic triftazine and mazheptil, which could be halved. Some antipsychotics could not significantly change the clinical dynamics, move the rigid state from the dead center.

Cerebral atherosclerosis treatment

Cerebral atherosclerosis is a chronic disease that manifests itself in the weakening of mental and physical capacity for work, fatigue, irritability, tearfulness, weakening of memory, faintheartedness, drowsiness, headaches, dizziness, tinnitus. We will cite information from some authors published in the press.

1. Cameron D.E. (7) - in observations of patients with senile and presenile memory impairments, low-molecular-weight exogenous RNA was used, which provided positive results, expressed in memory recovery in most of the treated patients.

2. In another post by Cameron D.E. et al. (8) used a commercial RNA, purified from pyrogens, which contained 20-30% of low molecular weight fragments. The preparation of this "overpurified" RNA was used intravenously in 38 patients with cerebral atherosclerosis 1-3 times a week. Within 2-4 weeks before the start of treatment, the memory of the patients was studied by 5 tests, after which the treatment was carried out and the memory was again assessed. The best results were obtained in patients with Alzheimer's and Pick's disease (presenile psychosis) and senile psychosis (in which the memory defect was moderate and mild).

3. Mirzukhin I.A. et al. (9) patients with memory impairments used RNA 0.5-1 g 3-4 times a day for 1.5-4 months, some patients used another 0.5 g of RNA 2 times a day within 30 days or the course was repeated 3-4 months after discharge. Improvement of memory, mental activity, disappearance of depression and dizziness, pain in the heart were noted.

4. Belonog TP and Mashek Yu. A. (10) treated 41 patients 60-89 years old with an initial and moderate form of cerebral atherosclerosis, who were prescribed RNA 0.5 g 3 times a day for 20 days, 17 patients received only one traditional therapy. In the initial period, all patients had a violation of the emotional-volitional sphere, noise in the head, ears, static and dynamic dizziness, intermittent headaches, sleep disorders, mild anisoreflexia of skin reflexes, oral automatism, unsharp coordination disorders, vasoconstriction or, initial sclerosis of the fundus vessels, mnestic disorders. After RNA treatment, there was a partial leveling of asthenic symptoms, which is shown in Table 3.

Table 3. Results of treatment of patients with cerebral atherosclerosis

Clinical Outcomes of Patient Treatment		
Indicators	Traditional therapy + HH,% patients	Traditional therapy,% patients
Reduced irritability	from 80 to 5	from 5 to 15
Sleep disturbance	from 43 to 20	from 5 to 15
Fatigue	from 79 to 30	-«-
Weakness	from 42 to 12	33
Headaches	from 67 to 18	67
Dizziness	from 54 to 29	0
Noise in ears	from 47 to 35	4
The tendency towards EEG normalization	there is	not

The best results in the group of patients who received RNA were observed in persons 60-74 years old, but their memorization productivity did not improve.

Treatment of perinatal encephalopathy

This category includes children with mental retardation.

In the study by K.A. Semyonova (11) 147 children aged from 4 months to two years received traditional therapy, physiotherapy exercises, massage, speech therapy together with exogenous low molecular weight RNA 0.1 g 2-3 times a day for 2-3 months, 100 children of the same age group received the same treatment measures, but without the addition of RNA.

In the course of the treatment, children who received RNA showed a significant improvement in their condition compared to children who underwent similar therapy, but without RNA. So, in small patients aged 3 months to 1.5 years, there was an improvement in muscle tone, the appearance of new motor skills (sitting, walking by the hand, independently), and 37% of children had a sharp improvement in statomotor functions. In the rest of the children, motor functions were less pronounced, but the existing skills improved. In patients aged one to two years, significant improvements in the mental and speech spheres were recorded, 72% of the children learned new words, their combinations, adequate responses to difficult situations, and their game activity became more sophisticated. The rest of the children showed an improvement in the form of a quantitative accumulation of speech and mental functions of the already mastered level of development.

Violation of speech and psyche in children with cerebral palsy

In the work of U.K. Kurbanov et al. (12), 103 children of 3-14 years old were observed who were in the hospital for 6-10 months. 1 subgroup of children consisted of 38 people who showed a decrease in motor and mental activity, passivity with very weak cognitive interests or without them, an almost complete absence of orienting activity, impaired spatial representation, and phonomatic hearing defect (impaired speech development). With knowledge of the letters, 60% of children could not read even short words, and 72% of them had impaired counting operations, generalizations, and differentiation. In the second subgroup of 15 patients, increased mobility, mild excitability, aggressiveness, lack of cognitive interests were recorded, and it was impossible to fix attention for at least a few minutes. Finally, the third subgroup of 50 children had spastic diplogy and a hyperkinetic form of paralysis, a shallow decrease in cognitive activity and orientation in the environment, impaired spatial representation, short-term concentration on a task, phonomatic hearing, mastering the initial elements of literacy; their speech was developed, although there was dysarthria, there were almost no memory defects. All children received exogenous RNA, the dosages were for children 3-7 years old - 0.1 g 2 times a day, 7-14 years old - 0.15 g 2 times a day with ATP (the latter enhances the effect of RNA), the course of treatment was 3 months. The result of RNA treatment was manifested in the fact that children of the 1st subgroup experienced a significant increase in orientational activity, a decrease in negativism, a noticeable increase in attention, visual and mental concentration, short-term memory, the appearance of primitive counting operations, but no one was able to learn. In subgroup 2, the effect of treatment was insignificant, but behavior normalized, activity became more purposeful and productive, active attention, and the ability to comprehend, memorize appeared, short-term and long-term memory increased. Finally, in patients of subgroup 3, there was a noticeable increase in learning ability, a clear normalization of spatial representations, an increase in short-term and long-term memory. It is

important to note that the authors report the complete harmlessness of the treatment of children with the addition of RNA.

Secondary mental retardation children and adolescents

In another report by U.K. Kurbanov (13), a group of 200 children 6-14 years old, of which 60 children with complicated oligophrenia in the degree of mild and moderate lability, 120 children with mental retardation, and 20 children with normal or almost normal intelligence were characterized by functions of the parieto-occipital region of the cerebral cortex, which was clinically manifested in the lack of spatial orientation, fuzzy representation of the body scheme, constructive apraxia, optical-spatial agraphia, counting disorders, poor assimilation, and understanding of logical-grammatical turns, dysarthria, emotional excitability, lability, sensitivity, fearfulness with a tendency to fear.

Patient treatment consisted of psychotropic drugs, exogenous RNA, and other drugs: 2 weeks before and 2 weeks of hospitalization - Trimetozine and Diazepam; 25 injections of Cerebrolysin and Pyrogenal in turn; 3 months use of RNA (last month together with ATP) - children 6-8 years old, 0.1 g 2 times a day, 8-14 years old, 0.15 g 2 times a day with a repetition of the course in 2-3 months. In addition, classes were conducted with a speech therapist, a neuropsychiatrist, and physiotherapy exercises.

The result of the treatment of children with the addition of RNA was that in 68 patients there was an increase in the stock of information and ideas, in 72 children - a revival of mental activity, in 55 children - a revival of speech activity, in 49 children - an improvement in learning, in 39 children there were no distinct changes ... At the same time, school-age oligophrenic children also showed an improvement in learning ability, memorization, and the ability to switch from one type of activity to another. However, the best treatment effect occurred in children with retarded mental development.

Spinal amyotrophy

Fuchs B. B. et al. (14) treated patients with flaccid paralysis, paresis of the muscles of the trunk, limbs. Moreover, one patient had bulbar symptoms - dysarthria, flutter, fibrillar twitching of facial muscles and tongue, while two other patients were on artificial respiration, and three had the first degree of respiratory failure. Patients received low molecular weight exogenous RNA 0.1–0.2 g 3 times a day, the course was 7–21 days. As a result of treatment of the patient G. with bulbar disorders, who was on artificial respiration for 7 years, the progression of bulbar disorders immediately stopped and within 10-15 minutes the patient could do without a respirator, the strength of the muscles of the arms and trunk increased, the patient began to write 6-8 hours a day, I was able to do mental work. However, the effect was short-lived and within 7 months it took 4 courses of treatment to stabilize the process. Another patient experienced a temporary increase in the strength of the paretic muscles of the limbs, but it stopped after the end of treatment and further progressed. Two patients showed an increase in muscle strength without an improvement in neurological status, while one had no effect at all.

Chronic alcoholism

Stukalova L.A. (15) treated 78 chronic alcoholics of stage II for 25-35 years with an experience of 8-10 years. Sodium nucleinate was prescribed simultaneously with detoxification therapy, 0.4 - 0.5 g 3 times a day, a course of 60 days, at which the course dose was 24 - 90 g. The comparison group consisted of 32 patients similar in age, disease duration and withdrawal symptoms, duration of the previous binge, and the severity of withdrawal symptoms. All patients in this group received detoxification therapy without sodium nucleinate.

To analyze the effect of NN on the dynamics of alcohol withdrawal syndrome, in addition to the general clinical assessment, its severity, and duration, the severity of individual symptoms was quantified using a specially compiled scale with a four-point assessment of each of the 22 identified symptoms (16). Before the start of treatment and on the first day of abstinence, the total score for the entire group of patients for each symptom was determined and taken as 100%. Then, daily for the next 10 days, the total score for the entire

group was determined using the same unified scale and the percentage was calculated in relation to the original score.

All patients had the main characteristic slowly regressing withdrawal syndrome - tremor. Comparative analysis of patients treated with NN and patients of the comparison group revealed positive results of treatment with a nucleic acid preparation (Table 4).

Table 4. Results of treatment of patients with chronic alcoholism

Clinical Outcomes of Patient Treatment		
Indicators	Traditional therapy + HH, scores	Traditional therapy, scores
General symptoms (tremors), baseline symptom severity	1,83	1,83
Strongest symptom reduction	Strongest symptom reduction	preservation on day 9 of 25% of the original severity of symptoms
Complete disappearance of symptoms	on day 7	-«-
Decreased mood, average baseline symptom severity	1,56	1,68
A sharp decrease in the severity of the symptom	from the 2nd day	preservation by the 4th day 50% of the initial
preservation by the 4th day 50% of the initial	for 3-4 days	preservation of the severity of the symptom by the 4th day 50% of the initial, by the 9th day -20%
Anxiety, average baseline symptom severity	1,23 – 1,53	1,23 – 1,53
The severity of anxiety	by the 2nd day 20% of the initial	by the 7th day 60% of the initial
Irritability, average baseline symptom severity	1,72	1,72
Decrease	by the 2nd day before 40% of the original	by the 9th day up to 20% of the initial
Sleep disturbances, mean baseline symptom severity	1,64 – 2,1	1,64 - 2,1
Full normalization	by 5-6 days	A convincing tendency for symptom severity to decrease only by day 10
Craving for alcohol, baseline symptom severity	1,53 - 2	1,53 - 2
There was no difference in those who received NN and patients in the comparison group, on the 4th day the severity of symptoms was 40% in all of the initial ones, on the 7th day - 20%		

Thus, in the treatment of NN, the reductive dynamics of alcohol withdrawal syndrome and recovery of working capacity proceeded 4-5 days faster than in patients in the comparison group.

Some of the patients were followed for a long time - for two years, and 62 patients received sodium nucleinate in three-week courses every 3 months throughout the year, while 32 patients in the comparison group were treated according to the generally accepted method only with Antabuse (disulfiram). All patients were thoroughly examined. When evaluating the results of treatment, the criteria were not only complete abstinence from alcohol, but also a change like alcohol consumption, the normalization of the mental state of patients, and restoration of their social status.

It was found that in all patients, the relapse of the disease occurred within a year, respectively, in the group receiving NN, in 43%, and in the comparison group with the use of one Antabuse in 47% of patients, and most of the relapses occurred in the first 6 months. In the comparison group, the patients who had resumed drunkenness canceled the Antabuse. Patients accepted NN willingly, noting its positive effect on health and performance, mood, sleep, appetite, sexual function. Patients and their relatives indicated a change like alcohol consumption, expressed in the reduction and shortening of hard-drinking, a decrease in the maximum dose of alcohol, a decrease in the severity of alcohol withdrawal syndrome, and the possibility of outpatient cessation of hard-drinking. None of the patients (26 people) of this group, who took NN and resumed alcohol intake, did develop acute alcoholic psychoses during the observation period, only 8 people were readmitted to hospital treatment to interrupt the relapse of the disease. In the comparison group, 12 out of 32 people were readmitted to the hospital, among them 5 with acute alcoholic psychoses and 7 - for relief of relapses of the disease.

During the year, 36 patients out of 62 patients who received NN completely abstained from alcohol intake. They continued to use NN in three-week courses every 3 months. Their mental state returned to normal, their marital and official status improved. However, in the future, all these patients at different periods of observation (18-20 months) resumed alcohol intake. At the same time, attention was drawn to the softening of alcoholic excesses, their shortening, mitigation of the clinical manifestations of alcohol withdrawal syndrome, which made it possible to interrupt alcohol intake in laboratory conditions.

17 patients in the comparison group also resumed alcohol intake at different periods of observation, after which the disease acquired an almost remission-free course, the mental and somatic state worsened, and social degradation worsened. 8 patients were treated for acute alcoholic psychoses.

Thus, the study shows that NN can be recommended in the therapy of alcoholism to influence the course of the disease, to improve the mental state of patients.

Sodium nucleinate softened the course of alcoholism, shortening and reducing binges, reducing the maximum dose of alcohol, reducing the severity of abstinence, canceling alcoholic psychoses, expanding the possibilities of outpatient treatment without interruption from work.

Conclusion

Thus, the presented data substantiate the high therapeutic and restorative effect of officinal RNA preparations in a fairly extensive neuropsychic pathology that affects a large contingent of people in conditions of the low therapeutic effectiveness of the medical devices used, which reduces the quality of life, the effectiveness of professional and work activities. It should be especially noted that these effects do not have any side effects on the human body and can be considered physiologically justified. Moreover, they are useful and highly effective for other health conditions.

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