Ropren® improves liver and pancreatic function in patients with chronic alcoholism

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Summary

Alcoholic liver disease is a major cause of morbidity and mortality around the world. The early stage of disease is fatty liver, where triglycerides accumulate in hepatocytes. While this may be reversible if alcohol consumption is discontinued, alcoholic liver disease in patients with chronic alcoholism can progress to steatohepatitis, fibrosis, cirrhosis and cancer. The alcohol stimulates production of reactive oxygen species and hypoxia, both of which stimulate inflammation. The liver is in a constant state of inflammation and gut-brain-liver interactions are affected, leading to increased damage in the brain. In addition, the important detoxifying function of the liver is severely compromised. Chronic alcoholism also affects other organs of the body and can lead to pancreatitis. Detoxification is the first step in treatment. Withdrawal from alcohol is essential to enable recovery. International standard treatment includes B group vitamins and treatment with a variety of psychotropic drugs, especially for alcohol withdrawal syndrome. These drugs can often cause further damage to the already diseased liver. However, a plant-derived substance that protects liver function can play a significant role in the treatment of this difficult disease. Polyprenols isolated from the green verdure of Picea abies (L.) Karst are contained at a level of 95% purity, in the medicated form of a substance known as Ropren® . This substance has been the subject of extensive pre-clinical and clinical testing and is now registered as a hepatoprotector in Russia. This paper presents the first pilot study of the safety and efficacy of Ropren® as a treatment for patients with chronic alcoholism. Ropren® was given for a period of 30 days in an in-patient setting to the most severe cases presenting at the clinic. In this paper, blood biochemistry measurements indicting liver and pancreatic function are presented. In general, blood biochemistry showed that liver and pancreatic function had improved 15 days after commencement of Ropren® therapy and was mostly normal at the end of the 30-day treatment period. Standard treatment does not give such rapid improvements in liver and pancreatic function. Therefore, the use of Ropren® is recommended for the treatment of chronic alcoholism and, at the same time, deserves further investigation.

Keywords: *Ropren®, polyprenols, chronic alcoholism, liver function, pancreatic function.*

Introduction

In recent years, Russia has seen a steady rise in alcohol consumption along with a corresponding increase in the number of patients affected with alcoholism. In 1994, alcohol consumption was the equivalent of 14 litres of absolute ethanol per capita in Russia. By 1995, consumption had grown to 20 litres and it is currently more than 25 litres per person. The World Health Organisation (WHO) reported 76.3 billion people with alcohol abuse disorders globally (WHO, 2004) and 1.8 million deaths per year (WHO, 2007).

Significant abnormalities are seen in the liver of patients who suffer from chronic alcoholism. There are changes in the carbohydrate, protein-lipid and in pigment metabolism. Initially, these abnormalities are of a functional nature and they are reversible if the patient abstains from further consumption of alcohol. However, if the patient continues to abuse alcohol, some changes become irreversible. There are a number of factors that play a part in liver damage. They include toxic effects due to alcohol consumption, dietary factors, and lipotropin and vitamin deficiencies. Liver biopsies of people suffering from alcoholism showed that 11% of patients were not suffering from any liver abnormality, 35% had fatty liver disease, 50% had unicellular sclerosis of the liver and 4% had cirrhosis of the liver (Finckh et al., 1952). In another study of liver function in 300 patients with alcoholism, 3% of patients had severe liver function abnormalities (Voegtlin et al. 1949). Of these, 17% had a serious abnormality, 70% had a pronounced abnormality and 10% had normal liver function (Voegtlin et al. 1949). The situation has now become worse and the International Classification of Disease (10th Revision) rates liver cirrhosis as the fourth most common cause of death from alcohol abuse.

Chronic alcohol consumption causes changes in carbohydrate metabolism often leading to alcoholic pancreatitis. This disease is a serious threat to life. Blood glucose increases in response to alcohol. Sugar curves are similar to those found in patients with diabetes, being low, flat, and two-horned after glucose challenge. In fact, diabetes is common in patients suffering from alcoholism and alcohol intoxication can cause occult diabetes in some people.

The detoxifying function of the liver is significantly disrupted in patients with chronic alcoholism. Disorders of liver protein metabolism can also be present and hyperproteinemia is often observed. When alcohol is consumed, proteins accumulate in the liver cells. Alcohol induces hepatomegaly and participates in protein catabolism.

Alcohol causes an increase in the level of triglycerides (TG) and low density lipoproteins (LDL) in the blood, a condition known as secondary hyperlipoproteinemia (HLP). An increase in TG under the effect of alcohol is particularly noticeable in patients who already suffer from type IV primary HLP. Consumption of large volumes of alcohol results in the synthesis of HDL. However, synthesis of HDL suddenly decreases when consumption of alcohol stops. In such patients, hypercholesterolemia, an abnormality in the cholesterol-producing function of the liver, is caused by alcohol-induced damage to hepatic cells. Cell membranes become more vulnerable to toxins. In addition, because of serious liver damage, alcohol exacerbates the negative effect on the metabolism of lipids and LP (Klimov et al. 1999).

Other liver abnormalities caused by alcohol include disorders of pigment metabolism due to an increase in bilirubin, stimulation of reactive oxygen species leading to oxidative stress and significant shifts in the levels of a number of inflammatory cytokines. Inflammation and stimulation of inflammatory cytokines can lead to liver damage and fibrosis (Jeong and Gao, 2008). In chronic alcoholism, the liver is in a constant state of inflammation and gut-brain-liver interactions are affected, leading to increased damage in the brain (Wang et al., 2010). Abnormalities of liver function can also cause acute alcoholic hepatitis, which often becomes chronic, and can lead to fibrosis, cirrhosis and cancer.

Rehabilitation of patients with chronic alcoholism is a difficult task. Withdrawing alcohol is the first step in rehabilitation. Howev-

er, this can lead to alcohol withdrawal syndrome that requires treatment with psychotropic drugs along with standard treatment that includes group B vitamins. The use of alcohol substitutes damages the hepatic parenchyma and function of the central nervous system. This leads to more severe neurological and psychiatric symptoms requiring treatment with psychotropic drugs. Many psychotropic drugs can accumulate in the body during lengthy treatment and can lead to adverse reactions that are caused by treatment with a single drug and/or interactions with other drugs.

As a safer alternative, there is recent interest in the use of various substances derived from plants to treat alcohol-induced liver damage in animals (Kaviarasan et al. 2007; Faremi et al., 2008; Adaramoye et al. 2009; Hou et al. 2010; You et al., 2010). A substance from conifers that is useful to protect liver damage is Ropren®. Ropren® substance (pure polyprenols) is isolated from the green verdure of *Picea abies* (L.) Karst. This substance has been the subject of extensive pre-clinical and clinical testing and is now registered as a hepatoprotector in Russia. It improves liver function, the lipid profile of the blood and the functional condition of the nervous system. It normalises oxidative phosphorylation processes in the cell. Ropren® promotes restoration of hepatocyte membranes by selective inhibition of oxidative processes. It can metabolise to dolichol that participates in the glycosylation of proteins in membranes and in the formation of glycoproteins. It also normalises the detoxifying function of the liver. Indications for use include fat dystrophy of the liver of various aetiologies, hepatitis, cirrhosis of the liver (when used in combined therapy) and toxic damage of the liver (caused by alcohol, drugs, therapeutics).

Substances of plant origin, in particular Ropren®, may be useful for the treatment of chronic alcoholism because of their efficacy and low toxicity. Ropren® can also be used over a prolonged period of time, and it can reduce the side effects of any psychotropic drugs used as therapy by improving liver function.

This paper presents the first pilot study of the safety and efficacy of Ropren® as a treatment for patients with chronic alcoholism. Ropren® was given in an in-patient setting to the most severe cases presenting at the clinic for 30 days of treatment. In this paper, blood biochemistry measurements indicting liver and pancreatic function are presented.

In general, the results of the blood biochemistry showed that liver and pancreatic function had improved 15 days after commencement of Ropren® therapy and was mostly normal at the end of the 30-day treatment period. Furthermore, Ropren® was well tolerated, safe and no side effects were observed. Standard treatment does not give such rapid improvements in liver and pancreatic function, suggesting that Ropren® is an excellent treatment for chronic alcoholism.

Methods

Extraction of Ropren® substance

The extraction and purification of Ropren® substance (polyprenols) for use in finished products has been described (Vasiliev et al., 1996). Polyprenols can be extracted from the green verdure of various conifer and non-conifer species. Ropren® substance (pure polyprenols) is isolated from the green verdure of *Picea abies* (L.) Karst. These polyprenols have the betulaprenol-type structure shown (Fig. 1). In Ropren® substance, n ranges from 6 to 20, with the predominant homologues being n = 9–14, i.e. Prenol-13 to Prenol-18 (Fig. 1).

Test substances

Ropren® is recommended by the Russian Ministry of Health Pharmacological Committee as a hepatoprotector for the treatment of various liver diseases. Clinical trials of the product were conducted in St. Petersburg at the municipal medical centres of the St George Hospital and the Botkin's Hospital No.30 Centre for prophylaxis and treatment of Acquired Immune Deficiency Syndrome (AIDS) and Infectious Diseases, St Petersburg.

Ropren® is manufactured by the St Petersburg Pharmaceutical Factory Pty Ltd and packed in flasks with a dosimeter, containing four millilitres (mL) of the substance. The substance is a transparent, oily, yellow liquid with a specific coniferous odour. The shelf life is two years from the date of manufacture. Two hundred flasks of the drug were supplied for the trials.

Selection of patients

Diagnosis of disease for each individual patient was determined by a psychiatrist or a neurologist based on the evaluation of anamnesis. Further diagnosis of patients was performed using screening scales to allow the evaluation of the severity of the disease and the stage of the pathological process, as well as evaluation of the effect of the new drug (data not shown). It is beyond the scope of this paper to present full neurological and psychiatric data, although this was measured. However, at the beginning of the treatment all patients had various symptoms and psychopathological syndromes to different degrees. These included delirium, alcohol withdrawal syndrome, dysphoria (a condition of affective instability), asthenia, asthenic-depressive syndrome and dementia.

Important information was also obtained in paraclinical examinations, which included electroencephalography (EEG) (data not shown), biochemical blood and urine tests and clinical blood analysis. Based on this data, patients diagnosed with stage 2 chronic alcoholism were selected for this trial (Stage 2 chronic alcoholism).

Patient exclusion criteria: 1) patients with severe somatic diseases and decompensation; 2) marked adverse reactions to Ropren®.

Patient inclusion criteria: 1) patients with disease duration of three or more years; 2) patients with diagnosis of stage 2 chronic alcoholism; 3) the presence of focal cerebral symptoms.

Treatment of patients

Control group of patients

The control group consisted of 30 patients. Basic therapy was conducted in accordance with the international standards for treatment of alcohol abstinence syndrome, including detoxification, group B vitamins, nootropics, cerebroprotectors, and antidepressants. During the 30 days of treatment, therapeutic doses of neuroleptics (butyrophenone and phenothiazines) and tranquilisers (benzodiazepines) were prescribed only when substantial psychoses were present.

The basic detoxifying therapy included the administration of infusion solutions (physiological solutions of 0.9% sodium chloride (NaCl) and a 5% glucose solution) at a dose of 1.0 to 2.5 L per day. Occasionally, there was subsequent dehydration with diuretic drugs.

Composition of the basic therapy: 1) NaCl (0.9%) from 0.5 to 2.5 L per day, i/v; 2) $MgSO_4$ (25%), 10.0 mL given intravenously 1 or 3 times per day; 3) KCl (4%), 10.0 mL; 4) Riboxini (2%) 20.0 mL; 5) ascorbic acid (5%) 5.0 mL.

All these solutions were administered intravenously (i/v) for three to five days, depending on the severity of alcohol intoxication.

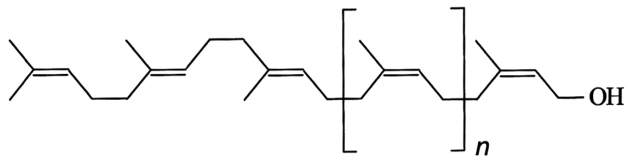

Fig. 1. General polyprenol structure, (w-t-t-c_n-c-OH), where n = 9 - 16 for the major polyprenols present in Ropren® substance (i.e. Prenol-13 to Prenol-18).

Treatment for marked psychopathic conditions and to reduce psychoses included administration of tranquilisers and neuroleptics. These were used in order to reduce excitation and aggression and included the following: 1) Haloperidol (0.5%), 1.0-2.0 mL given intramuscularly (i/m) depending on the condition of the patient (in cases of psychoses and delirium during psychomotor excitation, it was administered once); 2) Seduxen (0.5%), 4.0 mL i/m or i/v, three or four times, depending on the condition of the patient.

Vitamin therapy was also included: 1) Vitamin B1and B6, 3.0 mL, i/m, every second day for 10 days; 2) Vitamin B 12, 1 ml, (500 μg) i/m, every second day for 10 days.

For treatment of alcohol depression, the patients were prescribed antidepressants (Amitriptyline, Coaxial, and Pirazidol) at the average therapeutic dose.

For the relief of symptoms associated with alcohol withdrawal, patients received symptomatic therapy and nootropics and cerebroprotectors. Antibiotics were used for patients suffering from pneumonia and hepatoprotectors (Carsil or Essentiale Forte) for patients with liver disease.

Experimental group of patients

The group contained 60 people who were diagnosed with stage 2 chronic alcoholism. This group received detoxification of the body with an infusion of 1.0 to 2.5 L per day i/v containing sodium chloride, potassium, and glucose for a period of three to five days (depending on severity of intoxication). Subsequent dehydration was with diuretic agents and the administration of Ropren® (instead of B group vitamins). The recommended dose of Ropren® (when used as a hepatoprotector) is four drops, three times per day over a 12-week period. For this trial, the substance was administered for 30 days to in-patients at a dosage of eight drops, three times a day before a meal. During the Ropren® treatment, minimal therapeutic doses of neuroleptics (butyrophenone and phenothiazines) and tranquilisers (benzodiazepines) were administered but only in cases of marked psychoses. Nootropics, cerebroprotectors, antidepressants and B group vitamins were not administered.

Blood biochemistry

Biochemical and clinical blood indices of the patients were analysed before treatment, on the 15th day and after treatment. Biochemical blood analysis included measuring alanine aminotransferase (ALT; units/l), aspartate aminotransferase (AST; units/l), total bilirubin (μM), thymol (mM), alkaline phosphatase (AP; units/l), creatinine (μM), urea (mM), residual nitrogen (mM), cholesterol (mM), blood sugar (mM), blood amylase (mM) and urine diastase (U/L).

Clinical analysis of blood included measuring haemoglobin levels, performing erythrocyte and hematocrit counts, determining the leukocyte counts, the colour index (CIB) of the blood, and erythrocyte sedimentation rate (ESR).

Results

For this pilot study, patients who were deemed to have the most severe symptoms were selected to receive Ropren® treatment rather than standard treatment. Many of these patients were barely conscious when initially presenting at the clinic. Table 1 shows the characteristics and disease states of the patients selected for inclusion in this trial. Consistent with the more severe cases, patients in the experimental group (prior to Ropren® treatment) had a higher incidence of drug use, HIV infection, syphilis and convulsive syndrome. The control group had a higher incidence of coronary disease, type 2 diabetes and pneumonia.

Ropren® was well tolerated by patients and safe. During the trials, no side effects, allergic reactions or worsening of condition were observed in the patients from the experimental group.

Table 1. **The clinical characteristics of patients in control (standard treatment) and experimental (Ropren® treatment) groups prior to treatment**

Parameters of patients	Control group (n=30)	Experimental group (n=60)
Age of patient (years)	62.83±13.89	56±13.00
Males : Females	9:1	3.6:1
Average duration of disease (years)	9.8±1.97	9.9±1.69
Duration of disease (years) ≤ 5 years 6-10 years > 10 years	 36.7% 43.3% 20%	 31.7% 45.0% 23.3%
Patients with pneumonia (%)	23.3	11.7
Patients with hepatitis B or C (%)	30.0	33.3
Patients taking drugs (heroin, opium) (%)	3.3	13.3
HIV-infected patients (%)	3.3	11.7
Patients with type 2 diabetes (%)	13.3	5
Patients with convulsive disorders (%)	10.0	20
Patients with acute alcohol syndrome (%)	3.3	5
Patients with acute alcohol repetitive suicidal attempts (%)	3.3	5
Patients with ischemic condition of the heart type 2 hypertension (%)	23.3	5
Patients with toxicomania and poisoning (%)	0	6.7
People with oncological diseases (%)	0	1.7
Patients with craniocerebral injury (%)	0	3.3
Patients with Korsakoff's (amnesic-confabulatory) syndrome (%)	0	3.3
Patients with secondary syphilis (%)	0	3.3
Patients with schizophrenia (%)	0	5
Patients with 3rd-4th stage obesity (%)	0	3.3
Patients with tick-borne encephalitis (%)	0	1.7

As mentioned, these patients also had extensive neurological and psychiatric testing (data not shown). A number of these patients showed significant improvement of EEG after treatment with Ropren®. The blood biochemistry for the patients with improved EEG is shown: liver function and total cholesterol (Table 2); pancreatic and kidney function (Table 3). On the whole, these data show that liver, pancreas and kidney function improves after treatment with Ropren®. General metabolic improvements are also evident as blood sugar and total cholesterol returned to healthy levels even if they were significantly elevated prior to treatment.

The results for all patients in both groups (Table 4) showed that Ropren® was effective at improving liver, kidney and pancreatic function. The biochemical and clinical indices of blood and urine return to normal at the end of treatment. In chronic intoxication caused by alcohol, the function of the liver is disrupted. The activity of ALT, AST, AP, and blood amylase decrease significantly after treatment. In the experimental group we found a 2.38-fold reduction in the level of ALT after treatment, whereas in the control group the level decreased by 1.43-fold. AST levels decreased

Table 2. **The effect of 30 days of Ropren® treatment on liver function and total cholesterol in patients with chronic alcoholism**

Patient number	Measurements of liver functional and total blood cholesterol				
	Before/After treatment with Ropren®	Blood biochemistry and level of cholesterol			
		ALT (units/L)	AST (units/L)	AP (units/L)	Cholesterol (mM)
6	Before	26.10	11.80	399.40	5.79
	After	16.60	18.70	140.10	5.08
7	Before	48.60	37.40	144.60	4.98
	After	34.40	18.90	130.40	5.01
10	Before	25.00	21.30	125.50	3.46
	After	18.40	27.60	124.70	4.21
15	Before	31.20	34.60	138.50	6.31
	After	34.90	56.70	78.90	5.21
19	Before	18.30	60.60	274.20	4.42
	After	17.10	46.30	173.20	4.01
23	Before	88.20	76.40	216.90	5.18
	After	27.40	42.90	153.80	4.29
27	Before	180.0	162.40	299.80	7.48
	After	34.80	27.60	127.60	4.07
28	Before	192.8	235.90	230.20	5.93
	After	133.3	84.80	147.20	2.86
30	Before	88.30	132.40	121.00	4.40
	After	34.60	38.40	92.40	3.99
36	Before	68.90	246.0	316.2	6.57
	After	55.10	37.10	267.40	4.81
38	Before	130.2	156.5	245.3	5.71
	After	29.10	32.00	150.80	3.95
39	Before	80.90	114.10	338.60	6.13
	After	27.40	16.10	179.40	5.01
41	Before	142.00	151.00	660.90	6.13
	After	29.70	84.20	217.40	5.00
42	Before	24.40	60.0	334.00	7.58
	After	17.70	33.10	271.90	5.35
44	Before	48.50	53.70	226.90	6.11
	After	10.10	27.60	128.40	4.20
58	Before	17.50	29.70	309.60	5.67
	After	16.70	24.80	121.70	4.07
59	Before	79.70	34.00	310.70	5.33
	After	31.60	30.60	102.50	4.29

ALT = alanine aminotransferase; AST = aspartate aminotransferase; AP = alkaline phosphatase.

2.38-fold in the experiment group after treatment and by 1.36-fold in the control group. The level of AP in the experimental group also decreased by 1.7-fold after treatment and by 1.3-fold in the control group.

It should be noted that in some patients from the experimental group, there was a slight increase in the activity of AP on the 15th day (data not shown). This is followed by a reduction in the level and full normalisation of the activity of this enzyme in the blood by day 30. In most cases in the experimental group, all hepatic enzymes return to normal by day 15 in patients with chronic alcoholism (data not shown).

From the biochemical data, it can be concluded that Ropren® had an obvious hepatoprotective effect. It protected the liver from the toxic effect of alcohol and lead to improvement of function.

Blood amylase was reduced 1.7-fold in patients from the experimental group. The result was similar in the control group, a reduction by a factor of 1.5-fold. However, levels of sugar and total cholesterol in the blood of the patients from the control group did not change after a month of treatment, whereas the blood sugar and total cholesterol levels in patients who received Ropren® were reduced after a month. Sugar was reduced by 1.3-fold, and total cholesterol by a factor of 1.25-1.27-fold (Table 4).

Table 3. **The effect of 30 days of Ropren® treatment on pancreatic function in patients with chronic alcoholism**

Patient number	Measurements of pancreatic function				
	Before/After treatment with Ropren®	Blood amylase (mM)	Blood sugar (mM)	Blood creatinine (μM)	Urine diastase (U/L)
6	Before	39.0	5.27	74.30	283.6
	After	121.40	3.16	101.30	121.4
7	Before	47.20	4.97	97.44	1927.6
	After	41.20	3.71	90.81	128.4
10	Before	27.40	6.88	79.60	351.0
	After	13.21	3.17	67.91	127.4
15	Before	99.70	5.25	103.3	131.2
	After	34.60	4.07	86.50	78.6
19	Before	363.0	6.92	66.20	1297.6
	After	68.40	4.27	63.80	427.3
23	Before	39.40	3.68	81.40	914.5
	After	37.70	4.79	80.00	227.4
27	Before	210.20	7.80	167.90	1812.8
	After	129.60	3.47	76.47	574.1
28	Before	206.40	4.95	97.61	1046.1
	After	180.20	3.92	96.60	437.2
30	Before	61.00	4.30	94.00	1005.2
	After	31.21	4.01	78.11	247.6
36	Before	213.10	5.44	104.70	754.4
	After	11.90	5.30	87.60	140.8
38	Before	73.90	4.35	173.10	440.5
	After	67.90	3.20	88.30	108.6
39	Before	216.90	5.01	90.8	625.4
	After	129.50	4.31	76.41	117.4
41	Before	226.90	5.01	90.80	389.7
	After	127.60	4.21	78.60	200.5
42	Before	84.90	5.21	97.30	1182.8
	After	87.60	3.86	101.20	112.7
44	Before	146.20	6.49	75.10	176.4
	After	30.21	4.27	79.60	94.7
58	Before	145.0	4.72	99.50	109.7
	After	67.90	4.01	71.32	57.4
59	Before	151.90	4.83	71.90	149.80
	After	65.00	4.27	71.00	27.6

As a result of Ropren® treatment, renal function improved. Based on the patients' record cards there was a normalisation of the levels of creatinine, urea, and residual nitrogen, and the disappearance of protein and glucose in the urine.

After treatment with Ropren®, pancreatic function improved. This was determined by comparing markers such as levels of amylase, sugar in the blood and diastase in the urine. Urine diastase, in samples from patients in the experimental group, quickly returned to normal. The level decreased 4.8-fold in the experimental group, whereas there was only a 1.5-fold reduction in the control group. Treatment with Ropren® led to an obvious reduction of diastase level in the urine by day 15 (data not shown). Therefore, Ropren® improves pancreatic function. On the other hand, there was little reduction in urine diastase in the control group and in some cases there was even an increase.

In general, biochemical blood indices returned to normal levels as early as day 15 in patients treated with Ropren® (data not shown). This did not occur in the control group, where patients received the standard treatment.

In general, patients treated with Ropren® showed an improvement in the function of vital organs such as the liver, pancreas, and kidneys.

Table 4. **Blood biochemistry in patients with chronic alcoholism after standard treatment (control) and Ropren® treatment (experimental)**

Mean parameters	ALT (units/L)	AST (units/L)	AP (units/L)	Blood amylase (mM)	Blood sugar (mM)	Total cholesterol (mM)	Blood urea (mM)	Blood creatinine (μM)
Control group (n= 30)								
Before treatment	56	56	223	148	5.6	5.4	10.2	98
After treatment	39	41	169	98	5.2	5.4	4.7	87
Experimental group (n= 60)								
Before treatment	81	100	284	135	5.5	5.5	5.6	87
After treatment	34	42	169	78	4.3	4.4	3.4	76

ALT = alanine aminotransferase; AST = aspartate aminotransferase; AP = alkaline phosphatase.

Table 5. **Blood and urine measurements in patients with chronic alcoholism after standard treatment (control) and Ropren® treatment (experimental)**

Mean parameters	Haemoglobin (g/L)	Erythrocytes (10^9 mol/L)	Leukocytes (10^9 mol/L)	Urine diastase (U/L)
Control group (n=30)				
Before treatment	138	4.6	6.8	972
After treatment	138	4.8	6.7	644
Experimental group (n=60)				
Before treatment	141	4.4	6.2	778
After treatment	144	4.6	5.9	161

Clinical blood measurements (Table 5) showed that haemoglobin did not change by the end of the treatment in the control group. There was a slight increase in haemoglobin and a slight reduction of leukocytes in the blood in the experimental group. The effective activity of Ropren® on urine diastase is evidence of the improvement in pancreatic function.

Discussion

Use of Ropren® resulted in the improvement of liver, renal and pancreatic function, leading to the prompt reduction of alcohol abstinence syndrome and a significant improvement in the condition of the patients with encephalopolyneuropathy. After treatment with Ropren®, ALT, AST, and AP activity, blood amylase, bilirubin, cholesterol, and urine diastases returned to normal by day 15. There was a greater reduction in blood sugar levels and total cholesterol levels in patients in the experimental group (Ropren®-treated) compared with the control group.

Improvement of pancreatic function was observed as levels of blood sugar, blood amylase, urine diastase and glucose returned to normal levels. This is a very important outcome as many patients have chronic pancreatitis and hidden diabetes, which can worsen with alcohol intoxication and lead to death. Damage of the pancreas in chronic alcoholics is the second most common condition found in patients after liver damage.

The excellent clinical improvements in the patients who received Ropren® occurred even though they did not receive additional treatment with nootropics, B group vitamins, cerebroprotectors, and antidepressants. It should be noted that the control group did receive this combined therapy, while patients in the experimental group received the test substance, Ropren®. Nonetheless, the improvement in the condition of patients from the experimental group was more marked and took place at an earlier stage.

Ropren® resulted in a much earlier reduction in mental disorders and neurological abnormalities (data not shown) and an improvement in biochemical indices, as presented here. This shows that Ropren® is an excellent treatment for exogenous alcoholic, drug and other toxic psychoses. Use of Ropren® would also help to reduce costs associated with treatment of patients in this nosological group.

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Позитивное влияние Ропрена на функцию печени и поджелудочной железы у больных хроническим алкоголизмом

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Реферат

Болезни печени, вызванные алкоголизмом, являются главной причиной заболеваемости и смертности в мире. На ранних стадиях развивается жировая дистрофия печени, при этом триглицериды аккумулируются в клетках печени. Этот процесс обратим, в случае прекращения употребления алкоголя, но алкогольное поражение печени у пациентов с хроническим алкоголизмом прогрессирует, как правило, в стеатогепатит, фиброз, цирроз печени и рак. Алкоголь стимулирует выработку реактивного кислорода и ведет к гипоксии тканей, что стимулирует воспалительный процесс в печени. Печень находится в постоянно воспаленном состоянии, что влияет на взаимодействие между ЖКТ, мозгом и печенью, приводя к постоянному ухудшению функции головного мозга. В дополнение, такая важная функция печени, как детоксификационная, подвергается серьезному нарушению. Хронический алкоголизм влияет также на остальные органы человеческого организма и может привести к панкреатиту. Детоксификация является первым шагом в лечении больных хроническим алкоголизмом. Прекращение приема алкоголя является основным шагом к восстановлению. Международный стандарт лечения включает прием витаминов группы В и различных психотропных препаратов, особенно для снятия абстинентного алкогольного синдрома. Эти препараты могут зачастую дальше поражать уже больную печень. Препараты растительного происхождения могут сыграть значительную роль в лечении этой тяжелой болезни, защищая печень. Лекарственный препарат Ропрен получают из хвои Picea abies (L.) Karst. Этот препарат прошел продолжительные доклинические и клинические исследования и сейчас зарегистрирован в России как гепатопротектор. Настоящее клиническое исследование подтверждает эффективность и безопасность Ропрена в лечении пациентов с хроническим алкоголизмом. Ропрен давали в стационарных условиях в самых тяжелых случаях на протяжении 30 дней. Это исследование включает изучение биохимических показателей крови, касающихся функции поджелудочной железы и печени. Результаты биохимического анализа крови показали, что функциональное состояние поджелудочной железы и печени у больных улучшалось через 15 дней после начала терапии Ропреном, а после 30 дней лечения показатели достигли нормальных величин. Стандартная терапия не дает таких быстрых улучшений функций печени и поджелудочной железы. Таким образом, препарат Ропрен рекомендуется в лечении хронического алкоголизма и заслуживает дальнейшее изучения.

Ключевые слова: *Ропрен, полипренолы, хронический алкоголизм, функция печени, функция поджелудочной железы.*

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