Diacarb (or other diuretic similar to it) removes excess liquor, and Asparkam replenishes reserves of minerals destroyed by Diacarb in the body.

Medication in the form of diuretics and symptomatic agents is also used as maintenance therapy in preparation for surgery. After all, often the main role in the treatment of hydrocephalus is given to the operational method. Today neurosurgeons have stopped on two kinds of surgical intervention – shunting and endoscopy.

Shunting of cerebrospinal fluid is the establishment of special catheters (shunts) – drains to divert excess liquor into other cavities of the body (in particular, into the abdominal cavity). This operation is effective in more than 90% of cases. Shunts remain in the patient's body for all life and sometimes require full or partial replacement by repeated surgical procedures.

Neuroendoscopy is a new direction in the treatment of cerebral hydrocephalus, which allows to restore the natural movement of the cerebrospinal fluid. There are several types of endoscopic intervention, but in any case, the risk of complications is minimal, the effectiveness is high, and rehabilitation is fast. At the same time, there is no need to implant a foreign thing into the body (as in the case of shunting), and the probability of complications after surgery is not high.

Conclusion. With hydrocephalus, surgical intervention or medication is used to correct the deficiencies that underlie its development. The use of drugs is prescribed for mild forms of the disease and to eliminate the main symptom – increased intracranial pressure. But in cases when it is impossible to eliminate the cause of hydrocephalus, operations are performed to create additional ways of outflow of cerebrospinal fluid from the cranial cavity. They can be a supplement to the surgical treatment of the underlying disease, if during the intervention it is not possible to restore normal circulation of the CSF. Treatment of cerebral hydrocephalus in adults and children is almost the same. The difference is that children are prescribed medication more often than adults.

PERSPECTIVES OF LINSEEDS USE FOR ATHEROSCLEROSIS TREATMENT

Begunova A. D., Stoletov Yu. V., Kutsenko T. A., Belik G. V.
National University of Pharmacy, Kharkiv, Ukraine
belik-69@ukr.net

Introduction. Nowadays atherosclerosis is one of the most widespread diseases of cardio-vascular system. This metabolic disorder takes part in development of ischemic heart disease, which is known as pathology with a high mortality. That is why the creation of new drugs for atherosclerosis treatment is an important task of modern medicine and pharmacy. Synthetic anti-atherosclerotic medicines have high effectiveness. But very often they have a lot of side effects, leading to the decrease of therapeutic results. Medicines of plant origin have less side effects and are well tolerated by patients in case of long-term therapy.

Aim. To prove an effectiveness and perspectives of Linseeds use for atherosclerosis treatment basing on the analysis of information from scientific articles and internet resources.

Results and discussion. Therapeutic effects of Linseeds are caused by complex of biologically active substances, which are present there. So, Linseeds are rich in plant oils, containing especially polyunsaturated (essential) fatty acids, such as ω-3 and ω-6. Besides, Linseeds contain vitamins (A, B, E, P), mucus, proteins, phytosterins, glycoside limanarin. Also this plant material contains many macro- and microelements, such as potassium, calcium, sodium, magnesium, iron, phosphorus, copper, zinc and others. Due to such a complex of biologically active substances Linseeds have different pharmacological effects according to the data of scientific literature and folk medicine. Several therapeutic effects are useful for atherosclerosis treatment. For example, polyunsaturated fatty acids have marked hypolipidemic effects, decrease the level of atherogenic factors (concentration of cholesterol, triglycerides and their main carriers: low density lipoproteins and very low density lipoproteins) and assist the increase of the level of anti-atherogenic factor (concentration of high density lipoproteins). Complex of vitamins causes antioxidant effect, leading to the inhibition of lipid peroxidation of vascular wall cell membranes and to the increase of its elasticity. Also vitamins together with microelements cause anti-inflammatory and cytoprotective effect.

Moreover, it is known, that biologically active substances from Linseeds assist inhibition of atherosclerotic lesion growth and improve rheologic properties of blood.

Conclusions. Thus, the collection, analysis and systematization of scientific information concerning anti-atherosclerotic activity of Linseeds were done. Taking these data into account it is possible to conclude that Linseeds have anti-atherosclerotic and hypolipidemic effects, normalize lipid metabolism (decreasing level of atherogenic and increasing level of anti-atherogenic lipoproteins in blood), suppress the development of atherosclerotic lesions. In the same time Linseeds have very low toxicity, are well tolerated, have sufficient raw material source. All of this allows to say that Linseeds are perspective as plant origin material for creation of new anti-atherosclerotic phytomedicines necessary for today.

THE CYCLIC KYOTORPHIN (CYCLO(TYR-ARG) IS A HIGH-POTENTIAL NEUROPROTECTIVE DIPEPTIDE

Deiko R.D.
Scientific supervisor: Doctor of medical sciences, professor Shtrygol' S.Yu.
National University of Pharmacy, Kharkiv, Ukraine
roman.deyko@gmail.com

Introduction. The endogenous peptide kyotorphin (H-Tyr-Arg-OH) has been extensively studied since it was discovered in 1979. To date, it's well-known, that the neuropeptide kyotorphin is a promising neuroprotective agent. Particularly, its protective activity in the model of lipopolysaccharide-induced glucocorticoid-mediated inflammatory disturbance of brain, Alzheimer's disease model, cerebral hypoperfusion rat model, using animal models of cerebral resuscitation and of epilepsy (i.e., picrotoxin- or pentylenetetrazole-induced seizures) were demonstrated.

But it is aware that native kyotorphin is a potent neuroprotector and analgesic if administered directly into the brain. To date, it's possible to administrate many regulatory peptides, using intranasal or the other route. In connection with the high therapeutic potential of kyotorphin, as well as its pharmacokinetic deficiencies, a cyclic analogue of it was created at State Research Institute of Highly Pure Biopreparations (St. Petersburg) under the leadership of doctor of biological sciences Alexander Kolobov.

The aim of investigation. To evaluate the neuroprotective and nootropic properties of cyclic kyotorphin (laboratory code KRP(c)) in the models of normobaric hypoxic hypoxia with hypercapnia (NHHH), scopolamine-induced amnesia in mice, as well as acute cerebral disease (ACD) in rats under the conditions of intraperitoneal and intranasal administration.

Materials and methods. For this purpose, we used 69 white randomised male mice and 30 male Wistar rats. The NHHH was made in the hermetic chambers in the volume 200 sm^3. The ACD was modelled using irreversible bilateral carotid occlusion. The anterograde amnesia was reproduced administering scopolamine intraperitoneally (i.p.) in a dose of 1.5 mg/kg body weight. For the last 2 tests, peptide KRP(c) was administered i.p. in the doses of 0.1 or 1.0 or 10.0 mg/kg of body weight. In the ACD model, the peptide was administered i.p. in a dose of 0.1 mg/kg or intranasally (i.n.) in a dose of 0.02 mg/kg.

The heptapeptide semax (Met-Glu-His-Phe-Pro-Gly-Pro) (i.n. in a dose of 0.02 mg/kg) and piracetam (i.p., 400 mg/kg) were used as reference-drugs.

Results. In the NHHH test cyclic kyotorphin demonstrated the pronounced anti-hypoxic action. It increased mice's lifetime in average by 43.4% compared with untreated animals ($p<0.05$). The most anti-hypoxic effective dose of KRP(c) was 0.1 mg/kg (i.p.). In the same conditions, the reference-drugs piracetam and semax increased this index by 18.2% ($p<0.05$) and 10.1% respectively ($p>0.05$).

Under the conditions of irreversible cerebral ischemia, the investigated peptide cyclo(Tyr-Arg) increased rats' survival for the acute period – the first 4 days – up to 71.4% if was administered i.n. (0.02 mg/kg, $p>0.05$ vs control-group). According to this index peptide cyclo(Tyr-Arg) exceeded the reference drug semax (66.7% survived rats). On the other hand, if the peptide KRP(c) was administered i.p. (in a higher dose – 0.1 mg/kg), the rats' survival index reached 42.9% only. Thus, it should be concluded that the cyclic kyotorphin is the high-potential anti-hypoxic agent if it administered i.p., and the anti-ischemic medicine in the case of i.n. administration.