

# The Role of Phytotherapy in the Prevention of the Recurrence of Ischemic Strokes

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## Abstract

In Russia, stroke ranks second in terms of mortality (21.4%), behind coronary heart disease (25.7%). Currently, there is a high rate of repeated strokes, which accounts for an average of 25% of all cases of acute cerebral circulatory disorders. Of the stroke patients, up to 80% of patients remain disabled. Thus, the urgent task of medical science is to find effective methods of preventing repeated vascular catastrophes. This scientific work examines the significance and prospects of phytotherapy for patients who have suffered an ischemic stroke. For this purpose, using the example of 84 patients of both sexes aged from 54 to 72 years, the effect of phytotherapy with a multi-component collection in addition to standard treatment on the state of the body is considered. It is noted that during 4-6 years of herbal medicine, no cases of cardiovascular death or acute myocardial infarction have been registered. In addition, the number of cases of recurrent stroke has decreased by more than three times. In addition, a questionnaire was conducted among the patients, where they could make a subjective assessment of the effectiveness of phytotherapy (about 78.6% of patients noted high efficiency). Long-term observation of patients allowed us to conclude that phytotherapy is highly effective.

**Keywords:** Phytotherapy, Herbal therapy, Ischemic stroke, Prevention of recurrent stroke

## INTRODUCTION

More than 4 million cases of cerebral stroke are diagnosed annually in the world. The frequency of stroke varies in different regions of the world from 1 to 4 cases per 1000 population per year [1]. In Europe and the USA, the incidence of strokes is 2.9 per 1000 population, in Russia — almost 3.4. Moreover, acute disorders of cerebral circulation cause 27-30% of all deaths, of which the vast majority — 85% are of ischemic origin [2]. Thus, in the structure of the total mortality of the population in Russia, stroke ranks second (21.4%), second only to coronary heart disease (25.7%) [3]. Of stroke patients, up to 80% of patients remain disabled [4]. Currently, there is a high rate of recurrent strokes, which averages 25% (16-42%) of all cases of acute cerebral circulatory disorders [5]. For this reason, vascular diseases of the brain are an extremely important social and medical problem, in which primary and secondary prevention of stroke occupies a significant place. In this regard, the search for effective methods of preventing recurrent vascular catastrophes and treating patients who have suffered an

ischemic stroke is an urgent task of medical science and clinical practice.

Currently, there is significant interest of researchers in cerebroprotective agents obtained from plant raw materials. This is due to several positive properties possessed by phytopreparations: synergism of action of natural compounds of different classes [6], low toxicity and detoxification activity [7] with sufficiently high efficiency, complex,

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harmonizing effect on various organs and systems, overall systemic effect on the patient's body, a wide spectrum of action, relative cheapness compared to with synthetic means [8]. The economic accessibility of phytotherapy to all segments of the population with its verified and proven effectiveness, for example, in traditional medicines of Asian countries is an important argument in its favor. Thus, during screening, antialterative, anti-destructive, in particular, cerebroprotective properties were established in the majority of galenic forms from 200 plant species. In experiments, it was found that 57-80% of species have cerebro-, hepato-, vaso-, pancreas-, and gastroprotective effects [9]. They prevent the damaging effects of electrical trauma, strong sound, immobilization, fixation, cooling, convulsants, carbon tetrachloride, alloxan, atophane, aspirin, reserpine, and sodium nitrite. Most plants contain natural antiplatelet agents in the form of methyl salicylate, salicylic acid proper, and its derivatives [10]. Many phytopreparations exhibit antihypoxant properties [11]. The antioxidant properties of plants and their ability to mobilize human antioxidant protection explain one of the mechanisms of the cytoprotective action of plants [12]. Such a wide representation of anti-alternative properties in phytopreparations is a reflection of the law of the unity of the biocenosis of the planet, its flora, and fauna, the presence of inextricable links between them (trophic, informational, reproductive, aesthetic) [13].

Medicinal plants are known to affect the rheological properties of blood, which also have vasoprotective, antihypoxant, correcting neuroendocrine regulation of the vital activity of the body, and anti-inflammatory properties [14]. The use of such substances will have a complex effect on the pathogenetic links of cerebral ischemia and in general a cerebroprotective effect [15]. The standardized extract of Ginkgo biloba is widely used in neurological practice. Its effect is due to the effect on the metabolic processes in cells, the rheological properties of blood, and microcirculation [16]. The positive effect of pomegranate juice has been proven in reducing the intima-media complex in the carotid arteries, reducing the peroxidation of low-density lipoproteins, increasing antioxidant protection, and reducing systolic pressure [17, 18].

There is evidence of a positive effect on memory, voluntary attention, mental performance, and general well-being of the extract of the Rhodiola rosea root, an extract from the roots of the Scutellaria baicalensis, and an extract of the roots of the Leuzea carthamoides [19-21]. Increasing not only physical endurance but also mental performance is

considered a characteristic, repeatedly proven effect of all classical adaptogens [22, 23].

The purpose of this scientific work is a long-term observation (lasting 4-6 years) of patients who have suffered a single ischemic stroke, and who received multicomponent phytotherapy throughout the examination.

## MATERIALS AND METHODS

From 2012 to 2022, long-term follow-up was carried out on patients of the Republic of Chechnya (Russia) who suffered an ischemic stroke [24]. The study involved 84 people aged from 54 to 72 years, of which 38 were women and 46 were men. Before the start of follow-up, the patients suffered from 1 (66 people) up to 2-4 (18 patients) ischemic strokes of mild and moderate severity. Of these, 72 people are in the carotid, and 12 people are in the vertebral—basilar basin. 58 patients suffered from coronary heart disease, while 16 people suffered an acute myocardial infarction. In general, the contingent of observed patients cannot be attributed to the lungs in any way, since the burden of strokes is obvious.

Phytotherapy of patients was started in the first year from the last stroke in 78 people, on the 2nd, and later in 6 patients. The duration of treatment ranged from 4 to 6 years, and the follow—up period was up to 10 years from the start of treatment. The endpoints were assessed — transient ischemic attacks, stroke, myocardial infarction, and cardiovascular death [25].

Phytotherapy was carried out by a multicomponent collection according to the recipe presented in **Table 1**.

**Table 1.** The formulation of a multi-component collection for the conducted phytotherapy.

Name of the component	Part of the plant	Content, in mass. %
Glycyrrhiza	root	16
Spiny Eleuterococcus	root	8
Meadowsweet	flower	8
Betula Alba	leaf	8
Southern Thorn	flower	8
Stinging Nettle	leaf	8
Clammy Everlasting	leaf	8
Mountain Ash	fruit	4
Bilberry	leaf	4

Sugar Maize	fruit	4
Coriander	fruit	4
Garden Sage	leaf	4
Sedge Cane	root	4
Garden Heliotrope	root	4
Marigold	flower	4
Ginger Plant	root	4

## RESULTS AND DISCUSSION

Against the background of treatment with a multi-component collection for 4-6 years, 4 transient ischemic attacks and 2 strokes were registered in the group of patients who had suffered strokes. A total of 6 cardiovascular events, which amounted to 7.14% (**Table 2**). At the same time, after the end of phytotherapy, 4 transient ischemic attacks, 4 strokes, 2 acute myocardial infarctions, and 12 cases of cardiovascular death were registered only against the background of drug therapy (during follow-up from 4 months to 5 years). A total of 22 cardiovascular events, which was already 26.19% (**Table 2**). This high rate of outcome rate is comparable to the data of the REACH register for the Russian population [26], according to which the highest frequency of triple endpoint for 3 years (acute myocardial infarction, ischemic stroke, cardiovascular death) was observed in patients with cerebrovascular diseases and amounted to 18.8%. According to the REACH register [27], in the group of patients with cerebrovascular disease, the highest frequency of recurrent stroke was noted — 9.8%, which is comparable with our data on repeated nonfatal strokes and transient ischemic attacks after the end of phytotherapy — 9.5%.

It should be noted that the data of the REACH register include a maximum of only three years of observation, and in our observation the maximum observation period was 10 years.

**Table 2.** Outcomes of the course of cerebrovascular disease in patients who have suffered an ischemic stroke, against the background of phytotherapy. The duration of treatment is 4-6 years, N = 84 people

Patient groups	Transient ischemic attack	Acute cerebrovascular accident (stroke)	Cardiovascular death	Acute myocardial infarction	Total cardiovascular events
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1. Against the background of phytotherapy (treatment period 4-6 years)	4 (4.7%)	2 (2.4%)	—	—	6 (7.1%)
2. After the end of phytotherapy (follow-up period from 4 months to 5 years)	4 (4.7%)	4 (4.7%)	12 (14.3%)	2 (2.4%)	22 (26.2%)
3. According to the REACH Registry (the observation period is 3 years)	—	9.8%	5.6%	3.4%	18.8%

Patients were asked to independently evaluate the effectiveness of herbal medicine by subjectively assessing the improvement of general condition, mood, intensity reduction, or complete relief of headaches, dizziness, cardiac pain, and other symptoms of diseases. In the group of patients who started treatment within 1 year of stroke (78 patients), 64 patients recognized phytotherapy as an effective treatment for themselves, 8 people found it difficult to answer, and 6 patients considered phytotherapy not an effective treatment (**Table 3**). In the group of patients who started treatment later after the stroke, the effect of phytotherapy was noted — 2 people, 3 people found it difficult to answer, and 1 patient considered it ineffective (**Table 3**).

**Table 3.** The effectiveness of phytotherapy in self-assessment of patients, N= 84 people

Degree of effectiveness	Less than a year from a stroke to the start of phytotherapy, N=78	More than a year from a stroke to the start of phytotherapy, N=6	Duration of treatment - less than a year, N=32	The duration of treatment is more than a year, N=52	Total, N=84
effective	64	2	18	48	66
ineffective	8	3	9	2	11
ineffective	6	1	5	2	7

Thus, against the background of long-term (from 4 to 6 years) continuous multicomponent phytotherapy in patients who have suffered single or repeated strokes, according to objective indicators, there is a decrease in the frequency of cardiovascular events by more than 2 times in comparison with the endpoints in the group of the same patients after the end (from 4 months to 5 years) phytotherapy. When self-

evaluating treatment, 66 patients (78.6%) considered phytotherapeutic treatment to be effective for themselves.

## CONCLUSION

Currently, the problem of primary and secondary prevention of ischemic strokes is far from being solved, despite the accepted standards of drug treatment (antiplatelet drugs + statins). At the same time, the possibilities of treatment with medicinal plants for primary and secondary prevention of ischemic strokes have been little studied in Russia. There are isolated works devoted to this problem, the results of which coincide with those obtained by us and demonstrate the high effectiveness of phytotherapy. In our study, the combination of medication and phytotherapy led to a more than 3-fold reduction in the number of cerebral and cardiovascular episodes during long-term prospective follow-up.

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