

4.2 The use of herbal remedies for the prevention and treatment of a number of children's diseases

In recent years, there has been a growing worldwide consumer interest in herbal medicines. The dynamic development of science contributes to the growth of research on biologically active substances in medicinal plant raw materials, which have a wide range of pharmacological action. An important task of health care is research on the use of medicinal plants and phytomedicines for the prevention and treatment of a number of diseases in children and adolescents [288].

The basis of the choice of drugs based on medicinal plant raw materials for the treatment and prevention of a number of diseases is the experience of folk medicine and the risks of using synthetic drugs in children. Treatment of children has its own characteristics. It is necessary to influence the growing organism in which vital processes proceed a little differently, than at the adult [289].

The most common disease among children is allergies. It is believed that the appointment of medicinal plants for patients with allergies is contraindicated. However, drugs based on medicinal herbs have a pronounced antiallergic and immunostimulatory effect. Even in severe surgical, infectious, cancer and blood diseases, herbal remedies can reduce the incidence of side effects from chemotherapeutics, increase the effectiveness of therapy [290].

Anatomical and physiological features of the child's body require the drug high bioavailability, pharmaco-therapeutic efficacy and minimal side effects. Phytopreparations have a positive effect on metabolism in the body, thus quickly and actively involved in its biochemical processes, normalize the functions of individual organs and systems, strengthen the immune system. The complex of biologically active substances, which is formed in a living plant cell, has a great similarity with the human body, so the components of medicinal plant raw materials are easier to assimilate with the body and have fewer side effects.

Advantages of using herbal medicines for children: less harmful than chemical; low allergy; quickly remove toxic substances and metabolites from the body; almost no side effects; the possibility of long-term use in chronic diseases

Due to the presence in plants of many groups of biologically active substances with different pharmacological action, phytopreparations can be used in pediatrics for the treatment of many diseases [291]. Liquid, thick, dry extracts, extracts-concentrates, various tinctures are popular and occupy a significant segment of the range of medicines for children in foreign and domestic markets [292].

The main indications for phytotherapy of respiratory and ENT pathology are:

- acute inflammatory diseases of the upper respiratory tract;
- bronchitis, pneumonia;
- diseases of the ENT organs;
- prevention of possible recurrences of respiratory diseases;
- reduction of the general reactivity of an organism as a result of influence of adverse ecological factors;
- remediation of foci of chronic infection.

The most popular are medicinal plants that have antiviral, antibacterial, anti-inflammatory and immunoregulatory effects, as well as improve bronchial drainage function. However, if in mild forms of acute respiratory diseases herbal medicine can be used from the beginning as the main type of treatment, then in pneumonia it is used during the reversal of the inflammatory process and convalescence as adjunctive therapy. And in severe chronic diseases, such as bronchial asthma, herbal remedies should be used very sparingly and carefully, only on prescription and under the supervision of a physician [293-295].

Phytopreparations in gastroenterological practice.

The advantage of herbal medicines in the treatment of diseases of the gastrointestinal tract in children is the complex spectrum of action of certain dosage forms. Preparations from plants normalize appetite, improve the content of vitamins, trace elements, mineral salts, membrane permeability, secretion processes, absorption. They help restore the normal intestinal microflora and eliminate the phenomena of

dysbacteriosis, have a beneficial effect on the nervous and endocrine systems of the patient, improve trophic mucosa of the gastrointestinal tract, cause physiologically adjusted digestive processes.

The main indications for herbal medicine in diseases of the gastrointestinal tract are as follows:

- functional diseases of the digestive system (functional non-ulcer dyspepsia, dysfunctional disorders of the biliary tract, irritable bowel syndrome, etc.);
- treatment after acute and exacerbation of chronic diseases of the digestive system;
- prevention of possible recurrences of the disease;
- to reduce the side effects of chemotherapeutics;
- at decrease in the general reactivity of an organism as a result of influence of adverse ecological factors;
- normalization of the function of the autonomic nervous system, which regulates the activity of the main departments of the gastrointestinal tract.

Most often, the composition of medicinal fees for pathology of the stomach and duodenum includes plants that have adsorbent, enveloping, astringent, anti-inflammatory, reparative effects that regulate the secretory function of organs. In intestinal diseases, astringents, anti-inflammatory, carminative, fixative, laxative and antiparasitic phytopreparations are in demand. In hepatobiliary pathology, choleric, hepatoprotective, antioxidant, etc. are successfully used [296-299].

Rational hepatoprotective drugs, which are recommended for children with various liver diseases for prophylactic and therapeutic purposes, include herbal drugs. Among them, drugs are most often used *Silybum marianum*. Standardized silymarin is prescribed to children from 5 years. Children from 5 to 12 years are prescribed tablets at a daily dose of 3 mg / kg body weight. Children from 12 years - 35-70 mg of silymarin three times a day. The course of treatment is determined by the doctor individually. The average duration is 3 months.

Artichoke extract preparations are also highly effective. It is advisable to prescribe them to children with combined pathology of the hepatobiliary system, to correct

dyslipidemia. These drugs are recommended for infants from birth. Drugs are used in the form of tablets, solutions for oral and intravenous administration, drops. Preference is given to the solution for oral administration: children from 12 years - 5.0 ml, younger - from 1/4 to 1/2 of the adult dose.

A preparation containing silymarin and *Fumaria officinalis* extract is used in combination with chronic liver disease and functional disorders of the gastrointestinal tract.

The drug, which combines *Silybum marianum*, *Taraxacum officinale*, *Chelidonium majus*, is effective in children with chronic diseases of the hepatobiliary system of various etiologies, mainly with cholestasis syndrome.

Phytotherapy for kidney and urinary tract diseases in children. The main forms of medicinal plants used in diseases of the kidneys and urinary tract in children are infusions, decoctions and teas. Medicinal plants can be used either in combination with other drugs, or as a stand-alone treatment. Phytotherapy is indicated for most diseases of the kidneys and urinary tract:

- urinary tract infections (pyelonephritis, cystitis, urethritis);
- glomerulonephritis;
- dysmetabolic nephropathy and urolithiasis;
- as an anti-relapse treatment;
- to reduce the side effects of chemotherapeutics;
- to correct the impact of adverse environmental factors on kidney tissue, etc.

In nephrology and urology widely used medicinal plants that stop the blood, have diuretic, anti-inflammatory, antibacterial, antispasmodic, immunocorrective action. In addition, phytocollections have long been used successfully, correcting metabolic processes (promoting the removal of excess salts), antihypertensive action [300].

It should also be emphasized that the use of phytopreparations in the practice of pediatrics is not limited to the treatment of childhood diseases, they can be successfully used in healthy children for prophylactic purposes. The main indications for appointment here will be:

- care for skin and mucous membranes in children (especially infants);

- medicinal and food plants as a source of vitamins and trace elements for children of all ages;

- prevention of viral diseases (plants with antiviral, immunocorrective action);
- prevention of diseases of the gastrointestinal tract, etc.

All this suggests that phytotherapy is currently undergoing a new stage of its development, when the unique experience of folk herbalists is combined with advanced technologies and traditional treatments to achieve our main goal - maintaining human health.

Many parents replace medicines with natural herbal tinctures, ointments or decoctions. However, we must not forget that the drugs sold in pharmacies have a clear concentration and dosage, in contrast to purchased or self-collected herbs. No one will be able to determine the concentration of active substances in the decoction obtained at home. And this can pose a threat to the body, especially children.

When using herbal medicine to treat children, you should buy herbs only in pharmacies and strictly follow the instructions on the packaging, including dosage and age from which you can use a decoction, infusion or lotion. If children's dosages are not specified, it is better to clarify the possibility of using this herbal medicine from a pharmacist.

It is worth remembering that among the completely harmless to adult plants, there are those that may contain substances dangerous to the child's body. So you should exclude "aggressive" herbs, including celandine and mother-and-stepmother, not to mention such as belladonna or datura [301].

Remember that every year scientists learn something new about the properties of herbs. For example, substances such as volatiles have been found to help prevent many infectious diseases: people have long used garlic and thyme to fight colds, but to this day we do not know the mechanism of this "biosecurity".

Soothing drugs for children. Medicinal herbs enter the life of newborns from the first days. They are used daily in fitovannyh, which soothe the baby, clean the baby's delicate skin. Excessive amounts of new experiences, knowledge and skills for

children often cause poor sleep, and they are nervous and cranky. It is the importer that the highway right sedatives and not harm the child's body.

To soothe babies, pediatricians recommend giving teas from *Matricaria chamomilla*, *Mentha piperita* and *Foeniculum vulgare*. Children from one year can be introduced into the diet of tea from *Tilia platyphyllos* and a drink from *Origanum vulgare*, after two years, phytopreparations based on *Valeriana officinalis* and *Hypericum perforatum* are allowed. Despite the manufacturer's confidence in the safety of the drug, children can be given soothing herbs only on the advice of a pediatrician and pediatric neurologist.

Plants for daily use can be used constantly and without restrictions. These include herbs and herbs (fennel, parsley, basil, oregano, savory, cilantro, coriander, etc.), as well as garlic and onions.

The use of herbal medicine helps to strengthen the immune system and improve the nervous system of children. It is advisable to offer preschoolers: during adaptation to kindergarten; during periods of increasing incidence of colds and viral diseases; regularly for children who are often ill; for the earliest possible rehabilitation of infants after respiratory diseases.

Before prescribing herbal medicine, be sure to check whether the child is intolerant to certain plants or allergies. It is necessary to take into account not only the underlying but also comorbidities. At the beginning of treatment it is advisable to use one or two medicinal plants, and later (especially in cases of chronic diseases) - fees from three or more plants.

Formulations of various infusions, decoctions, juices, extracts, syrups from plant raw materials, as well as oral, nasal, dental, dermatological, rectal and other preparations prepared on their basis are widely used [302].

Phyto drinks. Aqueous extracts from plant raw materials (infusions, decoctions) decompose quickly. Therefore, it is best to cook them daily. It is allowed to store infusions and decoctions for no more than 3-4 days in a cool place.

Phytococktail is prepared as follows: several herbs are brewed together or separately, and then mixed in different proportions. To strengthen the resistance of the

child's body to acute respiratory diseases, it is recommended to use decoctions and teas of black currants and rose hips, lemongrass is rich in vitamin C. To stimulate digestion, suppress the negative microflora - carrot and pomegranate juices. Compotes with the addition of medicinal plants are useful: *Mentha piperita*, *Melissa officinalis*, *Fragaria vesca*, *Rosa canina*, etc.

Care should be taken to improve the health of children during periods of seasonal exacerbation of respiratory diseases, choosing an environmentally friendly, safe, affordable and effective tool [303].

Fruits, as a rule, contain a large amount of pectin, which form insoluble complexes with the active substances, from which the active compounds are released slowly, and therefore act more gently and prolonged. But there are contraindications that must be remembered by everyone who uses them in the form of mono- and combined drugs, and as part of dietary supplements [304].

Phytopreparations for skin. Phyto- and aromatic-cosmetic products are prescribed to protect babies' skin to prevent itching and eliminate irritation. These cosmetics are used to safely cleanse, moisturize and nourish the skin of adolescents.

The skin of infants and young children is 1.5-2.5 times thinner than that of adults. It has a fragile stratum corneum and is easily damaged. The dermis itself is richer in cellular elements and undifferentiated connective tissue cells, its collagen bundles are thinner.

The barrier function of the skin is realized in protection against the harmful effects of the environment, is resistant to mechanical influences and the penetration of microorganisms. Active respiratory function is performed by the skin of the child, which is up to 5-7% of gas exchange in children under 3-4 years. Thermoregulation in infants occurs through the skin through thermal conductivity, urination and evaporation of sweat.

Special values in children's cosmetology is the resorption (absorption) and excretory (secretory) functions of the skin, which determines the type of cosmetic, the concentration of herbal medicines and other biologically active substances.

Many phyto- or flavoring agents consist of a carrier base, emulsifying, thickening components, and may contain preservatives, flavors, and colorings. Care, cleansing, nourishment, stimulation of blood circulation and improvement of regulation of all skin functions are very important.

In cosmetics for children, the bases-carriers for phytopreparations are aqueous, glycerin, propylene glycol or mixed (water-alcohol-glycerin) solvents, oils, fats, waxes, high molecular weight fatty alcohols, resins and natural balms. Also bases-carriers can be oil products - vaseline, paraffin, ceresin.

Solvents are an important component of children's cosmetics. Many of them have preservative properties (glycerin, propylene glycol and their derivatives) and are able to reduce the freezing point.

Children's cosmetology uses the most popular oils - coconut, almond, peach, apricot, corn, olive, grape, soy. The traditional basis of many phytocosmetics is cocoa butter, which is used to soften and thicken.

Citric, ascorbic acid, tocopherols, carotenoids, some essential oils, bioflavonoids have been used as antioxidants to increase the stability of natural fats and oils in pediatric cosmetology. Beeswax promotes the formation of a film on the surface of the skin, prevents it from drying out. Wax of lavender, sage, rose has a bacteriostatic effect, increases the thermal stability of baby creams.

Lanolin after special processing and fractionation is a part of many phyto-and aromatic cosmetics. Cryolan is a liquid fraction, terlan is a solid fraction of lanolin, effectively softens the skin, eliminates its peeling and promotes regeneration.

To reduce the solubilizing effect of some emulsifiers on polypeptide components of the skin in the composition of cosmetic ointments, creams, gels are often introduced natural polypeptides - collagen, gelatin, elastin, egg white. They provide and maintain the protective and moisture-retaining function of the baby's delicate skin.

Essential oils in herbal remedies for children should be in moderation, as they are highly concentrated natural bioregulators. Pediatric cosmetology uses almost no fragrances or uses very rarely, except for essential oils in series for teenagers. The

cream uses organic dyes from medicinal plant raw materials - chlorophyll, carotene, natural dyes from dark grapes, beets, elderberries, blueberries.

The use of essential oils in children's cosmetics, in addition to maintaining antimicrobial stability, provides a wide range of biological action: bactericidal, antiseptic and anti-inflammatory action, have pronounced cosmetic and dermatological benefits.

Lavandula angustifolia oil disinfects and cleanses the skin, soothes the skin, gives freshness.

Mentha piperita essential oil increases the protective functions of the epidermis, activates the local immunity of the skin, eliminates inflammatory reactions, cools.

In cosmetics for children, the use of phytopreparations is based on the principles of optimal combinations of phytoncides, phytohormones, organic acids, vitamins, proteins, fats, macro- and microelements and other biologically active substances contained in plant raw materials. The polyfunctionality of the components of medicinal plant raw materials determines its synergistic effect - phytopreparations are characterized by anti-inflammatory, regenerating, moisturizing action, stimulate biochemical processes, tone and nourish the skin [305].

Phytosterols, vitamin B1, mineral salts contained in preparations of *Matricaria chamomilla* regenerate the skin, eliminate inflammation, help regulate water-salt balance. *Hypericum perforatum* has anti-inflammatory, astringent, antiseptic, antispasmodic action, stimulating the recovery of the skin epidermis. *Medicago falcata* herbal extracts help to improve microcirculation in tissues and organs, stabilizing the skin's metabolic processes. Juice from the leaves of *Plantago major* in aqueous extract has anti-inflammatory, antimicrobial, wound-healing, moisture-retaining properties.

As **bioadditives** to phytomedicines add juices from fresh plants and fruit (apricot, grapefruit, cucumber, carrot, beet, tomato, apple). They are rich in vitamins, amino acids, saccharides, mineral salts, trace elements.

All phyto- and aromatic cosmetics for children and adolescents are divided into three groups:

- 1) hygienic - to maintain a healthy skin, hair, mouth;

2) therapeutic and prophylactic - to eliminate some defects of the skin, hair, teeth;

3) decorative - used to hide flaws or to emphasize the advantages of appearance.

Herbal preparations have a milder effect, have a wide range of pharmacological activity, cause almost no addiction and side effects compared to synthetic drugs, and combine well with food and synthetic drugs [306].

Phytopillows. During sleep, in order to calm children, relieve nervous tension, you can use herbal pillows with a mixture of different herbs. With mint, lemon balm, (to calm the nervous system, improve mood, well-being, relaxation); with juniper (to improve the general well-being of the child, improve sleep); with chamomile (for the prevention of colds); with pine buds (for the prevention of colds, respiratory diseases and disinfection of air in the bedroom) [307].

Phytotherapy of infant colds. Medicinal plants are effective in pediatric practice for the prevention of exacerbations of chronic diseases. Herbal preparations have the ability to remove toxic substances and metabolic products due to diuretic action, increase the antitoxic function of the liver, stabilization of cell membranes. According to domestic and foreign herbalists, the frequency of complications with the use of herbal medicines does not exceed 1%, and their severity is much less [308].

According to the analysis of literature sources and the experience of folk medicine, the probable frequency of complications in children during treatment with medicinal plants does not exceed 0.3-0.5%. And the described cases of complications are associated with the irrational use of phytopreparations containing potent and poisonous plants.