Melissa officinalis in the prevention of recurrence of non-ulcer dyspepsia in children

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SUMMARY

The aim of the study is to increase the effectiveness of a complex of anti-relapse measures at the outpatient stage in school-age children with non-ulcer dyspepsia. During the 3-month observation period, there is a more intensive positive dynamics of medical indicators of the quality of life in school-age children with non-ulcer dyspepsia, compared with the control group against the background of a complex of anti-relapse measures using an infusion of lemon balm herb. The expediency of using the herb infusion of lemon balm in the complex of anti-relapse measures in children with non-ulcer dyspepsia has been substantiated.

Keywords: Melissa officinalis, Melissa officinalis L., essential oil, phenylpropanoids, infusion, pediatrics, non-ulcer dyspepsia.

Introduction

In recent years, the topic of functional diseases of the gastrointestinal tract (GIT), including in pediatrics, has been actively discussed in domestic and foreign literature [1-3]. The relevance is due to the widespread prevalence of this pathology and the associated numerous medical and socio-economic problems. According to statistics, every second inhabitant of our planet suffers from such diseases as: non-ulcer (functional) dyspepsia (ND), biliary dysfunction, irritable bowel syndrome, which significantly impair the quality of life, limit social and work activities. According to modern concepts, ND is a syndrome that includes: pain in the upper abdomen, depending on food intake and / or not associated with it, periodically arising after physical exertion or emotional stress; a feeling of heaviness in the epigastric region, flatulence, nausea, vomiting, heartburn and regurgitation. At the same time, various organic diseases of the gastrointestinal tract should be excluded: gastric ulcer and duodenal ulcer, gastroesophageal disease, cholecystitis, pancreatitis, malformations and other diseases. ND syndrome is a polyetiological disease. The causes and mechanisms of the primary occurrence and formation of relapses of the disease have not yet been fully studied. One of the important reasons for the onset of functional dyspepsia, its exacerbation, as well as an increase in the intensity of the course of dyspeptic disorders, is a violation of nervous regulation, which occurs as a result of stress. This is due to a certain connection between At the same time, various organic diseases of the gastrointestinal tract should be excluded: gastric ulcer and duodenal ulcer, gastroesophageal disease, cholecystitis, pancreatitis, malformations and other diseases. ND syndrome is a polyetiological disease. The causes and mechanisms of the primary occurrence and formation of relapses of the disease have not yet been fully studied. One of the important reasons for the onset of functional dyspepsia, its exacerbation, as well as an increase in the intensity of the course of dyspeptic disorders, is a violation of nervous regulation, which occurs as a result of stress. This is due to a certain connection between At the same time, various organic diseases of the gastrointestinal tract should be excluded: gastric ulcer and duodenal ulcer, gastroesophageal disease, cholecystitis, pancreatitis, malformations and other diseases. ND syndrome is a polyetiological disease. The causes and mechanisms of the primary occurrence and formation of relapses of the disease have not yet been fully studied. One of the important reasons for the onset of functional dyspepsia, its exacerbation, as well as an increase in the intensity of the course of dyspeptic disorders, is a violation of nervous regulation, which occurs as a result of stress. This is due to a certain connection between ND syndrome is a polyetiological disease. The causes and mechanisms of the primary occurrence and formation of relapses of the disease have not yet been fully studied. One of the important reasons for the onset of functional dyspepsia, its exacerbation, as well as an increase in the intensity of the course of dyspeptic disorders, is a violation of nervous regulation, which occurs as a result of stress. This is due to a certain connection between ND syndrome is a polyetiological disease. The causes and mechanisms of the primary occurrence and formation of relapses of the disease have not yet been fully studied. One of the important reasons for the onset of functional dyspepsia, its exacerbation, as well as an increase in the intensity of the course of dyspeptic disorders, is a violation of nervous regulation, which occurs as a result of stress. This is due to a certain connection between

changes in the psychoemotional status and the reaction of the secretory and motor apparatus of the stomach to stressful influences. Increased excitability and easy exhaustion of the central and autonomic nervous system in children, the formation of viscero-visceral reflexes lead to impaired motor and secretory functions of the gastroduodenal zone organs, and the leading role is played by impaired cortical regulation mechanisms [1]. Thus, functional or ND is understood as those cases of dyspepsia when, with a thorough gastroenterological examination, its cause cannot be established [3]. The correction of any disease of a neurogenic nature is based on prevention. It is very important, in our opinion, to carry out sedative therapy for children with ND at the outpatient stage in order to prevent relapses. The choice of a sedative drug for children is very demanding and difficult. The pharmaceutical market is currently full of them, and many of them are not medicinal (dietary supplements). Treatment of neurotic conditions, as a rule, is long-term, therefore, the safety and tolerability of the drugs used are of particular importance. In this regard, the scientific world has revived interest in herbal preparations, which have been used in folk medicine for many centuries, including for the treatment of disorders of the anxiety-depressive spectrum [2, 4, 5]. In this respect, medicinal plants such as lemon balm, St. John's wort, Valerian officinalis, peppermint, motherwort, peony evading, etc. are of particular interest [6]. Children, unlike adults,

Melissa officinalis (Melissa officinalis L., family. Yasnotkov -Lamiaceae)is a pharmacopoeial plant in many countries of the world [6–8], including in the Russian Federation since 1996. However, until now, many issues related to the standardization, creation, implementation and use of domestic medicines still remain unresolved. This leads to the fact that the pharmaceutical market of the Russian Federation is saturated with foreign expensive drugs, the overwhelming majority of which are combined. Unfortunately, against this background, due attention is not paid to the scientific substantiation of the use of such an accessible dosage form as an infusion (from herbs and filter bags). Lemon balm herb has registration number 96/282/10 dated 09.07.1996 in the State Register of Medicines (2008), pharmacopoeial monograph FS 42-3645-98 and has no contraindications for use in pediatric practice [9]. The raw material of this plant, as the leading group of biologically active compounds, contains essential oil, represented by geraniol, geranial, nerol, neral, citronellol, citronellal and other terpenoids, which cause sedative and antispasmodic properties [6, 10]. The main active ingredients also include phenylpropanoids (rosmarinic acid, caffeic acid, etc.), which have anxiolytic, antidepressant, nootropic, immunomodulatory, antiviral, antiallergic, antioxidant and antimicrobial effects [6, 11, 12].

The advantage of lemon balm is its high safety - the frequency of side effects when using it does not differ from that when using placebo. Its mild sedative effect without a hypnotic effect and depression of the central nervous system is very important, which makes it possible to use it even in the morning without fear of affecting labor activity.

Unfortunately, other closely related plants of the same family are often mistaken for lemon balm - Lamiaceae: catnip (lemon mint,lemon balm) and Moldavian snakehead (Turkish lemon balm). It should be noted that currently there are many products on the market based on lemon balm, while it does not have the full set of valuable properties that are characteristic of lemon balm, and can often cause allergic reactions (in contrast to lemon balm, which has antiallergic properties and can be used in children with atopic tendencies). It should be noted that many instructions for the raw material of lemon balm herb have discrepancies with the annotation from the State Register of Medicines [9]. In particular, some manufacturers in contraindications indicate children's age up to 12 years, and in some - up to 18, which contradicts the recommendations of the Federal Service for Surveillance in Healthcare and Social Development, which are priority. Thus, we consider it promising to develop and implement unambiguous recommendations for the use of lemon balm herb infusion with the selection of the dosage for each age group separately.

Children, especially in preschool and school age, in contrast to adults, are shown a relatively limited set of plants, among these plants is lemon balm, which is recommended for the treatment of childhood neuroses, arterial hypertension, rheumatism, for herbal medicine of children with heart defects, for the treatment of chronic gastritis, cholecystitis, pyelonephritis, diabetes mellitus and obesity.

The aim of our study is to increase the effectiveness of the complex of anti-relapse measures at the outpatient stage in school-age children with ND.

Materials and methods

In accordance with this goal, the following tasks were formulated: to analyze the features of the clinical manifestations of various types of ND in schoolchildren at the present stage; to study the medical indicators of the quality of life (QOL) of sick schoolchildren with ND and the dynamics of their change in the course of a complex of preventive measures; substantiate the feasibility and analyze the effectiveness of the use of lemon balm herb infusion in the complex of anti-relapse measures in children with ND; to develop a set of measures aimed at preventing relapse of ND in children with the use of lemon balm herb infusion. We examined children from 8 to 17 years old, their families; data from the histories of diseases of children (form 003 / y) and histories of the development of the child (form 112 / y).

results

On the basis of the gastroenterology department of the Children's City Clinical Hospital No. 1, two comparable groups of school-age children diagnosed with non-ulcer dyspepsia were recruited - basic and control, depending on the anti-relapse therapy regimen. When discharged from the hospital in a complex of basic measures, the children of one of the groups are additionally prescribed herbal medicine in the form of an infusion of lemon balm herb in an age-specific dosage 2 times a day (morning and evening) for 3 weeks. This course of sedation is recommended every three months. The infusion is applied internally (preferably warm) in an age-specific dosage (Table 1) 1 hour after a meal.

To prepare the infusion, 2–3 g (1 tbsp. Spoon) of crushed raw materials are placed in an enamel bowl, 200 ml of boiled water are poured, covered with a lid and heated in a boiling water bath for 15 minutes, cooled for 45 minutes. at room temperature, filtered, the remaining raw materials are wrung out. The volume of the resulting infusion is brought up to 200 ml with boiled water. When using filter bags: 2 filter bags (3 g) are placed in a glass or enamel dish, pour 200 ml of boiling water, cover with a lid and insist for 15 minutes. The contents of the filter bags are squeezed out. The volume of the resulting infusion is brought up to 200 ml with boiled water. The effectiveness of the use of lemon balm herb infusion in children is assessed by us by QOL (before treatment, immediately after and 3 months after the course of treatment), subjective (the presence of complaints, the nature of dyspeptic disorders) and objective data of the examination results (the number of relapses per year, the dynamics of laboratory and instrumental studies). In foreign pediatrics, the QOL indicator is actively used in population studies to assess the effectiveness of preventive measures, to determine the complex effect of chronic diseases on children. To study QOL, we use a special questionnaire PedsQL 4.0 (Pediatric Quality of Life Inventoty) by James W. Varni, Ph.D., Russian version, a separate form for interviewing children and their parents (teen report and parent report). PedsQL questions are divided into 4 scales describing physical functioning (FF), emotional functioning (EF), social functioning (SF), life in school (WS). Besides, The study assesses the indicators of psychosocial functioning (PSF), which are the sum of the indicators of EF and SF, as well as the total scale (SS), which contains the summary information of all the above scales. The child's answers are duplicated by the parents' answers. The variants of the questionnaire completed by the parents have the same semantic content as those filled in by the children, but differ somewhat in the form of the questions asked. Children of the main and control groups in the study of QOL were divided into age subgroups: 8–12 years old (15 children each) and 13–17 years old (30 children each), taking into account the requirements of the questionnaire. We have modernized the gastroenterological module of the QOL questionnaire taking into account the age group of children.

and 3 months after a comprehensive prophylaxis regimen. At the conclusion of the study, the QOL will be assessed in a year, subject to the recommendations for the use of the infusion (repeated course every three months). Parents of children are also tested three times in order to obtain more reliable information. In all cases, the same adult is interviewed. The final test results are assessed on a 100-point system (the higher the final value, the better the child's QOL).

Table 1

Age-related dosages of lemon balm herb infusion

Возрастная группа	Объем настоя (мл)	Масса сырья (г), эквивалентная возрастной дозировке настоя
7–9 лет	10	0,150
10–13 лет	15	0,225
14–17 лет	30	0,450

Discussion and conclusions

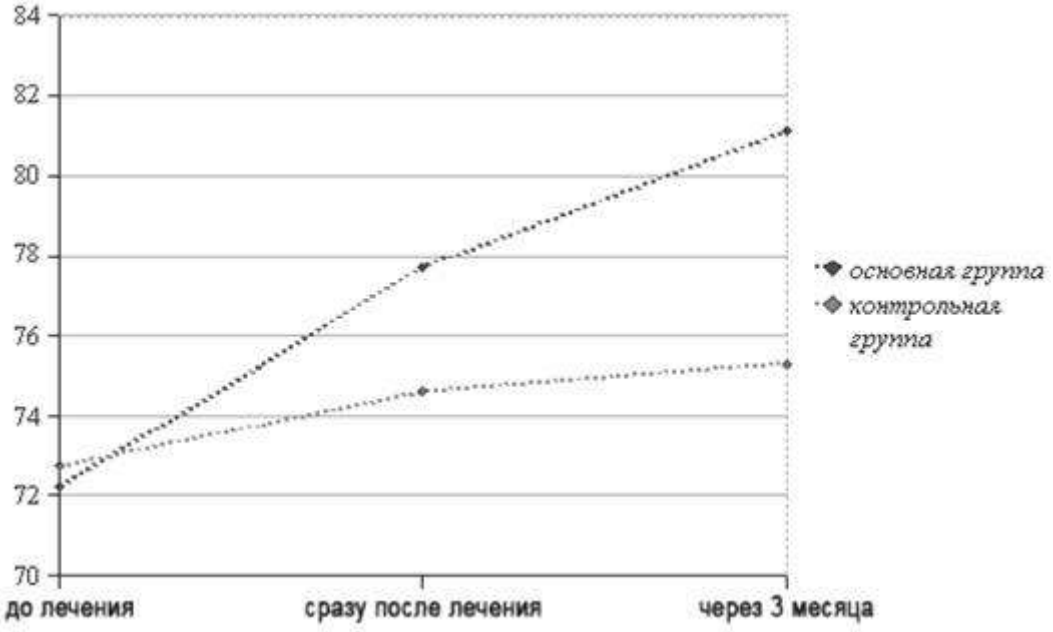
In children of the main and control groups, before the use of preventive measures with the use of lemon balm herb infusion, QOL indicators according to the PedsQL questionnaire were quite low (main group - SS 72.2 ± 1.53; control group - SS 72.7 ± 1.74). The observation revealed a clear positive dynamics of all QOL parameters in the main group, especially on the scales of physical and emotional functioning ($p \leq -0.05$), while in the control group the positive dynamics was insignificant and insignificant ($p \geq -0.05$). There was a pronounced gap between the values of physical and social types of functioning, on the one hand, and emotional and school ones, on the other, while the latter turned out to be lower. The QOL of children immediately after the prophylactic course of lemon balm infusion showed good results - positive dynamics on all scales, especially on FF and EF. The SS was 77.7 ± 1.57, while the SF remained practically unchanged. QOL indicators after 3 months also made a significant leap in the FF and EF scales and totaled SS 81.1 ± 1.49. In all cases, QOL in boys was higher than in girls, primarily due to the prevalence of high scores on the EF scale (compared to girls).

When analyzing the answers of the parents, it was revealed that they tend to underestimate the assessment of QOL, while the differences increase with age (more often in boys). In the control group, the positive dynamics was insignificant (before preventive measures, SS 72.7 ± 1.87, immediately after - 74.6 ± 1.75, after 3 months - 75.3 ± 1.73) (Fig. 1).

Thus, during the 3-month observation period, there is a more intense positive dynamics of scores in children of the main group compared to the control group against the background of a complex of anti-relapse measures using an infusion of lemon balm herb. A similar nature of QOL changes is revealed on all scales of the PedsQL questionnaire with

predominant emphasis in the EF. Also, the children of the main group have a smoother course of the convalescence period and a longer period of remission.

We consider the use of lemon balm herb infusion in a complex of anti-relapse measures as a promising option for the prevention of ND in school-age children at the outpatient stage.



Rice. 1. Dynamics of QOL in the main and control groups (according to the answers of children).

As a result of the studies, a comprehensive program for the prevention of ND in school-age children was developed at the outpatient stage using an infusion of lemon balm herb. The children of the main group have a smoother course of the convalescence period and a longer period of remission.

Application infusion herbs lemon balm medicinal v complex anti-relapse measures are a promising option for the prevention of non-ulcer dyspepsia in school-age children at the outpatient stage, which is reflected in the developed comprehensive program for the prevention of this pathology.

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