

© TARANUSHENKO T. E., TEPPER E. A., MANCHUK V. T., CHEN M. YU.

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Correction of anxiety in younger schoolchildren

T. E. Taranushenko¹, E. A. Tepper¹, V. T. Manchuk², M. Yu. Chen²¹ Prof. V. F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk 660022, Russian Federation² Scientific Research Institute of Medical Problems of the North (NII MPS), Krasnoyarsk 660022, Russian Federation

The aim of the research. To determine the degree of frustration in children of the first years of schooling and to evaluate the effect of antibodies to the brain-specific protein S100 in the release-active form (PA-AT S100) on the level of school anxiety.

Material and methods. An observational study with a prospective evaluation of the results was carried out in the conditions of a typical school in Krasnoyarsk in the period March-May 2021. Taking into account the information of parents about increased anxiety, children were surveyed using the Philips test, which allows to study the level and nature of anxiety in primary school-age children, followed by an assessment of the effectiveness of the therapy. The sample of children had no gender differences, the median age of the surveyed was 8.9 (8.4; 10.4)

Results. The performed study confirmed the effectiveness of the therapy with an anxiolytic drug and showed positive dynamics with a reduction in the frequency of signs indicating behavioral disorders and a decrease in the level of anxiety in the absence of any adverse reactions.

Conclusion. Thus, the present study showed the restoration of the general emotional state of the child and the improvement of the child's adaptive capabilities to school life against the background of a decrease in general anxiety. Along with this, a decrease in the frequency and severity of negative emotional experiences associated with the fear of self-expression and an increase in the ability to self-disclosure and demonstrate one's own capabilities were revealed.

Key words: children, schoolchildren's health, behavioral disorders, anxiety in childhood.

Conflict of interest. The authors declare the absence of obvious and potential conflicts of interest associated with the publication of this article.

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Introduction

Primary school education is the foundation for providing further education and vocational education. During this period, the child forms the foundations of personality, builds relationships with adults and peers, and also establishes an attitude to future activities and to the requirements of parents and teachers.

Interest in the problem of personal anxiety in children is due to the inconsistency of scientific publications, in which the process of formation of anxiety states in school conditions is of particular concern to specialists [1, 2, 3, 4].

According to the WHO, the school is considered a socially significant risk factor in development of maladaptation in students, which is associated with certain difficulties (new social contacts, problems of adaptation, the requirements of parents and teachers for the success of educational activities, etc.) and leads to distress, depressed mood, uncertainty, indecision and fears. The difficulty lies in the fact that anxiety can become a stable personality characteristic with a confrontation with real possibilities and a subsequent impact on emotional well-being, a sense of confidence, security, etc. [5, 6, 7].

Studies show that anxiety, originating in childhood, under an unfavourable set of circumstances, becomes a stable set of habits and preferences, mental attitude and a set of psychophysical characteristics that determine everyday behaviour [7, 8]. The consolidation and strengthening of anxiety occur through the mechanism of "vicious psychological circle", leading to the accumulation

of negative emotional experience, which generates negative prognostic estimates, defines the attitude to external factors and contributes to the persistence of anxiety. The experience of trouble in school conditions is denoted in different ways: "school neurosis", "school phobia", "didactogeny", "didactogenic neuroses". Each of the definitions indicates different states of schoolchildren, but they are characterised by emotional instability and maladaptation of the child [9, 10, 11, 12].

There is a wide range of drugs recommended for treatment of anxiety disorders. The use of most of them in children and adolescents is limited due to the significant frequency and severity of adverse effects. In this regard, of particular interest is an anxiolytic drug recommended for the treatment of emotional and neurological disorders in childhood. According to the instructions for use, the drug is based on antibodies to the brain-specific S100 protein in a release-active form (PA-AT S100), which can have a modifying effect on the functional activity of the S100 protein, which is involved in synaptic (informational) and metabolic processes in the brain. The drug has an anti-anxiety (anxiolytic) effect, does not cause undesirable hypnogenic and muscle relaxant effects; improves the tolerance of psycho-emotional stress and has a stress-protective, nootropic, anti-hypoxic, neuroprotective, anti-asthenic, antidepressant effect. In a multicentre, double-blind, placebo-controlled study led by Prof. N. N. Zavadenko, the purpose of which was to evaluate the efficacy and safety of using Tenoten for children at a dose of 1 pill 3 times a day for 12 weeks in children

and adolescents with anxiety disorders, the drug showed a pronounced anti-anxiety effect both according to the results of self-assessment of patients and according to reports of the parents. At the same time, the anxiolytic activity of the drug was most significantly manifested in children aged 5 to 7 years. Treatment with Tenoten for children was accompanied by a regression of symptoms of anxiety disorders according to the SCAS anxiety scales “Separation anxiety”, “Panic attacks and agoraphobia” and “Social phobia” [13].

The aim of the research

The aim is to determine the degree of frustration in children of the first years of schooling and to evaluate the effect of antibodies to the brain-specific protein S100 in release-active form (PA-AT S100) on the level of school anxiety.

Material and methods

To achieve this goal and based on the hypothesis of the possibility of drug correction of a high level of anxiety in children at the stage of primary school education, a target sample of children was formed. The selection was carried out by a continuous method based on behavioural disorders noted by parents, for subsequent comparison of the data obtained in the target and control groups [1].

An observational study with a prospective evaluation of the results was carried out in a typical school in Krasnoyarsk.

Taking into account the information of parents about increased anxiety, a survey of children of primary school age was conducted using the Philips test, which allows studying the level and nature of anxiety, followed by an assessment of the effectiveness of the therapy.

The test includes 58 questions that were offered to schoolchildren in writing with explanations, if necessary, and recommendations to unambiguously answer each question (“Yes” or “No”) [14]. The processing of the results for each of the 8 anxiety factors (in accordance with the test recommendations) was performed with consideration for the total number of mismatches in the text, which made it possible to state an increased level of anxiety for subsequent observation and treatment, which included the appointment of an anxiolytic drug in accordance with the instructions [15].

Statistical processing was performed using the Microsoft Office Excel 2016, SPSS IBM Statistics 26. application package. For all data, absolute indicators and a percentage characterising the proportion of children with a certain trait, the median (Me), quartile intervals (Q1-Q3), as well as the McNemar test for analysing related measurements (dynamics of indicators against the background of ongoing therapy) using a dichotomous variable were calculated.

This study was approved by the Ethics Committee of the Krasnoyarsk State Medical University named after Professor V.F. Voyno-Yasenetsky Ministry of Health of the Russian Federation (protocol No. 58 dated February 10, 2020). The studies were conducted after signing of the informed consent by legal representatives of the child. The study was performed without financial support.

Results and discussion

Evaluation of the data obtained from the survey of parents of the study made it possible to form a target group for follow-up, which included 50 children with high and moderate levels of anxiety (1). The sample

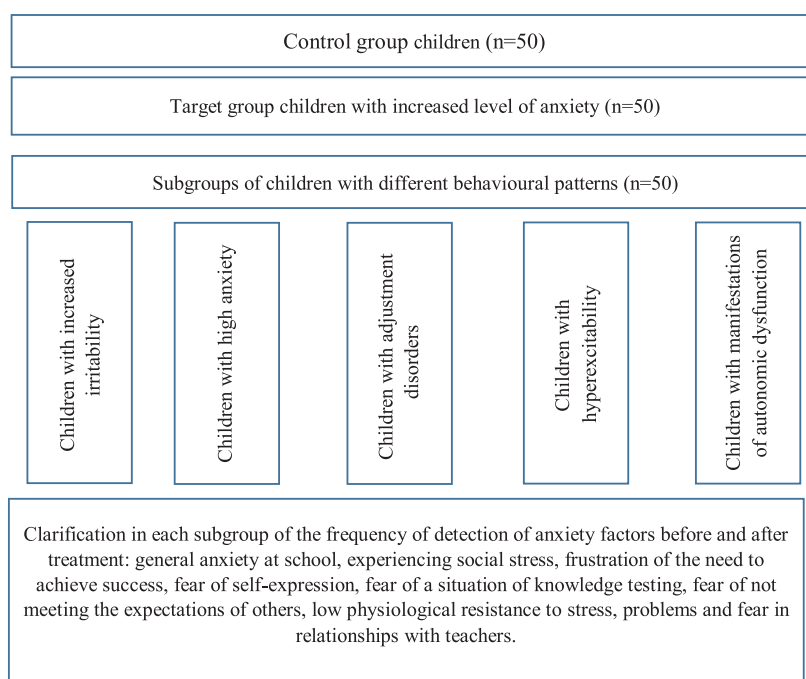


Figure 1. Study design.

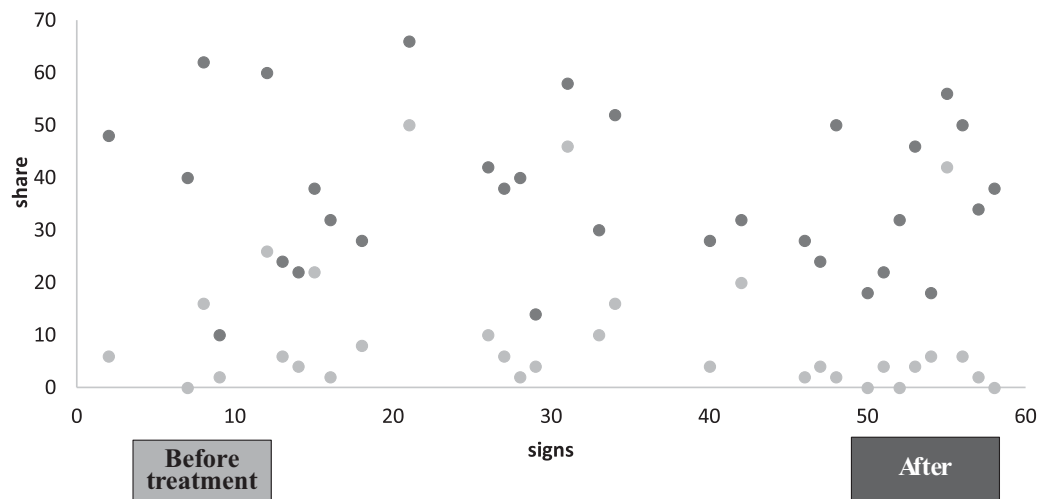


Figure 2. A set of features with significant differences in response for on-going therapy.

of children had no gender differences, the median age of the examined was 8.9 (8.4; 10.4).

The control group consisted of 20 schoolchildren with stable behavioural characteristics according to the parents' questionnaire.

The results of a survey of children with the most frequent positive responses (signs) characterising anxiety and their detectability using the Phillips test are considered.

The indication for medical correction with an anxiolytic drug was the presence of signs indicated by the examined, in accordance with anxiety factors according to the Philips method. According to the hypothesis of the possible effectiveness of anxiolytic therapy, the analysis included schoolchildren whose answers to questionnaire questions (signs) showed statistically significant dynamics during treatment, followed by analysis of the results in the McNemar test (taking into account the condition that each sign contributes an equal contribution to the severity of one or another studied factor recommended by the Phillips method) (see Figure 1).

In the assessment of "General anxiety at school" (factor 1), the most interesting were students with frequent manifestations of anxiety with a significant high frequency of the child's personal emotional dissatisfaction associated with participation in school life (Fig. 2). In the structure of the considered characteristics, increased concern with learning outcomes and fear of failure to fulfil the teacher's task prevailed. The analysis of the obtained data using the McNemar criteria showed a statistically significant dynamics against the background of the therapy. The presented boxplots with the inclusion of questions on "General anxiety at school" confirmed the effectiveness of the therapy in a significant number of children and significant changes with a decrease in the negative manifestations that characterise anxiety.

The average percentage reduction in negative responses indicating emotional distress was 30%. Against the background of the therapy, a number of manifestations of anxiety were completely levelled (excitement, trembling and excitement when answering, and fear of checking the completed task).

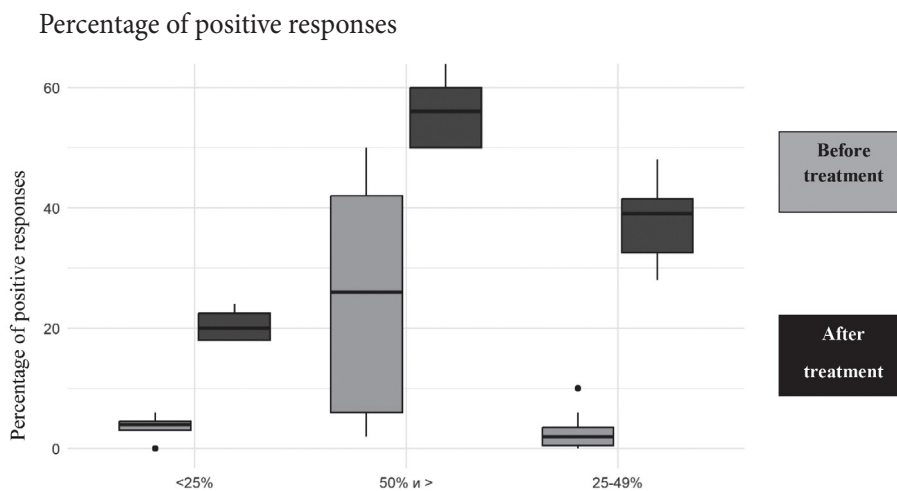


Figure 3. Dynamics of signs characterising general anxiety.

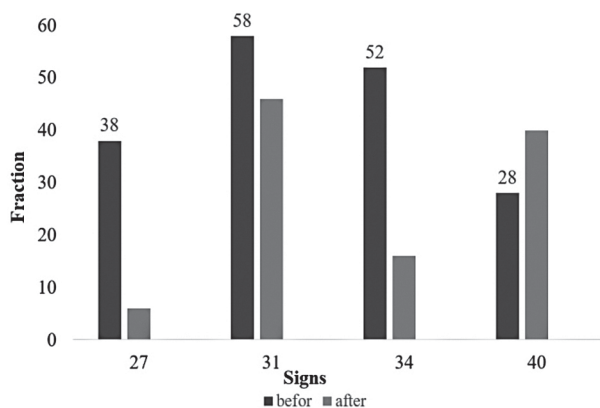


Figure 4. Fear of self-expression Figure.

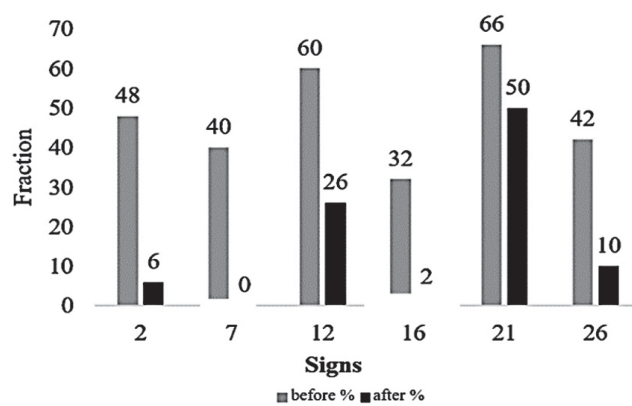


Figure 5. Fear of a situation of knowledge testing.

Along with the “General anxiety at school” factor, the following three factors: “Fear of self-expression”, “Fear of a situation of knowledge testing” and “Low physiological resistance to stress” were additionally considered, which also showed a significantly positive response to the therapy (see Figures 3, 4, 5). After the therapy, a comparative assessment of the “Fear of self-expression” factor showed the opposite (positive) dynamics for initially negative experiences (fear of getting into an argument and looking ridiculous among peers when working in the classroom: features 27, 34, 40). Overcoming the “Fear of the situation of knowledge testing” was established for a significant number of questions in the survey (excitement when the teacher asked, answering or completing the task, fear of re-learning and others - signs 2, 7, 12, 16, 26). The “Low physiological resistance to stress” factor was characterised by the disappearance of vegetative symptoms during repeated questioning (trembling in the knees and in the whole body, feeling faint when working in the classroom and palpitations - signs 9, 14, 18, 23, 28).

Other factors characterising anxiety according to the Phillips test – “Frustration of the need to achieve success” (unfavourable mental background that impedes the development of the child’s need for success, achieving a high result), “Problems and fears in relations with teachers” (general negative emotional background of relations with adults at school, reducing the success of learning), and “Experience of social stress” (the emotional

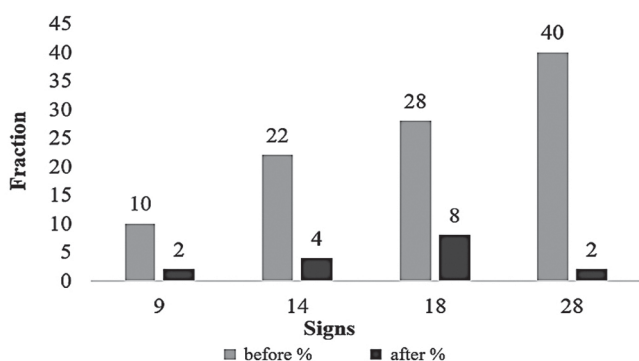


Figure 6. Low physiological resistance to stress.

state of the child, against the background of which their social contacts develop, primarily with peers) were of little significance. in the considered hypothesis of the effectiveness of the therapy (Fig. 3, 4, 5). The decrease in the percentage of negative responses averaged 18-33% for various factors.

The last analysed factor “Fear of not meeting the expectations of others” was classified as insignificant, the average percentage of negative responses decreased by 6%, which is not very informative compared to other factors that showed the effectiveness of the treatment, and to regard the result of therapy as of little significance.

Conclusion

The younger school age is characterised by the active development of the emotional sphere, when the various experiences of the child are difficult to control.

The participants in this study showed a high level of personal anxiety associated with social contacts at the stage of school education and due to relationships with peers and teachers. Children are worried about fears, worries and embarrassment when communicating with the teacher, which is accompanied by a high level of emotional dissatisfaction associated with schooling.

The surveyed schoolchildren noted anxiety arising in situations of knowledge testing, receiving unsatisfactory grades, fear of making mistakes, the appearance of unwanted vegetative symptoms.

The use of the Phillips technique made it possible to identify the features and most significant manifestations (signs) of eight anxiety factors and to present their possible combinations in the assessment of emotional behavioural disorders.

The results of the study have shown a tendency to frequent anxiety in various situations among elementary school students, which can create difficulties in later life and form functional disorders with subsequent psychosomatic problems. These circumstances determine the need for early detection of the initial manifestations of behavioural characteristics that require close attention due to the high risk of developing an anxious-neurotic

personality type and a negative impact on the intellectual development of the child, as well as somatic well-being.

Drug therapy for early manifestations of anxiety is not sufficiently represented in domestic and foreign studies. The paper evaluated the drug recommended for the correction of emotional and neurological disorders in childhood. The drug has shown an anti-anxiety effect, effectiveness against fears of self-expression and a situation of knowledge testing, and also contributed to an increase in physiological resistance to stress. The treatment was not accompanied by undesirable hypnogenic and muscle relaxant effects.

The results of this study showed the restoration of the general emotional state of the child and the improvement of the child's adaptive capacity for school life against the background of a decrease in general anxiety. Along with this, the frequency and severity of negative emotional experiences associated with the fear of self-expression decreased and the ability to self-discovery and demonstrate one's own capabilities increased.

However, drug therapy cannot solve all anxiety problems. According to our data, an insignificant result was obtained in relation to some anxiety factors indicated in the Phillips test, including "Frustration of the need to achieve success", which is characterised by an unfavourable mental background that makes it difficult to develop success and achieve high results, and "Experiencing social stress as an important emotional state in the formation of social contacts (mainly with peers), which indicates the need for a multidisciplinary approach to solving the problem with the involvement of psychotherapists, psychiatrists, clinical psychologists and other specialists.

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Author information

Tatiana E. Taranushenko, Dr. Med. Sci. Professor, Professor V. F. Voyno-Yasenetsky Krasnoyarsk State Medical University; Address: 1, Partizan Zheleznyak Str., Krasnoyarsk, Russian Federation 660022; Phone: +7(391)2433952; e-mail: kdb1@krasgma.ru, <https://orcid.org/0000-0003-2500-8001>

Elena A. Tepper, Dr. Med. Sci. Assistant Professor, Professor V. F. Voyno-Yasenetsky Krasnoyarsk State Medical University; Address: 1, Partizan Zheleznyak Str., Krasnoyarsk, Russian Federation 660022; Phone: +7(391)2277222; e-mail: eltepper@mail.ru, <https://orcid.org/0000-0001-9974-9609>

Valery T. Manchuk, Dr. Med. Sci. Professor, Professor Scientific Research Institute of Medical Problems of the North (NII MPS); Address: 3g, Partizan Zheleznyak Str., Krasnoyarsk, Russian Federation 660022; Phone: +7(391)2280683; e-mail: man417@rambler.ru, <https://orcid.org/0000-0001-8374-7385>

Marina Yu. Chen, pediatrician Scientific Research Institute of Medical Problems of the North (NII MPS); Address: 3g, Partizan Zheleznyak Str., Krasnoyarsk, Russian Federation 660022; Phone: +7(391)2280683; e-mail: mari-chen@yandex.ru

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