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ALGORITHM FOR DETECTING SUICIDAL RISK IN ADOLESCENTS

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Studied that in general educational establishments, military commissariats during the initial staging of teenagers on the military account, upon applicants in Universities to identify suicidal risk guidance documents are not provided and are not carried out, and a statistic of children's and teen suicides in Russia exceeds the world average in 2,7 times. Found that adolescents with a high level of mental adaptation indicators of suicidal risk, and the level of mental adaptation increased the proportion of adolescents with suicidal risk. In adolescents with the right-side brain lateralization of suicidal risk indicators identified in 3 times more frequent than in adolescents with left-side lateralization. In patients with right-sided brain lateralization indicators of suicidal risk only for those individuals who were originally in a group "maladaptive", as well as persons who were des adaptations to the dynamics of this group of groups with higher mental adaptation, even assuming that this exclusion was staging with a subsequent improvement. For adolescents with a left-handed lateralization peculiarity is not typical. It is shown that in groups with low levels of mental adaptation increases significantly the proportion of persons with the presence of suicidal risk. The algorithm of early objective risk assessment of suicide mass surveys and prediction of suicidal behavior in teenagers. Using this algorithm, for the first time, you can diagnose the deterioration of mental status in dynamics on dynamic reduce the level of mental adaptation and promptly implement their correction to prevent suicidal behavior. The algorithm provides for active participation of surveyed adolescents and their parents (guardians) with observance of all legal provisions in the diagnosis level of mental adaptation and measures to prevent suicides.

Keywords: adolescents; suicide; suicide risk; prediction; psychic adaptation; brain lateralization; exclusion; address psychoprophylaxis.

АЛГОРИТМ ВЫЯВЛЕНИЯ СУИЦИДАЛЬНОГО РИСКА У ПОДРОСТКОВ

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Изучено, что в общеобразовательных учреждениях, в военных комиссариатах в период проведения первоначальной постановки подростков на воинский учет, при поступлении абитуриентов в вузы выявление суицидального риска руководящими документами не предусмотрено и не проводится, а статистический показатель детско-подростковых самоубийств в России превышает средний мировой в 2,7 раза. Установлено, что у подростков с высоким уровнем психической адаптации показатели суицидального риска отсутствовали, а с понижением уровня психической адаптации увеличивалась доля подростков с суицидальным риском. У подростков с правосторонней

латерализацией головного мозга показатели суицидального риска выявлялись в 3 раза чаще, чем у подростков с левосторонней латерализацией. У лиц с правосторонней латерализацией головного мозга показатели суицидального риска имелись только у тех, кто изначально был в группе «дезадаптивные», а также у тех, кто в динамике был дезадаптирован до этой группы из групп с более высокой психической адаптацией, даже при условии, что эта дезадаптация была промежуточной с последующим улучшением. Для подростков с левосторонней латерализацией такая особенность нехарактерна. Показано, что в группах с понижением уровней психической адаптации значительно возрастает доля лиц с наличием суицидального риска. Разработан алгоритм ранней объективной оценки риска самоубийств при массовых обследованиях и прогноза суицидального поведения у подростков. С помощью этого алгоритма впервые можно диагностировать ухудшение психического состояния в динамике по динамическому снижению уровня психической адаптации и оперативно осуществлять их коррекцию для предупреждения суицидального поведения. Алгоритм предусматривает активное участие обследуемых подростков и их родителей (опекунов) с соблюдением всех юридических норм в диагностике уровня психической адаптации и мероприятиях по предупреждению суицидов.

Ключевые слова: подростки; суицидальный риск; самоубийство; прогноз; уровень психической адаптации; межполушарная асимметрия головного мозга; дезадаптация; адресная психопрофилактика.

INTRODUCTION

In Russia, suicide levels among children and adolescent exceeds the world average level by 2.7 times [4]. This scenario threatens the country's national security in several ways [1]. Suicide is not a disease symptom or syndrome, [3] and 78%–95% of people committing suicide are mentally healthy. In general, the directive documents pertaining to the initial military registration in education institutions and military enlistment offices overlook the identification of suicidal risk (SR) factors. One problem that remains unsolved is the lack of reliable objective criteria to predict suicidal intentions in adolescents. In this context, on February 17, 2017, the President of the Russian Federation instructed the government to develop measures aiming to improve suicide prevention among teenagers.

According to the WHO, young people between the age of 10 and 19 years are considered adolescents [2].

The aim of the present study was to evaluate SR in adolescents in terms of indicators of mental adaptation dynamics of personality and interhemispheric cerebral asymmetry.

MATERIALS AND METHODS

A total of 932 male adolescents aged 14, 17, and 18 years underwent the evaluation of brain lateralization and psychological adaptation level (SAD) using the Vidikor-M express method. SR indices were determined by the multi-level personal questionnaire methodology "Adaptability 200 plus." Dynamic SAD indicators were correlated with SR indices. The adolescents were divided into five groups according to the SAD level: highly adaptive (HA), adaptive (A), emotionally labile (EL), risk group (RG), and disadaptive (DA).

The adolescents were also divided into two groups according to the hemispheric cerebral asymmetry (HSA): right-sided (RL) and left-sided (LL) lateralization. Statistical analysis was performed using the Statistica software for Windows 8.0. Descriptive statistics was performed using the calculation method. Two-group comparisons were evaluated based on one characteristic using the Student *t*-test. To assess the strength of the direction and the statistical significance of the relationship between the indicators, nonparametric correlation analysis was used to calculate the Spearman's correlation coefficient of Kendall Tau Correlation [τ (k)].

RESULTS AND DISCUSSION

A total of 508 young male adolescents were LL, whereas 424 were RL. SR indices were detected 3 times more often in the RL ($n = 164$) adolescents than in the LL ($n = 56$) adolescents, and the correlation analysis revealed that the number of people with SR increased as SAD decreased, which was particularly evident among the RL adolescents. No SR indices were identified among the "HA" RL or LL adolescents. Among the RL adolescents, the distribution of adolescents presenting SR per SAD group was 4.5%, 8.4%, 12.9%, and 18.5% for groups "A," "EL," "RG," and "DA," respectively.

For the RL young male adolescents, a special pattern was established for the presence of SR parameters, according to which SR was detected only in individuals exhibiting a "disadaptive" SAD or those exhibiting a disadapted dynamics prior to this group from groups with higher psychological adaptation. This was also observed in cases of initial intermediate disadaptation with subsequent improvement. However, no such pattern was observed for the LL adolescents.

The Pearson's chi-squared test of the multi-level personal questionnaire "Adaptability 200 plus" and Vidikor-M methods revealed a significant association between the estimates of SR and SAD groups for the RL adolescents. However, no such association was found for the LL adolescents. The specific results of the chi-squared test for the RL adolescents were as follows: 150.6 for $df = 9$ and $p < 0.001$, for adolescents aged 14 years; 279 for $df = 9$ and $p < 0.001$, for adolescents aged 17 years; and 174.9 for $df = 9$ and $p < 0.001$ for adolescents aged 18 years. Among the LL adolescents, the results were as follows: 13.1 for $df = 9$ and $p < 0.05$, for adolescents aged 14 years; 32.7 for $df = 9$ and $p < 0.21$, for adolescents aged 17 years; and 13.4 for $df = 9$ and $p < 0.04$, for adolescents aged 18 years.

Significant correlations were found for the RL adolescents aged 14 [τ (k) = 0.49 for $p < 0.001$], 17 [τ (k) = 0.7 for $p < 0.001$], and 18 years [τ (k) = 0.54 for $p < 0.001$]. Among the LL adolescents, weak correlations were found in adolescents aged 14 [τ (k) = 0.14 for $p < 0.05$], 17 [τ (k) = 0.09 for $p < 0.21$], and 18 years [τ (k) = 0.15 for $p < 0.04$).

It is important to ensure that both static and dynamic survey results are easily understood by non-specialists, thus enabling an active participation of the parents (guardians) in the SAD diagnostics of children and adolescents, while meeting all legal norms. In addition, the obtained results can be interpreted and discussed both with the parents (guardians) and the testee themselves, aiming to correct the adolescents' mental state. This approach can significantly improve the efficacy of primary and secondary psychological prevention of SR because more than just quantitative results, both the subjects and their parents (guardians) become aware of the level of manifestation and expression of emotions.

The initial SAD should be dynamically defined and monitored using the express method of neuroimaging Vidikor-M from the first school registration and then repeated at least monthly among RG and DA students for control purposes. Among students with higher psychological adaptation, the tests can be performed at an adequate frequency. The results of the repeated diagnostics and consequent decisions should be recorded in a journal of dynamic monitoring of mental state ("the journal") as well as other relevant information, including the psychological and corrective measures, individual SR indicators and SAD dynamics, follow-up survey schedules, adequate anamnestic information, measures of psychological prevention of suicide (primary or secondary psychological prevention, if secondary prevention is provided, it must be indicated when and in what context, guidelines, emotional points of application, individual targeted psychologically preventive and psychologically corrective measures, individual recommendations provided to the student, parents (guardians), and teachers, and the results of preventive measures. Individuals in the DA group are registered first in the journal, followed by those in the RG group, and then those in the EL group. The type of prevention is indicated in the specified column, and secondary prevention should include information on when it was applied and in what context were the suicidal actions committed. The individuals in the adaptive and HA groups comprise the last entries of the journal.

Between repeated diagnostic examinations, relevant information about the child should be obtained from the class teacher.

CONCLUSIONS

Among adolescents, SR is correlated with the lateralization of the cerebral hemispheres and the level and dynamics of psychological adaptation. Information about these risk factors enables a prompt identification of potential suiciders. Among adolescents with left brain lateralization, the number of individuals exhibiting SR scores is insignificant compared with those with right brain lateralization. Initial low levels of psychological adaptation may comprise a suicide risk factor, as well as their dynamic decrease in higher-level groups. Adolescents with right brain lateralization and a low level of psychological adaptation are at high risk of suicide, especially at the age of 17. Therefore, determining the initial level of psychological adaptation and its dynamic control enables the implementation of targeted measures aimed at preventing suicide among adolescents.

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