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быть использован в медицинской практике. Но некоторые выводы из теоретических положений должны быть учтены и теоретиками, и врачами.

СПИСОК ЛИТЕРАТУРЫ:

1. Буланкин И.Н. Основоположник отечественной биохимии Александр Яковлевич Данилевский: научное издание, Харьков. Харьковское Книжно-Газ. изд-во, 1953. – 36 с.
2. Грачёв В.И., Маринкин И.О., Суслонova Н.В. Болевое ощущение и его периферические механизмы / Praha, Czech Republic. Scientific discussion, vol. 1, No 30, (2019), s. 3 – 18.
3. Вейн А.М., Авруцкий М.Я. Боль и обезболивание. – М.: Медицина, 1977. – 227 с.
4. Быков К.М. Кора головного мозга и внутренние органы. Москва; Ленинград: Медгиз, 1947. – 287 с.
5. Грачёв В.И., Байер Е.А., Пушкина Т.А. Боль, как одно из чувств животного организма. /

Budapest, Hungary. The scientific heritage, vol. 2, No 34/2019, s. 56 – 63.

6. Грачёв В.И., Маринкин И.О., Суслонova Н.В. Механизмы болевого ощущения центральной нервной системы. / Oslo, Norway. Norwegian Journal of development of the International Science, vol. 1, No 30/ 2019, s. 10 – 32.

7. Звартау Э.Э. Болевой синдром. – Л., Медицина, 1990. – 333 с.

8. Павлов И.П. Физиология и патология высшей нервной деятельности. Полн.собр.соч., т.III, вып.2, Изд-во АН СССР, 1951, стр. 392.

9. Кукушкин М.Л., Решетняк В.К. Механизмы возникновения острой боли и хронических болевых синдромов // *Materia Medica*, 1997. – С 5 – 21.

10. Анохин П.К. Функциональная система как методологический принцип биохимического и физиологического исследования. Материалы научн. конф. «Системная организация физиологических функций», 1968. - С 5.

ADEQUATE SELECTION OF COGNITIVE DYSFUNCTION THERAPY IN THE POSTOPERATIVE PERIOD

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Abstract

The aim of the study is to formulate the tactics of assigning adequate neuroprotective therapy to patients with postoperative cognitive dysfunctions on the basis of subtracting the indicator of the total cognitive deficiency.

To achieve this goal, we conducted a study of cognitive function in patients of different age groups: young age, middle age, elderly age with acute surgical pathology before surgery and at 1, 7, 30 days after surgery compared with preoperative data. Methods of research. The study of the cognitive sphere: scale MMSE, test drawing hours, test "10 words", battery tests for frontal dysfunction, method Schulte. The indicator of the total cognitive deficiency was calculated.

The results of the study of cognitive function made it possible to formulate a scheme for the use of citicoline and cytoflavin in a complex of therapeutic programs. In each age group, on the seventh day of the study, there were patients with different dynamics of cognitive function recovery for the preoperative period. This allowed us to develop and propose a formula for calculating the total cognitive deficit, which makes it possible to formulate appropriate tactics for managing patients in the subsequent period in each specific case. We determine the values of the percentage deviations of each study result from the norm and the indicator of the total cognitive deficit by the sum of the values of the percentage deviation from the norm of the results of the study of cognitive impairment.

Keywords: cognitive function, neurology, anesthesiology.

Introduction. Postoperative cognitive dysfunction is a cognitive disorder that develops in the early and persists in the late postoperative period, is clinically manifested in the form of memory impairment, difficulty concentrating and disturbances in other higher functions of the cerebral cortex [1].

In clinical studies, it was found that when using general anesthesia, there are changes in brain perfusion,

intracranial hypertension, and other disorders, as a result of the use of drugs for anesthesia. Such effects can cause further occurrence of various and varying degrees of disorders of higher brain function. So, in the early postoperative period, cognitive dysfunction is determined in approximately 30% of surgical interventions that are performed using general anesthesia, and

continues to be observed for three months in 10% of patients [2-10].

Perhaps the occurrence of central nervous system disorders in the postoperative period in the form of: psychopathological and psychotic reactions, delirium, convulsive syndrome, postoperative cognitive dysfunction, disturbances in the sleep and wake cycle, impaired coordination, the occurrence of acute cerebrovascular accident, acute sensorineural hearing loss, spastic paraplegia, etc. The degree and severity of pathological changes on the part of the central nervous system depends on the type of anesthesia, somatic state and neurological status of the patient in the preoperative period, patient age and other factors. In the vast majority of cases, against the background of general inhibition of the functions of the central nervous system, a decrease in memory, attention, and reactivity is observed to varying degrees, and coordination function disorders occur. Among these disorders, cognitive changes can be immediately identified in the course of the study of mental status, characterized by general appearance and behavior, orientation, attention and concentration, emotional state, thinking and cognitive processes (memory, the possibility of logical judgment, speech, perception, praxis and executive functions) [6-8].

In general, cognitive dysfunction is associated with integrative activity of the brain. The subtlest and important functions and the main thing that help to carry out rational awareness of the world, to understand as cognitive functions [2].

It is of great importance in considering this topic to take into account the main theories of the effects of anesthesia. Knowledge is an important issue in the theory of mechanisms in the development and improvement of general anesthesia schemes, the determination of doses and ratios of drugs to achieve a minimal toxic effect. This is also achieved by gaining knowledge on the effects of general anesthesia, taking into account cellular-molecular mechanisms. Based on this, the authors developed a biochemical theory [11].

In the pathogenesis of the occurrence of cognitive dysfunction, in the postoperative period, the main factors of general anesthesia are distinguished: metabolic, hemorheological, hypoxic, toxic. Therefore, the study of the etiopathogenetic mechanisms of cognitive dysfunction that arise as a result of general anesthesia will further help develop adequate methods for the prevention of this pathology and is an urgent task of modern anesthesiology and neurology.

The aim of this study is to formulate further tactics for prescribing adequate neuroprotective therapy to patients with postoperative cognitive dysfunctions based on subtracting the indicator of general cognitive deficit.

The study was conducted in various surgical departments on the basis of the Kharkiv City Clinical Hospital for Emergency and Emergency Medicine. prof. A.I. Meshchaninov. Surgery was performed under conditions of general multicomponent anesthesia with mechanical ventilation using propofol and fentanyl, thiopental sodium and fentanyl.

To achieve this goal, we conducted a study of the cognitive sphere in patients of different age groups:

young, middle-aged, elderly with acute surgical pathology before surgery and on days 1, 7, 30 after surgery compared with data from the preoperative period.

Research Methods. Standard clinical and laboratory. Cognitive research: MMSE scale, clock drawing test, "10 words" test, battery of tests for frontal dysfunction, Schulte's method. Patients were familiarized with data on their disease, the volume of surgical intervention, and possible complications. The indicator of total cognitive deficit was calculated.

The results of the study.

In the preoperative period, the same values were observed in the group of young and middle-aged patients. According to MMSE, the indicator is below the norm by 9.0%, the clock drawing test indicators are within normal limits, according to the FAB scale, the indicators are lower by 5.5%, according to A.R. Luria, the patient data were lower by 15.0%, studies using the Schulte method were within normal limits. In the preoperative period, in the group of elderly patients MMSE, the indicator is 23.3% lower than the norm, the clock drawing test indicators are lower by 10.0%, the FAB scale is lower by 16.6%, according to A.R. Luria, the patient data were lower by 40.0%, studies using the Schulte method were 16.6% lower than normal.

Further study of cognitive function on the 1st, 7th and 30th days after the operation allowed us to develop and formulate a scheme for using citicoline and cytoflavin in the complex of treatment programs. Utility Model Patent No. 89336 "Method for Correction of Postoperative Cognitive Dysfunctions", authors: Khizhnyak AA, Dubovskaya SS, Bausov EA and others (2014) [12].

An analysis of the results of the studies obtained at different stages allowed us to draw the appropriate conclusions. In each age group, on the seventh day of the study, there were patients with a restored state of cognitive function to the values of the preoperative period. Some patients experienced minor changes in indicators compared with the preoperative period. As well as some patients with observed deterioration in cognitive function. Based on the results of our research, we developed and proposed for use a formula for calculating the total cognitive deficit, which makes it possible to formulate appropriate tactics for managing these patients in the subsequent period in each case.

We obtained the Patent of Ukraine for invention No. 113265 "Method for neuroprotective therapy of postoperative cognitive dysfunctions", authors Dubovskaya SS, Khizhnyak AA, Bitchuk ND and others (2016). The essence of the method is the appointment of a treatment regimen based on the diagnosis of the degree and structure of cognitive dysfunction to analyze the results on the 7th day after the operation. We determine the percentage deviations of each result of the norm study and the indicator of general cognitive deficit by the sum of the percentage deviations from the norm of the results of the study of cognitive impairment. If the indicator of total cognitive deficit is 20% or more, therapy is corrected by continued administration or administration of citicolines [13].

In the course of the study, we noted that in 41% of patients in the group of young and middle-aged patients

on day 7, according to MMSE, the indicator is below normal by 10%. The clock drawing test indicators are within normal limits. According to the FAB scale, patients have a deficit of 11%. By the method of A.R. Luria, patient data were 10% lower and studies using the Schulte method were 17% lower than normal. We calculate the indicator: General Cognitive Deficiency (ZKD). $ZKD = 10\% + 0\% + 11\% + 10\% + 17\% / 5 = 9.6\%$. Further treatment of cognitive dysfunction is not recommended.

In 34% of patients in the young and middle age group, on the 7th day, according to MMSE, the indicator is below the norm by 20%. The test drawing hours are 10% lower than normal. According to the FAB scale, patients have a deficit of 22% of the norm. By the method of A.R. Luria, the patient data were lower by 40%, and with the Schulte study, they were 29% lower than normal. $OKD = 20\% + 10\% + 22\% + 40\% + 29\% / 5 = 24.2\%$. Assigned further treatment using cytokolin according to the scheme.

In 28% of elderly patients on the 7th day, according to MMSE, the indicator is below the norm by 40%. The clock test test performance is below normal by 30%. According to the FAB scale, patients have a deficit of 22% of the norm. By the method of A.R. Luria, the patient data were 60% lower than normal, and studies using the Schulte method were 44% lower than normal. $OKD = 40\% + 30\% + 22\% + 60\% + 44\% / 5 = 39.2\%$. Assigned further treatment using cytokolin according to the scheme.

In 54% of elderly patients on day 7, according to MMSE, the indicator is below normal by 20%. The test drawing hours are 10% lower than normal. According to the FAB scale, patients had a deficit of 22%. By the method of A.R. Luria, the patient data were lower by 30% from the norm, and with the Schulte study, they were 29% lower than the norm. $OKD = 20\% + 10\% + 22\% + 30\% + 29\% / 5 = 22.2\%$. Assigned further treatment using cytokolin according to the scheme.

Findings. Analysis of the research results at different stages allowed us to draw the appropriate conclusions. The obtained results of the study of cognitive function on the 1st, 7th and 30th days after the operation made it possible to formulate a scheme for using citicoline and cytoflavin in the complex of treatment programs. In each age group on the seventh day of the study, there were patients with different dynamics of cognitive recovery compared to the preoperative period. This made it possible to develop and propose the use of a formula for calculating the total cognitive deficit, which makes it possible to formulate appropriate tactics for managing patients in the subsequent period in each case.

REFERENCES:

1. Cognitive dysfunction 1-2 years after non-cardiac surgery in the elderly / H. Abildstrom, I.S. Rasmussen, P. Rentown // *Acta Anesthesiol.* – 2000. - Vol. 44. - P.1246-1251.
2. Усенко Л.В., Ризк Шади Ейд, Криштафор А.А. и др. Профилактика и коррекция послеоперационных когнитивных дисфункций у больных пожилого возраста // *Международный неврологический журнал.* – 2008. – № 3 (19). – С. 99-110.
3. Усенко Л.В., Ризк Шади Ейд, Криштафор А.А. и др. Профилактика и коррекция послеоперационных когнитивных дисфункций у больных пожилого возраста // *Международный неврологический журнал.* – 2008. – № 4 (20). – С. 87-94.
4. Исаев С.В., Лихванцев В.В., Кичин В.В. Влияние периоперационных факторов и выбора метода анестезии на частоту когнитивных расстройств в послеоперационном периоде // *IX Съезд Федерации анестезиологов.* – 2004. – С. 113-114.
5. Шнайдер Н.А., Шпрах В.В., Салмина А.Б. Послеоперационная когнитивная дисфункция: профилактика, диагностика, лечение. Методическое пособие для врачей. — Красноярск: Оперативная полиграфия, 2005. — 95 с.
6. Давыдова Н.С. Возможные критерии прогноза нарушений мозгового кровообращения при анестезии // *Вестник Интенсивной Терапии* – 2004. - №5. – С.232-234.
7. Шнайдер Н.А. Новый взгляд на проблему послеоперационной когнитивной дисфункции // *Журнал острые и неотложные состояния в практике врача.* – 2006. - № 5. – С. 47-49.
8. Rasmussen L.S., Jonson T., Kuipers H.M. et al. Does anesthesia cause postoperative cognitive dysfunction? A randomized study of regional versus general anesthesia in 438 elderly patients // *Acta Anesth. Scand.* 2003. - V.47. - No.9. - P.1188-1194.
9. Newman S., Stygall J., Hirani S., Shaefi S., Maze M. Postoperative cognitive dysfunction after noncardiac surgery: a systematic review // *Anesthesiology.* - 2007. - Vol.106 (3). - P.572-590.
10. Chen X., Zhao M., White P.F. et al. The recovery of cognitive function after general anesthesia in elderly patients: a comparison of desfluran and sevofluran // *Anesth. Analg.* - 2001. - No.93. - P.1489-1494.
11. Шнайдер Н.А., Салмина А.Б. Неврологические осложнения общей анестезии. – Красноярск: КрасГМА, 2004. – 383 с.
12. Патент на корисну модель № 89336 «Спосіб корекції післяопераційних когнітивних дисфункцій». – Хижняк А.А., Дубівська С.С., Бацсов Є.О. – Дата публ. 10.04.2014, Бюл. № 7 – 2014.
13. Патент України на винахід № 113265 «Спосіб нейропротекторної терапії післяопераційних когнітивних дисфункцій». – Дубівська С.С., Хижняк А.А., Бітчук М.Д. та інші. – Дата публ. 26.12.2016, Бюл. № 24, 2016.