NORWEGIAN JOURNAL OF DEVELOPMENT OF THE INTERNATIONAL SCIENCE

№28/2019

Norwegian Journal of development of the International Science

ISSN 3453-9875

VOL.1

It was established in November 2016 with support from the Norwegian Academy of Science.

DESCRIPTION

The Scientific journal "Norwegian Journal of development of the International Science" is issued 12 times a year and is a scientific publication on topical problems of science.

1000 copies

Norwegian Journal of development of the International Science

Iduns gate 4A, 0178, Oslo, Norway

email: publish@njd-iscience.com

site: http://www.njd-iscience.com

CONTENT

MEDICAL SCIENCES

TECHNICAL SCIENCES

VETERINARY SCIENCES

DYNAMICS OF CHANGES OF POST-OPERATIONAL COGNITIVE FUNCTION ACCORDING TO THE RESULTS OF THE TEST ON A SCOUT SHULTE ON THE BACKGROUND OF NEUROPROTECTIVE THERAPY

Dubivska S.
Ph.D., Associate professor, Associate professor of the Department of Emergency Medicine, anesthesiology and intensive care
Kharkov National Medical University
Grygorov Yu.
Doctor of Medical Sciences, Professor, Professor of the Department of Surgery N. 1
Kharkov National Medical University
Tovazhnyanskaya E.
Doctor of Medical Sciences, Professor, Head of the Department of Neurology № 2
Kharkov National Medical University
Naumenko V.
Ph.D., associate professor, associate professor of the department of emergency medicine, anesthesiology and intensive care
Kharkov National Medical University
Syrchina V.
5th year student
Kharkov National Medical University

Abstract

The nature of postoperative cognitive changes depends on the type of anesthesia, somatic and neurological status, as well as on the patient's age.

The aim of the study was to study the dynamics of changes in the state of cognitive function on the Schulte scale in patients after surgery using general anesthesia on the background of neuroprotective therapy.

To achieve this goal, we conducted a study of the cognitive sphere in 126 patients with acute surgical pathology on days 1, 7, 30 after surgery compared with the preoperative period. The study was conducted on the basis of the Kharkiv City Clinical Hospital of Emergency and Emergency Medical Aid. prof. A.I. Meshchaninov. All patients underwent standard intravenous premedication. Surgery was performed under conditions of general multicomponent anesthesia with artificial ventilation of the lungs using propofol and fentanyl. Patients on the background of standard postoperative therapy added neuroprotective drug according to the scheme.

In the short periods of observation, the restoration of cognitive function by the Schulte test in young patients was noted. Recovery in the postoperative period was gradual in other age groups.

After a month of research, the state of cognitive function in patients according to Schulte's test significantly improved from the values before the operation in patients of groups 1 and 2, but in patients of group 3, they did not fully recover.

Keywords: cognitive function, anesthesia, neuropsychological tests.

Literature noted that in the early postoperative period, changes in the cognitive sphere of varying severity are determined in approximately 30% of surgical interventions performed under general anesthesia, which are observed in 10% of patients for three months [1-12].

Under general anesthesia, characteristic changes in all age groups are identified, among which, first of all, changes in brain perfusion, intracranial hypertension and other brain functions, neurotoxic effects with impaired synaptogenesis, induction of neurodegeneration, stimulation of neuronal apoptosis should be noted. As a result, these changes may further cause the occurrence of various disorders of higher brain activity.

The nature of postoperative cognitive changes depends on the type of anesthesia, somatic and neurological status, as well as on the patient's age.

The authors found that postoperative cognitive dysfunction is manifested mainly by impaired memory, thinking, speed and consistency, difficulty concentrating, reactivity. These changes reduce mental performance, mood, and adaptive traits [7, 8].

The aim of the study was to study the dynamics of changes in the state of cognitive function on the Schulte scale in patients after surgery using general anesthesia on the background of neuroprotective therapy.

To achieve this goal, we conducted a study of the cognitive sphere in 126 patients with acute surgical pathology on days 1, 7, 30 after surgery compared with the preoperative period.

The study was conducted on the basis of the Kharkiv City Clinical Hospital of Emergency and Emergency Medical prof. A.I. Meshchaninov (2008-2018).

All patients underwent standard intravenous premedication. Surgery was performed under conditions of general multicomponent anesthesia with artificial ventilation of the lungs using propofol and fentanyl. Patients on the background of standard postoperative therapy added neuroprotective drug according to the scheme.

The duration of the operation is 89.6 ± 31.2, age from 18 to 80 years.

Group 1 (n = 43) - young patients (18-44 years); mean age 32.3 ± 2.4 years, 24 men, 19 women.

Group 2 (n = 41) - patients of middle age (44-60 years); mean age 48.7 ± 6.1 years, 19 men, 22 women.

Group 3 (n = 42) - elderly patients (60-80 years); mean age 73.1 ± 6.1 years, 20 men, 22 women.

The dynamics of the results of Schulte's test against the background of neuroprotective therapy.

Before surgery, the value of Schulte's test results was 52.7 ± 1.4 s. The value had a strong inverse relationship to the age of the patients. In patients of group 1, it was 45.1 ± 1.2, in patients of group 2 it was 54.1 ± 1.6, and patients in group 3 were 59.1 ± 1.4 s.

In the course of the study on the background of neuroprotective therapy, changes in cognitive function were obtained, which depended on the patient's age and the period after surgery.

On day 1, in patients of all groups after surgery, against the background of neuroprotective therapy, the Schulte sample rate was 37.8% lower than the maximum possible value of this test and 30.7% lower than the value of this test before the operation. The test score of Schulte on the background of neuroprotective therapy also differed in all groups of patients for 1 day.

Patients in group 1 on day 1 after surgery against the background of neuroprotective therapy, the Schulte sample rate was 7.0% lower than the maximum possible value for this test and 18.6% lower than the value for this test in the period before the operation in patients of this group.

In patients of group 2 on day 1 after surgery, the rate of Schulte's test was 39.2% lower than the maximum possible value for this test and 29.2% lower than the value for this test in the period before the operation in patients of this group.

In patients of group 3 on day 1 after surgery, the rate of Schulte's test was 67.4% lower than the maximum possible value for this test and 41.6% lower than the value of this test in the period before the operation in patients of this group.

On day 7 in patients of all groups after surgery, against the background of neuroprotective therapy, the rate of Schulte's test was 23.0% lower than the maximum possible value of this test and 16.6% lower than the value of this test before the operation.

The rate of Schulte's test on the background of neuroprotective therapy also differed in all groups of patients on the 7th day.

On day 7 of the study, the state of cognitive function in patients improved relative to the state on day 1 in all groups, respectively.

In patients of group 1 on day 7 after surgery, the rate of Schulte's test was almost at the level of the maximum possible value for this test and 5.9% lower than the value of this test in the period before the operation in patients of this group.

In patients of group 2 on day 7 after surgery, the rate of Schulte's test was 18.4% lower than the maximum possible value for this test and 9.4% lower than the value for this test in the period before the operation in patients of this group.

In patients of group 3 on day 7 after surgery, the rate of Schulte's test was 55.0% lower than the maximum possible value for this test and 31.1% lower than the value of this test in the period before the operation in patients of this group.

The rate of Schulte's test on the background of neuroprotective therapy also differed in all groups of patients after 1 month. After a month of research, the state of cognitive function in patients with Schulte's test significantly improved from the values before the operation in patients of groups 1 and 2, but in patients of group 3, they did not fully recover.

In patients of group 1, one month after surgery, the rate of Schulte's test was completely restored compared to the maximum possible test result and improved by 7.7% of the values before the operation in patients of this group.

In patients of group 2, one month after surgery, the Schulte sample rate was 8.4% lower than the maximum possible value for this test and recovered to the value for this test, in the period before the operation, in patients of this group.

Patients of the 3 groups a month after surgery, the rate of Schulte's test was 20.8% lower than the maximum possible value for this test and 2.1% lower than the value of this test, in the period before the operation, in patients of this group.

On day 1 of the study, on the background of neuroprotective therapy, there is a strong direct correlation between the degree of reduction of the Schulte sample value and the patient's age: 0.98. The trends of correlation dependence are observed on the 7th day: 0.99, a month after the operation: 0.94.

Thus, on day 1 after surgery, the results of Schulte's test values deteriorated from the values to the operation, more significantly in patients of group 3 (41.6% of the level to the operation). Over the course of the month, the status of the Schulte sample indicators improved significantly. A less significant decrease in Schulte's test on day 1 was observed in patients of group 1 (18.6% of the values before the operation). Patients in group 2 had a worse picture than in patients in group 1; for 1 day, the results of Schulte's test significantly decreased by 29.2% from the values before the operation. Patients in group 1 had significantly improved on day 7 (5.9% of the values before the operation) and complete recovery and improvement of the level to the operation in a month. On the 30th day of the study, the recovery of indicators was in patients of group 2 and improvements from preoperative values in patients of group 1. The deterioration of Schulte's test results from 1 day gradually recovered in each group and, fully resumed in patients of group 2 and improved in patients of group 1.

Indicators of Schulte's test on the background of neuroprotective therapy after surgery from the highest possible result in all study periods had a proportional dependence on age for 1 day (7.0%, 39.2%, 67.4%), for 7 days (0%, 18 4%, 55.0%), after 1 month (0%, 8.4%, 20.8%, respectively).

In the short periods of observation, the restoration of cognitive function by the Schulte test in young patients was noted. Recovery in the postoperative period was gradual in other age groups.

REFERENCES:

1. Усенко Л.В., Ризк Шади Эйд, Криштафор А.А. и др. Профилактика и коррекция послеоперационных когнитивных дисфункций у больных пожилого возраста // Междунар. неврол. журн. – 2008. – №3 (19). – С. 99–110.
2. Усенко Л.В., Полинчук И.С. Когнитивные нарушения после общей анестезии при экстракардиальных вмешательствах и эффект раннего введения тиоцетама в послеоперационном периоде // Междунар. неврол. журн. – 2011. – №6 (44). – С.65-69.
3. Cottrel James Edward. We Care, Therefore We Are: Anesthesia-related Morbidity and Mortality. The 46th Rovenstine Lecture // Anesthesiology. — 2008. — Vol. 109, № 3. — P. 377-388.
4. Усенко Л.В., Ризк Шади Эйд, Криштафор А.А. и др. Профилактика и коррекция послеоперационных когнитивных дисфункций у больных пожилого возраста // Междунар. неврол. журн. – 2008. – №4 (20). – С. 87–94.
5. 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. – Иркутск, 2004. – С. 113–114.
6. Шнайдер Н.А., Шпрах В.В., Салмина А.Б. Послеоперационная когнитивная дисфункция: профилактика, диагностика, лечение. Метод. пособие для врачей. – Красноярск: Оперативная полиграфия, 2005. – 95 с.
7. Давыдова Н.С. Возможные критерии прогноза нарушений мозгового кровообращения при анестезии // Вестн. интенс. терапии. – 2004. – №5. – С. 232–234.
8. Шнайдер Н.А. Новый взгляд на проблему послеоперационной когнитивной дисфункции // Острые и неотложные состояния в практике врача. – 2006. – №5. – С. 47–49.
9. Rasmussen L.S., Jonson T., Kuipers H.M. et al. Does anesthesia cease postoperative cognitive dysfunction? A randomized study of regional versus general anesthesia in 438 elderly patients // Acta Anesth. Scand. – 2003. – Vol. 47, №9. – P. 1188–1194.
10. Newman S., Stygall J., Hirani S. et al. Postoperative cognitive dysfunction after noncardiac surgery: a systematic review // Anesthesiology. – 2007. – Vol. 106 (3). – P. 572–590.
11. Kadoi Y., Goto F. Sevoflurane anesthesia did not affect postoperative cognitive dysfunction in patients undergoing coronary artery bypass graft surgery // J. of Anesthesia. – 2007. – Vol. 21, №3.
12. 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. – Vol. 93. – P. 1489–1494.

SEGMENTATION OF TERRITORIES OF THE REPUBLIC OF BASHKORTOSTAN BY THE LEVEL OF GENERAL AND PRIMARY MORBIDITY

(according to the data of the social-hygienic monitoring for 2000-2015)

Askarova Z.
MD, professor;
Bakirov B.
MD, associate professor;
Davletshin R.
MD, Professor, Head of the Department;
Nurmukhametova R.
Candidate of Medical Sciences, Associate Professor;
Khasanov A.
PhD, associate professor;
Khismatullina G.
Candidate of Medical Sciences, Associate Professor;
Sharipova I.
PhD, associate professor;
Imelbaeva E.
Doctor of Biological Sciences, Professor
Bashkir State Medical University (Ufa)
Kurbangaleeva R.
ultrasound doctor,
The institution «Ufa Research Institute of Occupational Medicine and Human Ecology»(Ufa)