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THE CHANGE OF CEREBRAL BIOTOXES UNDER CONDITIONS OF COMBINED INHALATION ANESTHESIA IN OPHTALMOLOGICAL OPERATIONS CARRIED OUT IN CHILDREN

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Resume

By the purpose of research was: to characterize clinik and encephalografic a picture of current ingalation anesthesia with sevoflurane in a combination with fenthanile. For maintenance of anesthesiological protection in 42 patients of children at ofthalmosurgery operations. The combination fenthaniule with sevoflurane was used. During the anesthesia in parallel with EEG the clinical attributes of current of a method combined ingalathion of anesthesia were studied.

The registered changes of biocurrents of a head brain till influence of ingalathion anesthetics of sevoflurane and narcotic analgethic fenthanile showed prevalence of alfa-waves, at depression of beta-making rhythms on a background of increase of energy of slow teta-waves, these changes apparently, underlies effective suppression psichoemotional stress.

Key words: *ofthalmosurgery operations, electroencephalografy, anesthesia, sevoflurane, fenthanile.*

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ИЗМЕНЕНИЕ БИОТОКОВ ГОЛОВНОГО МОЗГА В УСЛОВИЯХ КОМБИНИРОВАННОЙ ИНГАЛЯЦИОННОЙ АНЕСТЕЗИИ ПРИ ПРОВЕДЕНИИ ОФТАЛЬМОЛОГИЧЕСКИХ ОПЕРАЦИЙ У ДЕТЕЙ

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Резюме

Целью исследования явилось: характеризовать клинико-электроэнцефалографическую картину течения ингаляционной анестезии севофлураном в комбинации с фентанилом. Для обеспечения анестезиологической защиты у 42 больных детей при офтальмохирургических вмешательствах была использована комбинация фентанила севофлураном. В течение анестезии параллельно с ЭЭГ изучались клинические признаки течения метода комбинированной ингаляционной анестезии.

Регистрируемые изменения биотоков головного мозга по влиянием ингаляционного анестетика севофлурана и наркотического аналгетика фентанила показывали преобладание альфа-волн, при депрессии бета-составляющих ритмов на фоне увеличения энергии медленных тета-волн, эти изменеия по-видимому, лежит в основе эффективного подавления психоэмоционального стресса.

Ключевые слова: офтальмохирургические операции, электроэнцефалография, анестезия, севофлуран, фентанил.

БОЛАЛАРДА КОМБИНАЦИЯЛИ ИНГАЛЯЦИОН АНЕСТЕЗИЯ ШАРОИТИДА ОФТАЛЬМОЛОГИК ОПЕРАЦИЯЛАР ЎТКАЗИЛГАНДА БОШ МИЯ БИОТОКИНИНГ ЎЗГАРИШИ

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Резюме

Текширув ўтказишдан мақсад: фентанил билан севофлуранли ингаляцион анестезиянинг клиник кечишини ва электроэнцефалографик тасвирини характерлаш.

Анестезиологик химояни таьминлаш учун 42 та бемор болаларда офтальмохирургик операцияларда севофлуран билан фентанил комбинацияси қўлланилди. Анестезия даврида ЭЭГ текшириш билан параллел равишда анестезиянинг клиник кечиши ўрганилди.

Ингаляцион анестетик севофлуран ва наркотик анальгетик фентанил қўлланилганда бош мия биотоклар ўзгариши альфа тўлқинлар устунлиги билан характерланди, бунда, бета таркибли ритмлар депрессияси фонида тета тўлкинлар фаоллиги аста-секин ортиб бориши кузатилди. Бунинг асосида психо-эмоционал стрессни самарали камайиши ётади.

Калит сўзлар: *офтальмохирургик операция, электроэнцефалография, анестезия, севофлуран, фентанил.*

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Relevance

During ophthalmic surgeries in children, along with the prevention of increasedintraocular pressure, it is necessary to provide anaesthesia of the appropriate depth, depending on the severity of the surgery. The modern theory of control over the course of general anaesthesia is based on an assessment of the depth of anaesthesia. This direction cannot be developed without use of neurophysiological research methods in clinical anaesthesiology, such as electroencephalography (EEG) and bispectral analysis [6, 7]. However, at the present time there is no strict criteria to accurately assess intraoperative status of the central nervous system, which could be used in daily clinical practice. This makes it difficult to monitor the adequacy of anaesthesia [2, 3]. EEG studyis one of the most objective and informative methods to evaluate the degree of depth and the effect of anaesthesia to Central Nervous System [5, 6]. Combined anaesthesia based on inhalation anaesthetics for ophthalmic surgical interventions today is the most relevant [1,4].

Objective: to characterize the clinical and electroencephalographic picture of inhalation anaesthesia with sevoflurane in combination with fentanyl during ophthalmic surgery in children.

Material and methods

Ophtalmic surgery was performed in 42 children. Acombination of fentanyl with sevoflurane was used as anaesthetic approach.

Patient's age: 28,58% (n=12) of children from 3 to 6 years old;47,62% (n=20) children from 7 to 10 years old and 23,80% (n=10) from 11 to 14 years old accounted for the total number of patients.

Anaesthesia was performed during the following surgical procedures: opening the anterior chamber of the eye (congenital glaucoma); congenital and traumatic cataracts with artificial lens implantation; cataract extraction; strabismus elimination.

Patients of the first group (main group), inhaled sevoflurane in a dose of 3% vol after sedation. Fentanyl solution was administered intravenously at a dose of 0.008-0.01 mg / kg. Patients of the second (control group) on the background of halothane inhalation in a dose of 2.5 vol %, were injected intravenously with a solution of fentanyl in a similar dose. All patients underwent tracheal intubation against the background of the administration of arcuron at a dose of 0.06 mg / kg. Mechanical ventilation was carried out by a respirator "Fabius plus" (Germany) in the normal ventilation mode. Muscle relaxation was supported by the introduction of 1/3 of the main dose of arcuron. Anesthesia was supported in children of the first group by inhalation of sevoflurane at a dose of 1.3 - 2.0 vol%, in children of the second group by inhalation with halotane at a dose of 1.0 - 1.5 vol%. Infusion therapy was carried out at a rate of 5 - 7 ml / kg / hour. After the operation with the appearance of adequate spontaneous respiration, tracheal extubation was performed. After the operation, the patients woke up pretty quickly, within 12.8 ± 0.8 minutes.

Clinical and EEG studies were performed intraoperatively. EEG recording was performed in the frontal and occipital leads using needle electrodes on electroencephalograph "Digital Brain Electric Activity Mapping KT88-2400". To analyse the results of clinical and functional studies, we used the method of variation statistics T-test (Student).

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Results and discussion

Based on the analysis of clinical and EEG studies, we were able to assess the adequacy of the anaesthesia and to trace the sequence of occurrence and development of shifts of electric potentials in conditions of combined inhalation

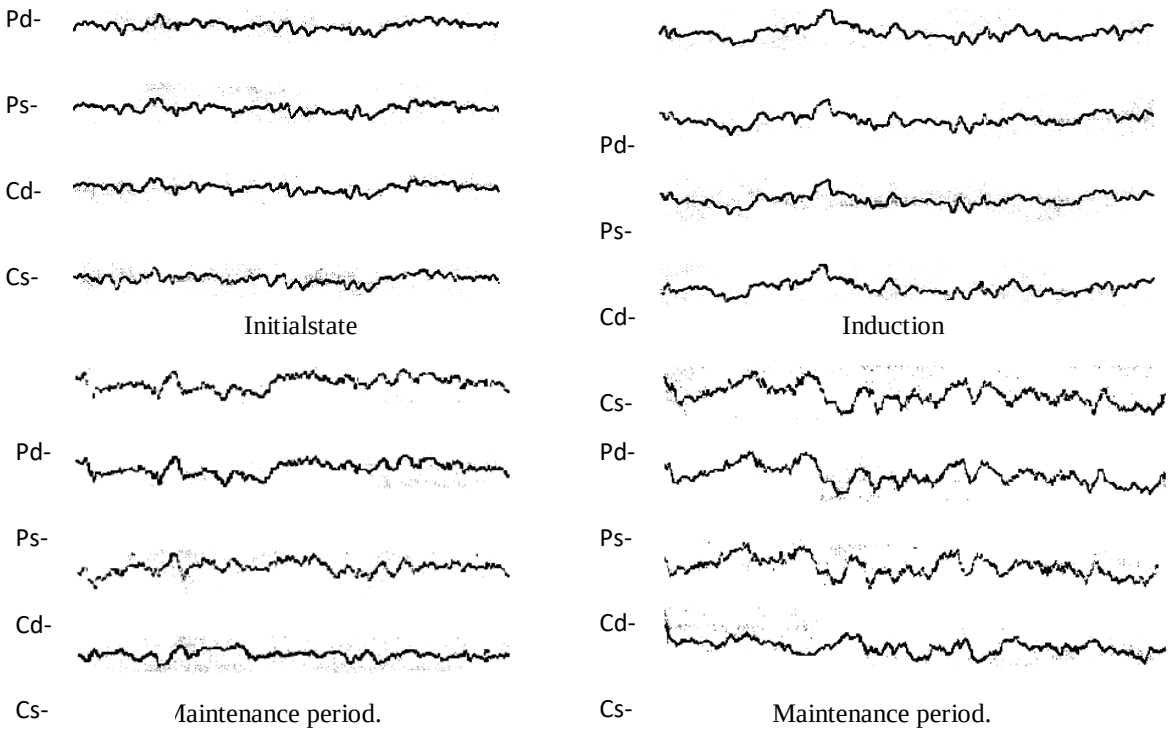

Fig.1. Patient's EEG during anaesthesia with sevoflurane in combination with fentanyl.

anaesthesia (*Fig: 1)*. During anaesthesia, in parallel with the EEG, the clinical signs of the combined inhalation anaesthesia were studied. At the premedication stage, the children entered the operating room in an inhibited, sleepy state, but reacted to the injection Alpha waves with amplitude of up to 50 μV and beta waves with amplitude of up to 20 μV were recorded on the EEG. Groups of low-frequency waves, mainly theta range, appeared. In general, the EEG was mixed rhythms due to the variability of the EEG rhythms in childhood.

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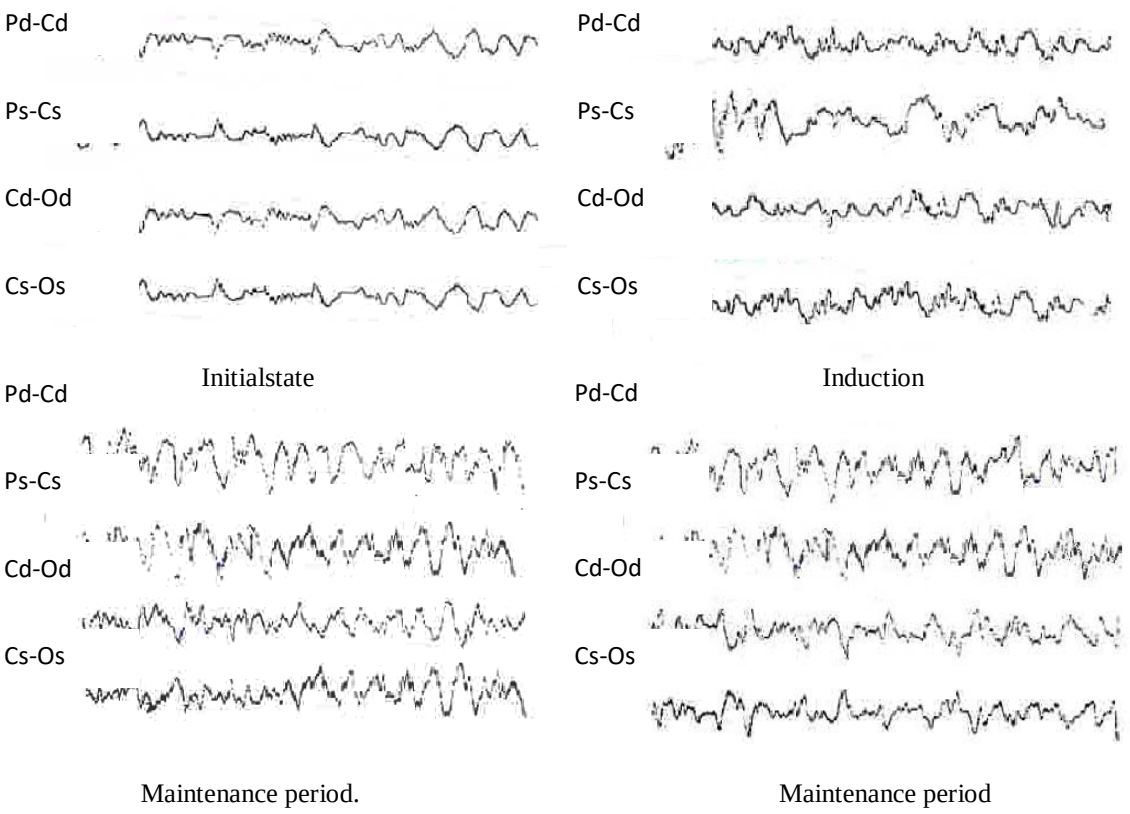

Fig.: 2. Patient's EEG during anaesthesia with halotane in combination with fentanyl.

During anesthesia in the second group of patients against the background of halotane induction, alpha rhythm regression was observed with increased theta rhythm and electric EEG hyperactivity (Fig. 2) with regression of high-frequency beta rhythms. After intravenous administration of fentanyl, a transition to the second surgical stage of anesthesia was noted, and the number of slow waves with a frequency of 1-3 Hz and an amplitude of more than 60 μV increased on the EEG. We regarded this period as an adequate surgical level for surgical intervention.

At the stage of induction heart rate increased by 15.43% and there was a tendency to increase blood pressure. On the EEG, there was a restructuring of the bioelectric activity of the brain, manifested in the smoothing of the peak of alpha waves and the appearance of slow theta waves, with a frequency of 4-6 Hz, amplitude of 60 μV in all leads. Against a premedication background, the amplitude of alpha waves increased, while their frequency tended to decrease.

The period of anaesthesia maintenance was characterized mainly by the same clinical signs that were noted at the end of induction. The awakening period was short and lasted 10-15.Their skin integument remained pink and warm, ocular, larynx, pharyngeal, and cough reflexes and motor activity were quickly restored. When patients awaked, the nature of independent breathing did not change, it remained even and calm. In the postoperative period, children did not need additional anaesthesia during the day, their appearance did not change. Heart rate did not significantly change. On the EEG, a decrease in the α-wave range with the replacement of fast β-waves was recorded in all leads.

The waves were located bilaterally synchronously, without a clear spatial distribution. The number of θ - waves has decreased. The period of awakening proceeded smoothly and quite quickly consciousness was completely restored. In this case, the return of the EEG to the initial values was observed 20-30 minutes after clinical awakening.

The recorded changes due to the effects of sevoflurane and fentanyl show that the predominance of alpha waves, with depression of beta components against the background of an increase in the energy of slow theta waves, seems to be the basis for the effective suppression of psycho-emotional stress.

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Conclusion:

1. Due to the EEG method, we were able to trace the sequence of occurrence and development of electric potentials shifts in conditions of combined inhalation anaesthesia with sevoflurane.
2. The clinical symptoms and brain bioelectrical activity examination showed effective anaesthetic protection in a shallow level of anaesthesia during combined in halation anaesthesia.
3. The results of the studies allow us to conclude that the use of sevoflurane in combination with fentanyl in children with ophthalmic surgery is highly effective.

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CLINICAL CASE OF CUTANEOUS LEISHMANIASIS

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Resume

The article provides a description of the clinical case of cutaneous leishmaniasis. The authors provide brief information about the etiology and pathogenesis of the disease, options for the clinical course, diagnostic features and modern methods of treatment of the disease. The crucial role of histological examination, as well as anamnestic data in the diagnosis is emphasized. The article describes the clinical observation of a 14-year-old patient, which was observed by dermatologists with various diagnoses for 2 months. Given the nature of the disease, seasonality, as well as characteristic histological changes and, the patient was diagnosed with cutaneous leishmaniasis.

Keywords: *cutaneous leishmaniasis, etiology, pathogenesis, clinic, anthroponotic, zoonotic, reservoir, carrier, mosquitoes, leishmanioma, ulcers, scars.*

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