

ANATOMICAL AND STRUCTURAL FEATURES OF THE STRUCTURE OF THE VESSELS OF THE BRAIN DURING MR- ANGIOGRAPHY

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Abstract

During research, children with the different age groups were examined, to be able to find appropriate treatment in the future for each category and had a research about the overall image of the frequency of pharmacoresistant forms of epilepsy and types of convulsions.

Keywords: to analyze the structure of cerebral vessels using MR angiography..

Introduction

For 2 years from 25 patients aged: 7-10 years old-7 (28%) patients, 11-14 years old- 9 (36%) patients, 15-17years old- 3 (12%) patients, 17-18years old- 6 (24%) patients' data was examined in the Neurosurgery department of SamSMU Clinic. From the research it is obvious that 11-14 years old children suffer more than other age categories (36%). Attacks of epileptic seizures were different in types. CT and MRI were chosen as the method of investigation to 24% and 76% patients respectively, as an analyze of dynamics, for majority (64%) of patients was chosen EEG diagnostics. Furthermore, 66,7% of 17-18 and 33,3% of 15-17 years old patients were suffering from simple partial seizures; 87% of 7-10 and 33,3% of 11-14 years old patients were affected with generalized paroxysmal seizures; including vegetative- 13% 7-10, 33,3% 11-14; motor- 22,2% 11-14, 33,3% 17-18; mental-66,7% 15-17, 11,1% 11-14 years old age categories.

Materials and Methods

Drug-resistant forms of epilepsy, registered as one of the issues related to medicine and society. Stable seizures can cause many psychological, physical and financial

problems, which may lead to significant change of patients' life quality. Identification of refractory forms are essential to prescribe non-pharmacological approach (surgery, stimulation of vagal nerve, ketogenic diet, stress reduce and etc.). Analyze the data of patients admitted in the Clinic from 2021 to 2023 aged till 18 years old. In the data it was mentioned that they all were complaining about convulsions. However, they all were taking medications for a long time. Examination of that form of convulsions were identified with the daily- and simultaneous EEG research.

Conclusion

Magnetic resonance angiography (MRA) allows to obtain images of vessels without the use of any radiopaque agents, although special contrast agents are used to obtain an even sharper image. The method allows to evaluate both anatomical and functional features of blood flow.

FREQUENCY OF PHARMACORESISTANT EPILEPSY IN CHILDREN.

Aim: analyze frequency of pharmaco-resistant epilepsy among children in Neurosurgery department of SamSMU Clinic.

Materials and methods: Drug-resistant forms of epilepsy, registered as one of the issues related to medicine and society. Stable seizures can cause many psychological, physical and financial problems, which may lead to significant change of patients' life quality. Identification of refractory forms are essential to prescribe non-pharmacological approach (surgery, stimulation of vagal nerve, ketogenic diet, stress reduce and etc.). Analyze the data of patients admitted in the Clinic from 2021 to 2023 aged till 18 years old. In the data it was mentioned that they all were complaining about convulsions. However, they all were taking medications for a long time. Examination of that form of convulsions were identified with the daily- and simultaneous EEG research.

Results: For 2 years from 25 patients aged: 7-10 years old-7 (28%) patients, 11-14 years old- 9 (36%) patients, 15-17years old- 3 (12%) patients, 17-18years old- 6 (24%) patients' data was examined in the Neurosurgery department of SamSMU Clinic. From the research it is obvious that 11-14 years old children suffer more than other age categories (36%). Attacks of epileptic seizures were different in types. CT and MRI were chosen as the method of investigation to 24% and 76% patients respectively, as an analyze of dynamics, for majority (64%) of patients was chosen EEG diagnostics. Furthermore, 66,7% of 17-18 and 33,3% of 15-17 years old patients were suffering from simple partial seizures; 87% of 7-10 and 33,3% of 11-14 years old patients were affected with generalized paroxysmal seizures; including vegetative- 13% 7-10, 33,3% 11-14; motor- 22,2% 11-14, 33,3% 17-18; mental-66,7% 15-17, 11,1% 11-14 years old age categories.

Conclusion: During research, children with the different age groups were examined, to be able to find appropriate treatment in the future for each category and had a research about the overall image of the frequency of pharmacoresistant forms of epilepsy and types of convulsions.

ANALYSIS OF THE RESULTS OF SURGICAL TREATMENT OF PATIENTS WITH CHIARI ANOMALY TYPES 1 AND 2.

Aim: To study the effectiveness of operative treatment of patients with Chiari anomaly types 1 and 2.

Materials and Methods: There were 13 patients with Chiari malformation (CM) I and II in the clinic of Neurosurgery of SamSMU. Of these, 5 women, 8 men, aged 18 to 40 years. Follow-up was conducted in 2021 year.

Results and discussion: 7(53.8%) patients with CM I, 3(23.1%) patient with CM II type. In 3 (23.1%) patients, CM was combined with syringomyelia. All (100%) patients underwent MRI examination. MRI revealed descent of the cerebellar trunk and tonsils below the level of Chamberlain's line by 1.5-3 cm, narrowing of the foramen magnum and absence of the large occipital cistern, in some patients an angular deformity of the medulla oblongata. In 3(23.1%) patients, MRI of the cervical and thoracic spine and spinal cord revealed a hydrosyringomyelic cyst at the level of the cervical and upper thoracic spinal cord. One of them was diagnosed with syringobulbia with the spread of the cystic cavity to the lower part of the IV ventricle. 10 (77%) patients had dysphagia, spontaneous nystagmus, persistent dizziness, neck pain, unsteady gait (problems with balance, nausea and vomiting). All 7 patients underwent resection trepanation of the PCF(Posterior cranial fossa) with resection of the posterior half-ring of the atlas. This operation is performed in the following order: in the usual way, a median layer-by-layer incision of soft tissues with skeletonization of the scales of the occipital bone and the posterior half-ring of the atlas. After that, a burr hole is made on the lower part of the scales of the occipital bone and an economical resection trepanation of the scales of the occipital bone is performed, then the posterior half-ring of the atlas is resected using gentle bone cutters. It is desirable to open the dura with a "V" shaped incision for the convenience of subsequent autoplasty. All patients were found to have herniation of the cerebellar tonsils into the foramen magnum, fibrosing adhesive arachnoiditis in the region of the transition of the medulla oblongata to the spinal cord with occlusion of the cerebrospinal fluid pathways (foramina of Magendie). After separation of the fibrous arachnoid adhesions, the herniation of the cerebellar tonsils is prevented by lifting with spatulas and repositioning into the PCF. In two cases, it was not possible to "reduce" the cerebellar tonsils into the PCF; for this reason, he underwent resection of the cerebellar tonsils. All patients

also underwent “apron-shaped” autoplasty of the dura mater with a graft taken from the fascia lata of the thigh with the formation of an artificial large cisterna according. A positive result was obtained in all 7 (53.8%) patients with Chiary type 1 after surgery. Some symptoms persisted in 1 out of 3 (23.1%) patients with Chary type 2. CM combined with syringomyelia 3(23.1%) patients all symptoms disappeared and feel better

Conclusions: After surgery it was found that in all patients the general condition improved significantly, cerebral symptoms disappeared, neck pain, unsteady gait (problems with balance), nystagmus, dysphagia and other symptoms regressed. MRI showed regression of syringomyelia, and CSF circulation improved in the artificially formed large cisterna.

Clinical analysis of patients with brain gliomas

The purpose of the research: to study the general condition of patients before surgery and oncotherapy, and to analyze their semiotics after these procedures.

Sources and methods for research: This research was conducted in the period of 2021-2023 among patients who were admitted for treatment in the Department of Neurosurgery of the Multidisciplinary Clinic of Samarkand State Medical University. The study was conducted in 60 patients (32 women, 28 men) who were hospitalized with gliomas of the brain. In the studied patients, the diagnosis and the general condition of the patient were evaluated on the basis of clinical-laboratory and radiological examinations before and after the operation.

Research results: The average age of the studied patients is 30 years (from 26 to 35 years). The average duration of the operation in patients was 210-280 minutes. The average length of hospital stay after surgery is 12-14 days. In order to assess the exact location of the tumor, its size, direction of location, whether there are points of redevelopment of the tumor, an MRI examination was performed in all examined patients in the preoperative and late periods. Brain glioma was diagnosed based on general examinations and tissue biopsy findings. Patients came to the hospital with complaints of headache (mainly pain observed in the morning), nausea, vomiting, mental dysfunctions, problems with thinking and understanding. In 24 (40%) of the examined patients, the glioma was in the frontal area of the brain (lobus frontalis), in 17 (28.34%) in the temporal area (lobus temporalis), in 8 (13.4%) in the upper area (lobus parietalis), in 2 in 3.34% of patients, it was detected in the occipital region (lobus occipitalis) and in the remaining 9 patients (15%) in the deep structures of the brain. According to the WHO Grade, gliomas were described as follows: Grade I (11): piloid astrocytoma; Grade II (9): diffuse astrocytoma, oligoastrocytoma, oligodendroglioma; Grade III (7): anaplastic astrocytoma, anaplastic oligoastracytoma, anaplastic oligodendroglioma; Grade

IV(19): glioblastoma. In order to evaluate the general condition of patients, patients are examined in the preoperative period, early postoperative period (5-7 days after surgery), and late postoperative period (3-6 months after surgery), and the preoperative and postoperative conditions of patients are evaluated using the Karnovsky scale. is evaluated according to Karnovsky scale evaluations in 37 (61.67%) patients characterized neurological disorders with more than 50 points, in postoperative patients this indicator increased to 70-80 points and was directed to the next course of therapy.

Conclusion: Observation of patients with brain gliomas before and after surgery led to the following conclusions: 1. After surgery, 60% of patients with glioma have an increased quality of life up to the first 3 years, partial neurological symptoms remain. 2. Patients with glioma are required to undergo regular examinations even in the postoperative period. 3. The general condition of patients corresponds to the pre- and post-operative dynamics according to the Karnovsky scale. 4. In addition to surgery, additional treatment programs that limit neurological symptoms and glioma proliferation are recommended to patients.

STUDY OF THE QUALITY OF LIFE OF PATIENTS WITH MENINGO-VASCULAR BRAIN TUMORS IN THE BEFORE AND POSTOPERATIVE PERIOD

The purpose of the study: was to assess and analyze the quality of life of patients with various meningo-vascular brain disorders in the pre-postoperative period.

Materials and methods of research: This study was conducted in patients hospitalized in the period 2022-2023, who underwent surgical treatment for meningovascular brain tumors (MBT) in the Department of Neurosurgery of the Multidisciplinary Clinic of Samara State Medical University. A study was conducted in 150 patients (87 women and 63 men aged 37 to 65 years) with MBT. Establishing the diagnosis in the studied patients was based on clinical and laboratory data, data of radiation and instrumental methods of research in the pre- and postoperative period.

Results of the study: The average age of the patients was 57 (49-60) years. The average duration of surgery in the studied patients was 180-240 minutes. The duration of hospitalization of the subjects was 10-14 days. All patients in the pre- and late postoperative periods underwent MRI of the brain with contrast to assess the location of the tumor matrix, clarify its size, directions of spread, and the presence of tumor relapses. Most often, they are detected by the location of cerebral meningiomas in 67 (44.7%) of the studied patients localized in the frontal lobe, parietal lobe in 45 (30.2%), temporal lobe in 23 (15.7%), posterior cranial fossa in 15 (10.4%). The following approaches were used to remove brain

meningiomas: parasagittal, subfrontal, subtemporal, orbito-zygomatic-temporal, supraorbital, retrosigmoid, median. In 92 of the studied patients, after surgical treatment, MRI of the brain did not reveal tumor remnants, which confirmed the totality of the tumor removal. The degree of radicalness of operations was assessed according to the generally accepted D. Simpson classification: I degree - total removal of the tumor along with the matrix in 36.2% (54) of the patients; II degree - total removal of the tumor with matrix coagulation in 50.9% (76); III degree - partial removal of the tumor in 5.34% (8); IV degree - decompression is divided into subtype A - subtotal removal with minimal fragments left in 4.0% (6) of patients and subtype B - partial removal of 2.67% (4); Grade V - biopsy 0.67% (1). The analysis of changes in the quality of life was performed in patients in the preoperative period, early (the first 5-7 days after surgical treatment - the moment of discharge from the hospital) and late postoperative periods (3-6 months after surgery). The general condition of patients before and after surgery was assessed using the Karnofsky scale. It describes the patient's level of functional status in terms of self-care, daily activities and physical activity. Before the operation, the studied patients had a neurological deficit according to the Karnofsky scale of 50 points, after 1 week - 60 points in 27 (18%) patients after the operation. Before surgery, the Karnofsky score was 60 points, after 2 months 70 points in 45 (30%) patients after surgery; In patients before surgery, according to the Karnofsky scale, 70 points were recorded, after 6 months 80 points in 78 (52%) patients after surgery.

Conclusions: The study of the quality of life of patients with MSCM before and after the operation period showed: 1. The level of quality of life of patients increases in the period up to 2 years after surgery and then stabilizes. 2. The dynamics showed the quality of life after the operation and the anamnesis coincides with the dynamics of the results of assessing the general condition according to the Karnofsky scale.

The efficiency of MR tractography as a predictor of the results of surgical treatment of spinal cord tumors.

Objective: To conduct a primary assessment of the prognostic capabilities of MR tractography in patients with spinal cord tumors.

Materials and Methods: 171 patients with spinal cord tumors were operated on at the Clinic of Neurosurgery of the Samara State Medical University in 2010-2022. Men - 70, women - 85, of which 16 are children under 18. All patients underwent MRI during hospitalization; when intradural tumors of the spinal cord were detected in our case, 122 (71.3%) patients were prescribed an additional examination such as MRI tractography.

Results: Tumors at the level of 1st and 2nd vertebrae in our practice were found in 65.6% of patients, 3rd-4th vertebrae in 17.7%, 5-6th vertebrae, long tumors in 5.1% and extra-long tumors (at the level of 6-7 or more vertebrae) in 11.93% of patients. MR tractography, as one of the additional functions of magnetic resonance imaging, allows you to visualize the image of the conductive pathways (white matter tracts), their integrity and the transmission of nerve impulses with high accuracy, which is based on the diffuse tensor neuroimaging method, which allows you to identify violations of the course and structural features of the white matter tracts and their involvement in oncogenic processes, which is impossible with standard MRI examinations. The study showed that in 10 patients (47.6%) with intradural tumor of the spinal cord, with a complication of paresis of the extremities, examined by MRI tractography, destruction, dysfunction of the conducting tracts of the spinal cord, and a decrease in the degree of myelination were revealed. In 6 (28.5%) patients with plegia, thinning and compression of the nerve pathways were observed. In 5 (23.8%) patients with hypalgesia of the extremities, compression and displacement of the nerve tracts were revealed.

Conclusions. Thus, both literature data and our observations give grounds to consider MR tractography as an effective method for predicting the consequences of spinal cord injuries, as well as a means of monitoring the effectiveness of surgical methods for treating patients with spinal cord tumors. This diagnostic method, as a potential predictor of the neurological condition of patients, is of great importance for improving the criteria for classifying spinal cord tumors, which makes it possible in clinical practice to determine the tactics of treatment, the volume and access of surgical intervention, to predict possible complications in this pathology and the postoperative results of the patient, which determines the effectiveness use of MRI tractography as an additional method of examination for neoplasms of the spinal cord.

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