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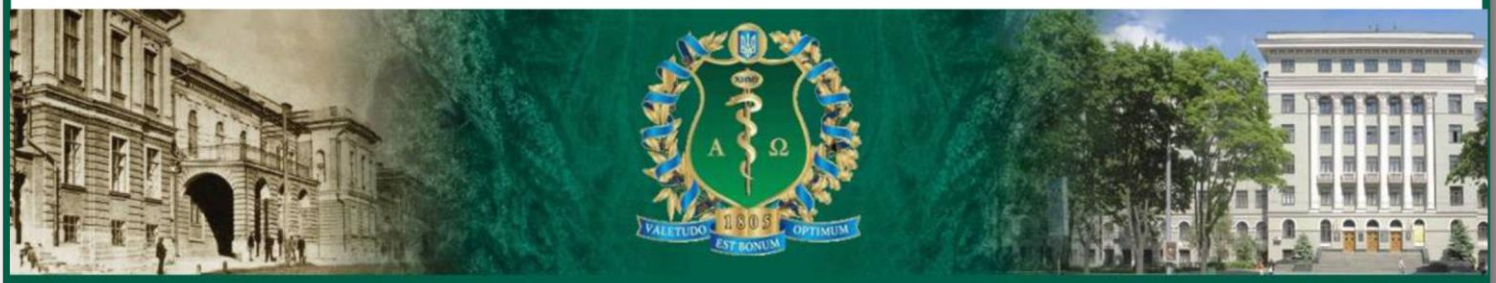

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Table of Contents

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HISTORY OF MEDICINE

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"WHITE RUSSIAN" DOCTORS IN CYPRUS: THE FATE OF SIX GRADUATES OF IMPERIAL KHARKOV UNIVERSITY (PART 2)

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Abstract: The article discusses the fate of physicians who graduated the medical faculty of Kharkov University before 1917 and immigrated to Cyprus in 1920. For three of them the island became the second home. Apart from Pavel Smitten (we described his biography in the first part of the article), physicians Mark Freiman and Boris Vroblevskiy decided to live and work in Cyprus. The former had medical practice there, though in Kharkov he was engaged in real estate and became famous due to excavations of the city catacombs. Vroblevskiy worked in hospitals, supervised by Smitten, and after the death of the latter independently, until 1956.

Three of the physicians were unable to find work in Cyprus, and in 1922 the British authority moved them from the refugee camps to Balcans. Sergey Kozentsov served as a surgeon in Kharkov Red Cross hospital for many years. Mkrtych Arevshatiants before immigrating worked in Tiflis City hospital; Alexey Ivanov served as a country doctor in Ukraine. After the departure from Cyprus Kozentsov lived in Dubrovnik, where he died in 1942. There is no information on the fate of the other two doctors who left Cyprus.

KeyWords: Alexey Ivanov; Boris Vroblevskiy; Cyprus; graduates of medical faculty; Kharkov University; Mark Freiman; Mkrtych Avevshatiants; physicians; Sergey Kozentsov; White emigration.

INTRODUCTION

As mentioned in the first part of this article, in May-July 1922, the British authorities forcibly evacuated the vast majority of «White Russian» refugees from Cyprus to the Balkans; also 7 of the 11 doctors were evicted, arrived on the island in the spring of 1920. Just as importantly, 3 out of 4 physicians who were granted permission to stay in Cyprus after 1922 [1] and who worked there for 20-30 years, were graduates of the medical faculty of Kharkov Imperial University.

One of three former Kharkovites was Mark Isaakovich Freiman who left Russia on March 8, 1920 aboard the ship "Kherson" and arrived in the Cypriot port of Famasusta on March 22 [2]. He registered his medical dipoma and, after receiving permission, began to work as a doctor [3]. The reports in the press show that in November 1922 M.I.Freiman continued to work in Famagusta [4].

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History has preserved almost no other information about the life of Mark Freiman in Cyprus. It is only known that this native of Kharkov continued working on the island as a doctor in 1940 [5]. Although in the early 1930s, his name was not found in the lists of physicians in Cyprus published by the British administration [6] – perhaps Freiman at this time refused to provide medical service or left the island. Thus, we do not know when and where he finished his life journey.

Mark Freiman, who was born in Kharkov in 1886, was the son (and heir) of a businessman, well-known in the city. In the official list of University students [7, p. 274] Mark's father is named "a retired Lieutenant of Jewish faith". But we find a much fuller description in Freiman Senior's obituary [8]:

"Isaac Isidorovich Freiman, an outstanding Kharkov merchant, the Director and Head of Kharkov offices of Tsintenhof manufactories, as well as of Joint Stock Company "Leonhardt Welker and Herbardt" died on the night of 24 June, 1912, in province of Livonia" The deceased was

about 58 years old. In Kharkov I.I.Freiman owned three houses at No. 6, Sumskaya Street, on Rymarskaya Street near the Commercial club (former Kirsten house), and at No. 28, Rybnaya Street. Being a Jew, he volunteered in the army in the 1870s, and then was promoted to a Lieutenant and retired. The deceased left a widow, a son and three daughters".

Moreover, Mark's father served with distinction during the Russian-Turkish war of 1877-1878, and he was awarded the rank of an officer. In those days Russian Jews could receive it only in individual cases and by personal permission of the Sovereign.

Apart from the buildings, mentioned in the obituary, the Freimans also owned other houses in the city centre; most of them are still preserved today.

Mark Freiman continued his education, staying away from the family business. At first he studied in the 3rd Kharkov gymnasium, and in 1904 he entered medical faculty of Kharkov Imperial University. During this period M.I.Freiman sometimes took care of patients. As in summer of 1908, when he worked in the surgeon C.A.Isakovich's "Hospital and Office for electro-, photo- and hydrotherapy" in the city of Vladikavkaz, and in 1909, during typhoid fever epidemic in Kharkov at the faculty of Internal Diseases of the University. The student Freiman was awarded the faculty gold medal for the essay "The value of various methods to determine blood pressure for clinics". In 1910 he graduated from the university with the title of a specialist in internal medicine and in 1911 M.I.Freiman became a full member of Kharkov Medical Society [9].

The young doctor opened up a University career, but it turned out otherwise. Mark's father, suffering from arterial sclerosis and kidney disease, died suddenly, and the son had to assume the leadership of a newly initiated project, particularly the construction of a multistorey apartment house at No. 23, Rymarskaya Street.

In 1914 the building was completed, and since then has embellished the historical center of Kharkov. Some doctors rented there the offices for their medical practice. For instance, Dr. Goldinger's X-ray room was located there from 1915.

Fig.1 "Freiman's house"

"Freiman's house" as well as the name of its owner remained in the history of Kharkov as when laying the underground service lines for this luxurious building the production workers unearthed ancient tunnels. Kharkov fortress which marked the beginning of the city was constructed on this very place in the 17th century [10]. Mark Freiman invited University historians and the finding was examined by a scientific board. City newspapers wrote articles regarding the finding. So today M.I.Freiman is remembered in Kharkov as a person who unearthed medieval dungeons, not as a medical practitioner. That was why Freiman was listed in medical, urban, as well as in national directories [11, p. 464; 12, p. 501].

However, with the beginning of World War I Mark Isaakovich was drafted into the army as a doctor. M.I.Freiman served in the army. The message is preserved, stating that on 29 May, 1915 he arrived to Kharkov from the theater of military action with a large number of wounded soldiers [13].

There is no information on the life of the future White Russian Cypriot in the period of revolutions and Civil War. However, we can confidently say that in the summer of 1919 Mark Freiman was once again drafted into the army, this time in the Armed Forces of South Russia. The retreat of this army brought the doctor onto the board of "Kherson" ship along with other refugees.

By circumstantial evidence it can be assumed that long before fleeing from the Bolsheviks M.I.Freiman shrewdly sold his estate in Kharkov and transferred the money to one of the Western banks. In any case, in Cyprus he clearly had the money without the need to earn a living.

The most significant part of B.M.Vroblevskiy's life, the youngest of six graduates of the medical faculty in Kharkov, who arrived to Cyprus in 1920, took place, in contrast to M.I.Freiman, on the "Island of Aphrodite". As P.N.Smitten (see the first part of this article), B.M.Vroblevskiy is remembered by the inhabitants of the region of Lefke for his health care service and for his practice as a physician at a major U.S. mining company, Cyprus Mines Corporation (CMC).

At the same time, only a little is known about his life before immigrating to Cyprus. Boris Mikhailovich Vroblevskiy was born in 1895 in the town of Shchigry, Kursk province, in the Orthodox family of an official. Boris finished the 3rd Kharkov gymnasium and entered medical faculty of Kharkov Imperial University in 1913 [14, p.50]. Memoirs, written in 1945 in Paris [15] by his classmate at Kharkov gymnasium, P.V. Pashkov mention that 38 students graduated from the gymnasium in 1913 and they were "extremely brilliant in their success in sciences and in the number of received awards: 7 gold and 11 silver medals". In autumn they entered high school, mainly Kharkov University, but with the beginning of the World War I most of Pashkov's classmates, united by a patriotic impulse, voluntarily went to military schools, although they had an exemption from military service until the end of the University course. Four of them, including Boris Vroblevskiy, became military doctors:

"In spring of 1917 these four doctors graduated from the accelerated 4-years (instead of 5) course at medical faculty of Kharkov Imperial University with the rank of "zauryad vrach". All four doctors served in the Black Sea Navy: Boris Vroblevskiy (senior physician at the battleship "Rostislav", then the head of the medical regiment of the Don army during the Civil War), Vladimir Mal'tsev (at the battleship "Three hierarchs"), Egon Yatsunskiy (died in 1919) and Mikhail Popov (then in the civil service in Yugoslavia)".

The fact that in autumn of 1917 Boris Vroblevskiy served as a doctor (however, as a junior one) on the above-mentioned ship, is testified by the literary sources [16]. Unfortunately, the evidence on B.M.Vroblevskiy's supervision of the medical service of the Don army (Armed Forces of South Russia) has not yet been found.

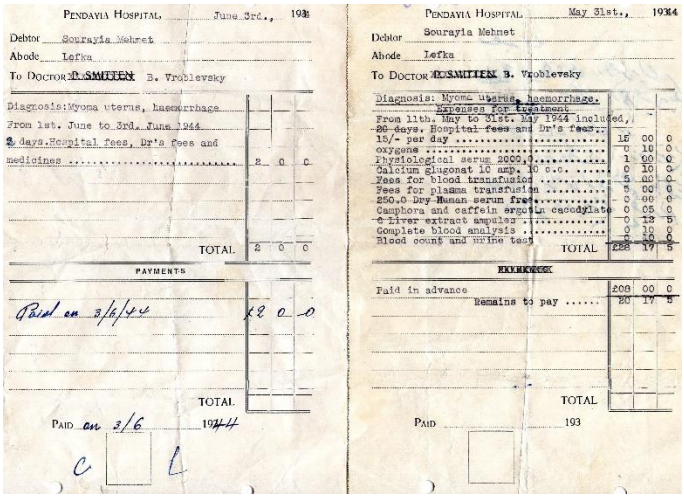
But we know that the Civil War forever separated Boris Vroblevskiy and his older brother, also a doctor. Petr Mikhailovich Vroblevskiy (born in 1885) graduated from medical faculty of the same University in 1911, specializing in skin and venereal disease. Then he worked at Kharkov University under the guidance of Professor N.S.Bokarius. Having stayed in the country under the Bolsheviks, P.M.Vroblevskiy became a quite famous forensic doctor, authoring several publications in this field that are still referenced today. Petr Mikhailovich worked in Kharkov until at least 1935.

The life of his younger brother turned out in a different way.

Having arrived to Cyprus in spring of 1920, the immigrant Vroblevskiy registered his medical diploma of Kharkov Imperial University and started to work as a general practitioner [3]. There is information in a newspaper that in 1922 he worked in Margo village [4].

When in the early 1920s, P.N.Smitten was granted permission to open his own hospital in Nicosia (see the first part of this article), B.M.Vroblevskiy began working in this private healthcare institution [17, p.252].

Later, also under the charge of Smitten, B.M.Vroblevskiy served from 1932 in the CMC hospital in Pendayia. At first the head of hospital instructed Boris to conduct rehabilitation services for the employees of the company. But then B.M.Vroblevskiy became a full-fledged Smitten's assistant in the field of obstetrics and gynecology. Boris Mikhailovich continued to work at the Pendaiya hospital after Smitten's death in the 1940s and 1950s [18].



PENDAYIA HOSPITAL June 3rd., 1944
Debtor Sourayia Mehmet
Abode Lefka
To DOCTOR B.SMITTEN B. Vroblevsky
Diagnosis: Myoma uterus, haemorrhage
From 1st. June to 3rd. June 1944
2 days Hospital fees, Dr's fees and medicines 2 0 0
TOTAL 2 0 0
PAYMENTS
Paid on 3/6/44 £2 0 0
TOTAL
PAID on 3/6 1944

PENDAYIA HOSPITAL May 31st., 1944
Debtor Sourayia Mehmet
Abode Lefka
To DOCTOR B.SMITTEN B. Vroblevsky
Diagnosis: Myoma uterus, haemorrhage.
Expenses for treatment
From 11th. May to 31st. May 1944 included,
20 days. Hospital fees and Dr's fees:
15/- per day 15 00 0
oxygene 0 10 0
Physiological serum 2000,c 1 00 0
Calcium glugonat 10 amp. 10 c.c. 0 10 0
Fees for blood transfusion 5 00 0
Fees for plasma transfusion 5 00 0
250,0 Dry Human serum free 0 00 0
Camphora and caffein argain cacodylate 0 05 0
6 Liver extract ampules 0 12 5
Complete blood analysis 0 10 0
Blood count and urine test 0 10 0
TOTAL £28 17 5
Paid in advance £20 00 0
Remains to pay £8 17 5
TOTAL
PAID 193

Fig.2 Medical records of Dr. B.M.Vroblevskiy

At the same time B.M.Vroblevskiy kept a private hospital in Lefke. He rented a place in a building, built in the style of Ottoman architecture, which is now called "the House of the Pharmacist, Mr. Kemal". A pharmacist's son Kemal Bey, Mr. Feridun Kemal Feridun, reported the following (F.K.Feridun was born on 30.06.1952, living in Yedidalga. These information was quoted from an interview conducted on 09.04.2015.- E.A.):

"My aunt, a pharmacist Mustafa Effendi's daughter and Mrs. Ülfet, Beria Hami and uncle beha Hami constructed a house in Lefke. However, they could not live in this house since they took a loan from the bank and had to pay their debt. Dr. Vroblevksiy, a White Russian living in Lefke, working in CMC and owning a private clinic, saw and liked the house and offered a rent that was not possible to refuse. The house had all the things that he asked for; the ground floor of the house had a big room for his clinic with the toilet and bathroom inside of the house as he wanted, as all the houses built in Lefke until that time had toilet and bathroom outside. Vroblevskiy found everything that he asked for in the building and rented the house for 10 liras and started to use it as a clinic".

Following the opening of his private hospital in Lefke, Vroblevskiy made good relations with the public, examined the residents and became the guardian of their wellbeing. Most probably because of such positive manners, he still had the same positive image. Harid Fedai, a Cypriot researcher and writer, who was examined by Vroblevskiy when he was a child, recalled the Russian doctor in Lefke as "his doctor Vroblevskiy" (Harid Fedai, born in 1930, from Lefke, living in Nicosia. This information was quoted from an interview conducted on 13.10.2012, and his letter sent to us on 17.02.2013.- E.A.):

Fig.3 Dr. B.M.Vroblevskiy's private hospital

"In the beginning of 1920s, in 1930s and 1940s, there was a doctor Vroblevksiy, a White Russian, working in the hospital owned by the CMC located in Pendayia (now known as Cengiz Topel Hospital). Apart from his duty at this hospital, he had a clinic, where my mother took us whenever we would fall ill.

The doctor was a middle-height, medium build, and good-humoured person. There was a phrase that he always repeated, "yes orayıd, kam burayıt, tam turayıt". Whenever he would welcome the patients, he was using this phrase. Of course, as a child, I could not understand the meaning, and we did not ask him. Then I thought that it might be something ironic.

We saw him drinking from his flask at every visit as he repeated, "yes orayıd, kam burayıt, tam turayıt". He was squeezing something into his tea, which then I learnt that it was a lime. I then had the same tree in my garden in Lefke and had my tea as he did.

Dr. Vroblevskiy learnt to speak Greek. He was talking

one by one. He was inserting a couple of Turkish words in between. He was smiling and humorous. He was always wearing his glasses above his nose".

One of Vroblevskiy's significant contributions to the health care service in Lefke region was to encourage the residents to give birth in Pendayia hospital. He provided better conditions and facilities in the hospital, making the process of labor safer for women, and his initiatives paid back [19]:

"Recently Dr. Vroblevskiy told us that 217 children were born in Pendayia hospital in 1951. This was the biggest number in the history of the hospital. Before the war, people were opposed to giving birth in hospitals, with the biggest number of birth of only 4 children born in hospital in 1927. The doctor indicated that since the women were informed about the benefits of giving birth in hospital, the number increased".

Dr. Vroblevskiy finally stated: "Since the hospital had all the required facilities, the wives of Cyprus Mines Corporation workers understood that the hospital was the safest place to give birth".

Vroblevskiy resigned from the Pendayia hospital in 1953, after working for 20 years [20]. Then CMC newspaper announced about his intention to leave Cyprus:

"Doctor Vroblevskiy is leaving Cyprus. He worked as a doctor in Cyprus since 1920 and he worked for the hospital owned by the mines corporation. Many of his friends are upset by the news and wish him good luck".

However, Vroblevskiy continued to work in Cyprus as a doctor also after the dismissal by the mining company, at least till 1956 [21].

We have not yet found any data regarding the subsequent years of Vroblevskiy's life. According to the information given by Behich Hasan (Behich Hasan was born in 1946, living in Doğancı. This information was quoted from an interview conducted on 15.02.2015.- E.A.), Vroblevskiy was married to a British lady and lived in Karaman (former name Karmi), Kyrenia, where British people lived until 1980s. He died in those years and was buried in the UK.

Three graduates of medical faculty of Kharkov Imperial University went from Cyprus to the Balkans in 1922. These doctors were not able to find work in their fields on the island. Or they probably did not want to spend the rest of their life among the non-Slavic population of Cyprus. In this sense, Serbia and Bulgaria were closer to former Kharkovites with their languages similar to Russian.

We were able to track the life path of one of them from the beginning to end.

In his autobiography, written in 1906, Sergey Nikolaevich Kozentsov reported [22] that he was born on 9 February, 1881 in the city of Vasil'kov, Kiev province, in the Orthodox family. In 1899 after finishing a gymnasium in Elizavetgrad, Kherson province, S.N.Kozentsov entered medical faculty in Kharkov, graduating in May 1904 as a physician. After the graduation he began to work as an assistant in the surgical hospital of Kharkov branch of the All-Russian Red Cross Society. During the Russian-Japanese war of 1904-1905 Kozentsov, as well as Smitten (see the first part of our article), voluntarily went to the Far East.

After returning to Kharkov in October 1905, he resumed his work at the same place. In 1906 S.N.Kozentsov joined Kharkov Medical Society and worked as a junior resident in Kharkov surgical hospital of the Red Cross till the revolutions of 1917 [12, p. 226; 23, p. 194].

Kozentsov was recommended to become a member of Kharkov Medical Society by M.I.Selikhov, the head doctor of Kharkov Red Cross Society, who also supervised the inpatient hospital of the Society from 1904. The surgical clinic with 9 wards, provided with water, gas and electricity was from 1898 located in a two-storey building on the corner of Vozneseniya (Ascension) Square and the homonymous street. The best Kharkov surgeons worked in the Red Cross hospital, sharing experience and skills with S.N.Kozentsov.

Fig.4 The building of Kharkov Red Cross hospital (up to 1912).

In 1914 Kharkov Red Cross hospital moved to a new, much more spacious and well equipped building, located at the same place (at present it serves as Southern Railway hospital).

Soon afterwards the World War I began. S.N.Kozentsov worked in Kharkov Red Cross hospital up to 1917; then the revolutions forever separated the doctor with his beloved place of work.

Fig.5 The new building of Kharkov Red Cross hospital, which was erected to 1914 (at the same place).

S.N.Kozentsov suddenly became a senior doctor on a warship of the Black Sea Navy. His name appears at number 24 on the list of officers of the battleship "Rostislav", standing in 1917 at Odessa Harbor [16, 24].

We do not know where Kosentsov was during the Civil War. Probably he took the side of the White movement. And when in early 1920 it suffered defeat, the former doctor of Kharkov Red Cross was forced to emigrate.

Most likely, he arrived in Cyprus on 22 March, 1920 on the ship "Kherson", which was called the hospital ship [25, p. 1]. It is definitely known that in 1920 S.N.Kozentsov, as the other doctors-immigrants, registered his medical diploma in Famagusta [26] and had an opportunity to work in his field.

It is entirely possibly that for some time he worked in Nicosia hospitals, under the guidance of another former Kharkovite, P.N.Smitten (see the first part of the article). However, apparently, Cyprus and the British administration were unsuited to Kozentsov, and in 1922 he left the island, preferring life in Dubrovnik, soon-to-be Yugoslavia.

According to literary sources [27], S.N. Kozentsov "settled well" in this seaside town, as well as other "educated

and resourceful Russian people". Engaged in medical practice, he lived in exile more than 20 years. The doctor died during the World War II, surviving his wife Maria Mikhailovna for a year. The couple was buried at the Orthodox cemetery Boninovo in Dubrovnik.

As for two other doctors, who studied in Kharkov, it is possible to tell with confidence only that in spring of 1920 they came by sea to Cyprus, and in autumn of 1922 they no longer lived on the island.

M.Arevshatyants was one of them, having registered in Famagusta his diploma of Kharkov Imperial University and received permission to medical practice [3]. However, no information about his work as a doctor in Cyprus has been preserved. Only a little is known about his life before emigrating from Russia. Mkrtych Arutyunovich Arevshatyants was born in 1884 in Armenian-Gregorian family in the city of New Bayazet (now Gavar) in Yerevan province. He finished a gymnasium in Baku and entered medical faculty in Kharkov in 1906 [7, p.10].

M.A.Arevshatyants graduated from Kharkov Imperial University in 1912, and moved to the Transcaucasia, where he worked until the beginning of the war and revolutions. There is evidence that he served as a senior doctor of the city hospital in Tiflis (now Tbilisi) [12, p. 16; 28, p. 16].

We can assume that M.A.Arevshatyants served as a military doctor during World War I on the Caucasian front. However, it is clear that the Civil War forever severed Arevshatyants from his native Armenia, though the Bolsheviks came there later than to the North Caucasus and the Crimea. Anyway, M.A.Arevshatyants did not stay long in Cyprus and spent the subsequent years in Yugoslavia, Bulgaria, or the Middle East, where the Armenian Diaspora has always held key positions.

As for Alexey Ivanov, another graduate from medical faculty, Cypriot sources have not preserved more information than on Arevshatyants. And even less, because the note on registration of Ivanov's medical diploma in Famagusta in 1920 did not specify the patronymic (middle) name of the Russian immigrant [26].

The surname "Ivanov" is very common in Russia. In the 1910s there were at least 10 doctors, called Alexey Ivanov with different middle names. It fell out that two of them graduated from Kharkov gymnasiums and entered Kharkov Imperial University in the same year, where both studied at the medical faculty [7, p.98].

One of them had the patronymic Georgievich and was born in the town of Slavyansk in 1883, in a noble family. Other one, Alexei Mikhailovich Ivanov, was born in 1884 in Kharkov, in the family of a Colonel. They both graduated from the University in 1910 and became rural ("zemskiy") doctors [29, p. 167]: A.G.Ivanov worked in the village Zhyrkovka of Konstantinograd County ("uyezd"), Poltava province; A.M.Ivanov served in the settlement Shandrygalovo of Izyum "uyezd", Kharkov province.

With the beginning of the World War I, Alexei Mikhailovich Ivanov stayed in the same place of Kharkov province. Alexey Georgievich Ivanov moved to Gomel [12, p. 187], closer to the frontline (apparently, he was drafted into the Russian Imperial Army).

As concerns the subsequent years of the two doctors with the name Alexey Ivanov, we can only say that they both no longer worked in the homeland under the Soviets, and that the path of one of them ran through Cyprus into exile and then to the Balkans. But who of them, Alexey Mikhailovich or Alexey Georgievich, we hardly know.

At the best case, another former Kharkovite was also able to flee the Bolsheviks. At the worst, he was killed in the war, died of typhoid fever, was repressed by the Soviets. But anyway the final point of his life remains unknown.

In some respects the fate of the "bifurcated" doctor Alexey Ivanov is symbolic for dozens (maybe even hundreds) of students, graduates, professors and assistants of the medical faculty of the former Kharkov Imperial University and for thousands of doctors of the former Russian Empire.

CONCLUSIONS.

White Russians, who were defeated in the Civil War in Russia, were forced to leave their homeland for fear of repressions, and settled in different countries of the world. One of these countries was Cyprus: in March-April

1920, the island took 1500-2000 refugees, soldiers and civilians, wounded and sick, women and children. Among them were officials and businessmen, doctors and priests, Christians and Muslims. All of them had no place in Bolshevik Russia. They lived in Cyprus, trying to rebuild their lives, until in 1922 the British authorities had evicted the Russian refugees to Bulgaria and Yugoslavia.

Among the White Russians, who arrived to Cyprus, were a lot of doctors and nurses. We identified the names of 11 doctors, 6 of whom graduated from the medical faculty of Kharkov Imperial University, namely Pavel Smitten, Sergey Kozentsov, Alexey Ivanov, Mkrtich Arevshatyants, Mark Freiman and Boris Vroblevskiy.

Doctors assisted their compatriots in the refugee camp, registered their diplomas in Cyprus, received permissions to medical practice, and treated the local residents until July 1922, when the White Russians were evicted to Balkans, including 7 of the 11 doctors.

However, three former Kharkovites stayed on the island and for many years continued to treat its residents: Smitten (who left an outstanding mark in history), Vroblevskiy and Freiman.

Today Cypriot community continues to remember these doctors with gratitude. The Cypriots have not forgotten the assistance provided to the local population by the graduates of Kharkov Imperial University.

On the other hand, it is necessary to emphasize the fact that the students who graduated medical faculty in 1900-1917 received thorough training and skills (and some solid practical experience) in Kharkov. This allowed them, having left their homeland, not to be lost in the most difficult conditions of life and to bring benefit to other people, even being in a foreign land.

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CARDIAC SURGERY

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THE RESULTS OF SURGICAL REVASCULARIZATION IN PATIENTS WITH MULTI-VESSEL CORONARY DISEASE

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Abstract: Multi-vessel coronary artery disease constitutes 30 to 60 % of morbidity of coronary heart disease (CHD). Surgical revascularization in patients with multi-vessel coronary artery disease is still a challenge. To evaluate the immediate results of hospital period: 30-day hospital mortality, postoperative complications and outcomes at 1 year follow-up the retrospective study was performed. We analyzed 90 patients with history of coronary artery disease who underwent coronary artery bypass grafting (CABG) surgery in 2014 by using the method of continuous sampling on the basis of a computer database of cardiac surgery department.

It was established, that surgical revascularization in patients with multi-vessel coronary disease can bring complete revascularization, eliminate signs of stenocardia, improve the quality of life and exercise tolerance in most patients in the 30-day period, and in 1 year after surgery.

KeyWords: coronary artery disease, coronary artery bypass grafting, postoperative complications and outcomes

INTRODUCTION

Multi-vessel coronary artery disease, which is characterized by the disease of two or more coronary arteries, has recently become increasingly common, and according to various reports constitutes 30 to 60 % of morbidity of coronary heart disease (CHD). Surgical revascularization in patients with multi-vessel coronary artery disease is still a challenge. Although coronary artery bypass grafting (CABG) is the standard surgical revascularization in multi-vessel disease, improved techniques of interventional cardiology and the use of drug-eluting stents helped to increase them in patients with multi-vessel coronary artery disorders. According to several randomized trials percutaneous interventional (PCI) procedures are accompanied by a lower incidence of postoperative and neurological complications. However, the frequency of revascularization after stenting is significantly higher than after CABG during the first year after the intervention.

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The one of the largest multicenter randomized trial - ARTS trial (Arterial Revascularization Therapy Study), which included 1205 patients, showed that the angina recurrence and the need for repeated revascularization one year after the PCI were observed more frequently than in patients after CABG: the need for repeated revascularization was 3.1% among diabetic patients after surgery, and 22.3% after stenting ($p < 0.001$). In our study we have analyzed the results of direct CABG, including early postoperative complications and mortality, as well as outcomes within 30 days and one year.

2 PURPOSES, SUBJECTS and METHODS:

2.1 Purpose

To evaluate the immediate results of hospital period: 30-day hospital mortality, postoperative complications and outcomes at 1 year follow-up after surgical revascularization in patients with multi-vessel coronary disease.

2.2 Subjects & Methods

Our retrospective study involved 90 patients with history of

coronary artery disease who underwent CABG surgery in 2014 at the Republican Research Center for Emergency Medicine. We used the method of continuous sampling on the basis of a computer database of cardiac surgery department.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

Data on demographic and clinical characteristics are shown in Table 1.

Table 1

Demographic and clinical characteristics of patients

Baseline characteristics	Abs.value (%)
Age	56.04±0.9
Gender:	
• Male	69 (76.7%)
• Female	21 (23.3%)
The duration of the disease for over one year	75 (83.3%)
Duration of disease less than one year	15 (26.7%)
Diabetes	61 (67.8%)
Unstable stenocardia	85 (94.4%)
Acute myocardial infarction	5 (5.6%)

The average age of the patients was 56.04 ± 0. 9 years, among them 23.3 % of women and 76.7 % of men. The duration of the disease less than 1 year was observed in 26.7 % of patients and 83.3 % of patients had disease duration greater than one year. Diabetes mellitus was diagnosed in 67.8% of patients. The majority of patients were diagnosed with unstable stenocardia (94.4%); and 5.6% of patients underwent surgery under emergency indications secondary to acute myocardial infarction.

Surgical access in all the cases was provided by a median sternotomy. Shunting index was 3.1. In 8 (8.9 %) cases we used heart-lung machine; the remaining 82 (91.1 %) of patients were operated off-pump (OPCAB). In 39 (43.3 %) cases, the left internal thoracic artery was used for grafting of the left anterior descending artery, and in one patient, the left and right internal thoracic artery were used. Types of interventions are presented in Table 2.

Table 2

Types of surgical intervention

Characteristics	Abs.value (%)
Bypass grafting of 2 vessels	17 (18.9%)
Bypass grafting of 3 vessels	46 (51.1%)
Bypass grafting of 4 vessels	26 (28.9%)
Bypass grafting of 5 vessels	1 (1.1%)
Operation via cardiopulmonary bypass	8 (8.9%)
Operation via OPCAB technology	82 (91.1%)

We evaluated the immediate results of hospital period: 30-day hospital mortality, postoperative complications and outcomes at 1 year follow-up.

Hospital mortality was 3.3% (3/90). The cause of mortality in all three cases was acute heart failure - 3, due to the initial severity of the disease, all patients underwent surgery with cardiopulmonary bypass.

Postoperative complications were observed in 9 (10%) patients. The types of complications are presented in Table 3.

Table 3

The types of post-operative complications

Complications	Abs. value (%)
Heart failure	2 (2.2%)
Neurological complications (stroke)	1 (1.1%)
Postoperative bleeding	2 (2.2%)
Wound complications:	4 (4.4%)
• Sternal dehiscense	1 (1.1%)
• Superficial wound infection	2 (2.2%)
• Purulent mediastinitis	1 (1.1%)

Among non-fatal complications, prevailing complications associated with post-operative wound infection were observed in 4 (4.4%) patients. Postoperative bleeding in the early postoperative period was diagnosed in 2 (2.2%) patients, and only in 1 case resternotomy was necessary to identify the source and achieve hemostasis.

Cardiac complications (heart failure requiring long-term inotropes) were observed in 2 (2.2%) cases. In

one case (1.1%) with postmedical history of acute stroke, an operation using heart-lung machine resulted in deterioration of clinical signs. The duration of stay in the ICU after surgery was 2.4±0.5. The duration of postoperative period in the clinic was 7.8±0.9 days.

During one year follow up there were no cases of angina recurrence. The majority of patients (95.6%) were considered as the first functional class according to Canadian stenocardia classification, the rest (4.4%) were assessed as the second functional class. The patients who underwent surgery were found to have improved exercise tolerance, all patients after surgery were considered the second class of NYHA functional classification and within a year after surgery 83.3% have improved their physical tolerance.

4 CONCLUSIONS

Surgical revascularization in patients with multi-vessel coronary disease can bring complete revascularization, eliminate signs of stenocardia, improve the quality of life and exercise tolerance in most patients in the 30-day period, and in 1 year after surgery.

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PEDIATRICS

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CLINICAL CHARACTERISTICS OF CYSTIC FIBROSIS IN CHILDREN IN KHARKIV REGION

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Abstract: The article deals with the study of clinical and paraclinic peculiarities of CF (including respiratory tract microbiocenosis) in children in Kharkiv region. The study also involves the assessment of microbiological status correlation in patients with CF and the disease incidence. The study implied examination of 30 children with cystic fibrosis. They underwent clinical, paraclinical (bacteriological examination of sputum and epithelial lining fluid, chest X-ray, CT scan of lungs) examination. Clinical and paraclinic (bacteriological examination of sputum and epithelial lining fluid, chest X-ray, CT scan of lungs) examination was performed. The study showed that CF severity in patients was associated with chronic P. aeruginosa and B. cepacia infection. None of the patients in Kharkiv region was found to have any of pathognomonic respiratory causative microorganisms, such as M. Tuberculosis and non-tuberculous micobacteria, H. influenza, Ralstonia picketi, and P. Aeruginosa infection was not identified which can be the evidence of insufficient laboratory diagnosis.

KeyWords: cystic fibrosis, children, microflora.

INTRODUCTION

Cystic fibrosis (CF) is one of the most frequent lethal genetic disorders of autosomal recessive nature. The assumed prevalence of CF in Ukraine is one case per 2.300 of newborns. CF patients' life expectancy worldwide is 38 years. It is unknown for Ukraine, but the age of the oldest member of Kharkiv CF Association is 35 years [1, 2, 7].

CF develops in mutation of gene, coding the cystic fibrosis transmembrane conductance regulator – CFTR, which is in the sevenths human chromosome. In respiratory CFTR defect results in high bronchial mucous viscosity, mucociliary clearance decrease and development of chronic bronchopulmonary infection from the first months of child's life. Damage of respiratory tract in CF is the main cause of death [3, 4, 5, 8].

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The basic respiratory tract microflora in CF is Staphylococcus aureus (S. aureus) in the initial period, then Haemophilus influenza (H. Influenza) and Pseudomonas aeruginosa (P. aeruginosa). In recent years, the role of Burkholderia cepacia (B. Cepacia), Nontuberculous mycobacteria, Stenotrofomonas maltophilia (S. Maltophilia), Alcaligenes xylosoxidans (A. xylosoxidans), Aspergillus sp. and others has increased.

CF clinical presentation and prediction are significantly defined by bacterial composition of the respiratory tract. Thus, trials with mice demonstrated that combined infection, induced by P. aeruginosa and B. Cepacia, enhances virulence properties of causative agents and all the animals die within one day. Mutual virulence enhancement of P. aeruginosa and B. cepacia bacteria in vivo provides the possibility of mutual use of the "Quorum sensing" system components by closely related bacteria. There is evidence that over 80% of clinical isolates of B. cepacia are able to form a biofilm and colonize the tissue surface, to form permanent infection reservoirs in hospital environment, and this contributes to bacteria persistence to eradication by phagocytes and elimination in antibiotic therapy. In

each country and region, the data on microbial flora and resistance in children with CF are different, and this is related to differences in CF genotype in population, in antibacterial therapy algorithms, drug availability, economic condition and national peculiarities [6, 9, and 10].

2 PURPOSES, SUBJECTS and METHODS:

2.1 Purpose

1. To study clinical and paraclinic peculiarities of CF in children (including respiratory tract microbiocenosis) in Kharkiv region.
2. To define correlations of microbiological status in patients with CF with the disease morbidity.

2.2 Subjects & Methods

The study involved examination of 30 children with CF at the Pulmonology Department of Regional Children's Clinical Hospital No. 1. Of them, 23 children (12 boys and 11 girls) with CF underwent complete physical examination in 2014. Clinical and paraclinic (bacteriological examination of sputum and epithelial lining fluid, chest X-ray, CT scan of lungs) examination was performed.

In statistical analysis of paraclinic data (bacteriological studies, tomography) for increase of study informative value, we analyzed the findings, received not only in MHCI RCCH No. 1, but the data from records, made in other Kharkiv clinics for the last 5 years. Chronic colonization of P. Aeruginosa was determined in two-fold identification of causative microorganism in bacterial inoculation during 6 months.

Statistical data processing was performed using MS Excel and Statgraphics-5 software. The study was conducted in accordance with basic ethic and legal principles of European Convention for the Protection of Vertebrate Animals (Strasbourg, March 18, 1986), EEC Directive for the Protection of Vertebrate Animals (Strasbourg, November 24, 1986), ICH GCP (2008), GLP (2002) and national regulations.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

Prenatal CF diagnosis was made in 2 (8.7± 5.9) % of children, 12 (52.1±10.4) % of children were diagnosed in the first year of life, 10 (43±10.1)% – in preschool period, 1 (4 %) child was diagnosed at early school age.

The main clinical CF signs included symptoms of bronchopulmonary and gastrointestinal impairment, as well as nutritional disorders. The following presentation was observed in bronchopulmonary abnormalities: chronic cough with viscous sputum discharge, airways obstruction, radiologic abnormalities in lungs (bronchiectasis, infiltration, pneumosclerosis); nasal polyps, maxillary sinus conditions; drumstick fingers and watch-glass nails symptoms.

The group of patients with severe CF included 8 children (4 boys and 4 girls). In the group of patients with severe CF: prenatal diagnosis of the main condition was determined in 1 (12.5±6.7)% child, at the age under 1 year – in 7 (87.5 ± 6.9)% children. The following main clinical signs in the group of patients with the severe disease were observed: chronic pancreatic deficiency – in 8 (100 %) children, diffuse pulmonary fibrosis – 8 (100%), extensive bronchiectasis – 6 (75±15)%, chronic obstructive bronchitis – 5 (62.5±10)%, chronic II stage respiratory insufficiency – 6 (75±15)%, I stage pulmonary hypertension was observed in 5 (62.5±10)% children. The patients were found to have such complications of the main condition as cirrhosis, macronodular type, portal hypertension (1 patient); allergic bronchopulmonary aspergillosis (1 child); extensive subcutaneous emphysema (1 child).

The following CF-specific respiratory pathogens were detected in sputum culture in 23 children, who were treated in the Pulmonology Regional Children's Clinical Hospital No. 1. 23 in 2014: P. aeruginosa – in 13 (56.5 ± 10.3)% of children, in (80.9 ± 8.1)% of cases large colony

growth was observed, with moderate growth in (19.1 ± 8.1)%; S. aureus – in 10 (43.4 ± 10.3)% of patients, B. cepacia in (13 ± 7) % of patients, S. maltrophilia – in 1 (4 %), Acinetobacter – in 1 (4 %), A. xylosoxidans – in 2 (8 %), Candida – in 16 (70 ± 9.5)% of children.

More than in 2/3 cases chronic lung infections was induced by association of microorganisms rather than by pure culture, in most cases – by more than three microorganism species. The most frequent association involved combination of P. aeruginosa + S. aureus in (22 ± 8.6)% of patients, and P. aeruginosa + B. cepacia in (13 ± 7)% of patients. Except P. Aeruginosa, 4% of patients were found to have such nonfermentative gram-negative microorganisms as S. maltophilia.

In the group of patients with severe conditions chronic P. Aeruginosa colonization was observed in 8 (100 %) children, in 4 (50 ± 17,6)% of them – together with S. aureus, S. maltrophilia (1), Acinetobacter (1), A. xylosoxidans (2), B. cepacia complex – in 3 (37,5 ± 17,1) %. The earliest age of the observed chronic colonization was 6 months.

Comparison of microbiological status in patients with moderate and severe CF is presented in Table 1.

Table 1.

Respiratory microbiological status of patients with moderate and severe cystic fibrosis

Causative agents	Severity	
	Severe, n=8, n (%)	Moderate, n=15, n (%)
Pseudomonas aeruginosa	8 (100)*	4 (27 ± 11.4)
Pseudomonas aeruginosa resistent	4 (50 ± 17.7)*	0
Staphylococcus aureus	4 (50 ± 17.7)	7 (47 ± 12.9)
Stenotrophomonas maltrophilia	1 (13 ± 11.9)	0
Acinetobacter	1 (13 ± 11.9)	0
Alcaligenes xylosoxidans	2 (25 ± 15.3)	0
Bulkholderia cepacia complex	3 (37 ± 17.1)*	0

Note: * - differences in the incidence of causative microorganisms in the groups are statistically significant ($p < 0.05$).

Thus, P. aeruginosa, B. Cepacia were significantly more frequent in the group of patients with severe CF. Determination of these infections in CF patients' sputum may be the adverse prognostic factor for the disease severity. Multi-drug resistant strains of P. Aeruginosa were observed in the groups of patients with severe CF in 50% and significantly more frequent, than in the group of children with moderate severity. Candida was determined in 16 (70%) children.

Our data are slightly different from the data received by Moscow N. I. Kapranov CF center, where S. aureus was determined in 64.1 % of cases, P. aeruginosa in 64% and B. cepacia – in 48.9% of patients. In Moscow CF center B. cepacia was observed significantly more often, and this may be related to the improved diagnosis of this pathogen [3, 4, 10].

Comparing our findings to the data of the world CF centers we should mention that the USA Registry takes into account not only the frequency of the above listed microorganisms, but H. influenza, multi-drug resistant strains of S. aureus and P. Aeruginosa are considered separately. The Registry of Great Britain monitors the plating of fungi of Aspergillus fumigatus species from the respiratory tract. The French Registry involves information about patients, discharging M. Tuberculosis from their airways. Non-tuberculous micobacteria are plated in 7.1% cases in Israel. Perhaps, the facilities of Kharkiv region clinics do now provide a possibility of accurate identification of these pathogens [3, 4, 10].

Additionally, in Kharkiv region mucoid and non-mucoid strains of pseudomonas infection are not types, such pathogen, as Ralstonia picketi, described in CF is not defined; none of the laboratories defines the level of antibodies to P. Aeruginosa, and this is necessary to determine the infection condition, period/phase of the disease, and to define the antibacterial therapy algorithm. Thus, Lee at al., 2003 determined 4 patient's conditions dependable on P. aeruginosa introduction of infection:

1. Chronic infection – in determination of P. aeruginosa in more than 50% of sputum culture and presence of

increased titer of precipitating antibodies to P.aeruginosa.

2. Intermittent infection – in determination of P. aeruginosa in 50% examinations during one year in normal titers of precipitating antibodies to P.aeruginosa.

3. Absence of infection – when the patient, infected by P. Aeruginosa, has no determined causative microorganism in bacteriologic sputum in the course of 12 months.

4. Never infected – P. aeruginosa has never been determined in sputum, and there are no antibodies.

The abovementioned problems with laboratory diagnostics of the infection complicates the work of the clinicians, and is the objective prerequisite for diagnostic errors and incorrect approach to prescription of antibacterial therapy of pseudomonas infection in children with CF.

4 CONCLUSIONS

1. CF severity in patients is associated with chronic infection by P. aeruginosa and B. cepacia.

2. None of the patients in Kharkiv region was found to have any of pathognomonic respiratory causative microorganisms, such as M. Tuberculosis and non-tuberculous micobacteria, H. influenza, Ralstonia picketi, and P. Aeruginosa infection was not identified, which is the evidence of insufficient laboratory diagnosis.

3. It is necessary to improve laboratory diagnosis for determination of respiratory pathogens and their susceptibility to increase the quality of medical care for children with CF and substantiated prescription of antibacterial therapy.

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PEDIATRICS

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EXERCISE TOLERANCE IN NORMAL WEIGHT, UNDERWEIGHT, OVERWEIGHT AND OBESE ADOLESCENTS

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Abstract: Lack of physical activity negatively impacts weight management programs effectiveness, even with the strictest dietary recommendations. In the context of the obesity epidemic, associated with the cardiovascular risk development, assessment of exercise tolerance in adolescents with different body composition assumes special significance. The examination of 64 normal weight, underweight, overweight and obese adolescents has been performed with anthropometric investigation, study of physical activity level by NHANES and exercise tolerance by multistage treadmill protocol. We established that normal weight children tolerate exercise better than underweight and overweight despite of the same physical activity level. Exercising for persons involved in of body mass correction programs must be adjusted to the potential cardiovascular complications, last longer with the less load in the boost and must be conducted under the relevant specialist control.

KeyWords: adolescents, body mass index, physical activity, exercise tolerance

INTRODUCTION

The WHO Global Strategy on Ending Childhood Obesity (ECHO) includes a complex of measures at various levels from individual to socio-political one. Physical activity in this strategy plays a key role as the only way of energy expenditures [1]. Physical activity level in children is inversely proportional to the metabolic status [2]. Conversely, an adequate fitness reduces the cardiometabolic risk [3]. Obesity related cardiovascular disorders (hypertension, myocardial hypertrophy, remodeling) significantly limit the intensity of physical activity [4]. That's why a comparative analysis of exercise tolerance in children with different body composition it is necessary.

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2 PURPOSES, SUBJECTS AND METHODS:

2.1 Purpose

The aim of the study was to improve effectiveness and safety of weight management programs in adolescents by assessment of exercise tolerance in children with different body mass.

2.2 Subjects & Methods

64 normal weight, underweight, overweight and obese (mean age 13,56+2,47 years) were examined. Grouping was done by the body mass index (BMI) Z-score: gr.S (skinny, underweight with BMI less than -1,0 SD, n=6), gr.0 (normal weight with BMI + 1,0 SD, n=12), gr.1 (overweight with BMI +1,1-2,0 SD, n=14), gr.2 (obese with BMI +2,1–3,0 SD, n=18), gr.3 (obese with BMI more than + 3,0 SD, n=14). Anthropometric examination included measurement of height, body mass, waist circumference and skin folds in standard positions. Abdominal fat predisposition assessed by the waist to height ratio (WHR) **[5].** Body fat and lean body mass were calculated **[6].** The physical activity readyness (PAR) assessed on the recommendations of NHANES, 2014 **[7].** Multistage treadmill protocol (Bruce)

used for exercise tolerance assessment with further analysis of cardiovascular parameters: resting heart rate (HRr), maximal heart rate (HRm), resting and maximal systolic and diastolic blood pressure (SBPr, SBPm, DBPr, DBPm respectively). Maximal predicted heart rate (MPHR) was calculated by Tanaka formula and HRm in patient was compared with MPHR as a percent of it (%MPHR) [8]. Oxygen consumption calculated by ACSM formula to study cardiorespiratory fitness level [9].

The results were analyzed using Stat Soft Statistica 10. Quantitative variables were described as means ± SD, qualitative variables were described as percentages. Differences between groups were established by ANOVA and Mann-Whitney U test. Reported P-values are two-tailed and P-values <0,05 were considered to be statistically significant.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

There was no gender and age difference between groups (p>0,05) while BMI was gradually growing together with abdominal adiposity and sum of skinfolds (and body fat relevantly). Lean body mass in underweight is less comparatively to normal weight. It could be indirect confirmation that underweight are not athletes (Table 1).

There was no difference in basic cardiovascular parameters in groups (SBP, DBP, and HR). SBP and DBP were similar in skinny, normal weight and overweight, but high in all obese subjects. Resting HR did not reveal any difference in groups. Anyway, there was no significant difference in groups between maximal predicted heart rate and chronotropic reserve.

The physical activity level was significantly reduced only in the gr.3 and different in others (where, regardless of BMI, children reported that were moderately active more than 1 hour per day). Normal weight children reached the maximal speed (106.22 + 22.55 m/s) during exercise load, while the results of overweight and underweight were compared to each other. The lowest speed of movement as well as the smallest incline (10.23 + 5.41%) were registered in children with the highest BMI.

Maximal oxygen consumption was also highest in normal weights and decreased in underweight and overweight with minimal result in heaviest ones. Maximal oxygen consumption to body mass gradually decreasing from group to group. At the same time, oxygen consumption referred to the lean body mass is same at. gr.S, gr.0 and gr.1 but it is reduced compared to them in obese. Moreover, in obese with a BMI +>3SD the named parameter is twice lower than in those with a BMI + 2-3 SD. Thus, oxygen consumption (as a percentage of the predicted value) is identified a progressive decreasing from group to group. However, value is statistically reduced in obese and underweight.

The respiratory parameters (by the peak expiratory flow , PEF) were not changed in groups as well as oxygen saturation before, during and after the load.

The total distance passed during exercise boost was the longest in normal weight, gradually decreased in excess body mass and statistically lower in underweight. The same about exercise duration in groups.

Metabolic equivalent of exercising is decreasing while growing BMI. This means that at the same physical load in obese causes fewer calories burn out comparatively to underweight, normal weight and overweight.

Summarizing the data we can conclude, that normal weight children tolerate exercise better than underweight and overweight, physical activity for persons involved in of body mass correction programs must be adjusted to the potential cardiovascular complications, last longer with the less load in the boost and must be conducted under the relevant specialist control.

4 CONCLUSIONS

1. Fitness is reduced in both excess and deficiency of body weight despite of the same physical activity level. This is reflected by passage of the smaller distance with less tolerance to slope of surface and training time.

Table 1.

Basic anthropometric parameters of groups and exercise tolerance markers in adolescents with different body mass

Parameter	Gr.S		Gr.0		Gr.1		Gr.2		Gr.3		P
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Basic anthropometric parameters											
Z – BMI	-1,61	0,46	-0,20	0,29	1,47	0,29	2,60	0,24	3,38	0,26	S0, S1, S2, S3, 1-2, 23, 13
Z – height	-0,78	1,22	-0,29	1,19	0,95	2,00	0,64	0,91	0,54	0,93	
WHR	0,34	0,18	0,35	0,05	0,53	0,05	0,56	0,03	0,68	0,15	S1, S2, S3, 1-2, 23, 13
Skin fold, cm	21,33	29,57	41,18	42,29	118,29	42,29	154,28	33,02	181,62	28,94	S0, S1, S2, S3, 1-2, 23, 13
Fat, %	19,64	5,80	27,04	4,49	37,97	4,49	41,75	2,89	43,93	2,41	S0, S1, S2, S3, 1-2, 23, 13
Lean mass, kg	29,46	8,98	40,90	12,54	37,50	12,54	48,91	10,69	58,89	11,21	S0, S1, S2, S3, 1-2, 23, 13
Exercise tolerance parameters											
SBPr, mm Hg	101,83	4,49	109,09	10,44	110,71	13,34	114,33	13,50	117,46	18,03	
DBPr, mm Hg	63,33	6,06	70,45	8,50	69,71	8,65	75,28	11,65	76,85	12,11	
HRr, mm Hg	70,50	6,02	74,64	10,50	77,64	12,70	79,67	11,58	84,46	11,87	
SBPm, mm Hg	120,17	7,63	127,00	12,73	132,79	16,00	150,06	24,11	153,46	33,00	S1, S2, S3, 02, 03, 12
DBPm, mm Hg	72,50	7,58	80,00	8,94	80,71	12,06	90,28	10,02	93,85	21,83	S1, S2, S3, 02, 03, 12
HRm, mm Hg	142,17	18,71	135,55	25,35	127,86	32,09	116,89	27,85	129,46	27,34	
MPH, bpm	199,95	2,41	197,69	1,26	199,00	1,90	198,36	1,88	198,25	1,63	
% MPH	71,08	9,20	68,52	12,53	64,32	16,47	58,92	14,05	65,34	14,05	
Chronotropic index	29,12	0,00	40,94	0,00	36,36	23,70	25,26	26,80	38,69	29,61	
PAR	3,33	1,86	2,36	1,69	3,79	1,76	3,11	1,28	1,62	1,39	13, 23, S3
V max, m/sec	79,51	19,23	106,23	22,56	85,57	21,96	91,56	21,16	65,97	21,46	S0, S1, S2, S3, 12, 23, 13
Incline max, %	14,33	2,66	15,27	1,62	14,43	2,24	14,78	2,07	10,23	5,42	S3, 23, 13
VO2max, ml/min/kg	29,96	7,97	39,60	8,62	32,04	8,62	34,30	8,33	22,57	10,45	S0, S1, S2, S3, 12, 23, 13
METmax, kcal/min	12,33	4,00	16,27	3,76	10,98	3,34	11,71	3,42	7,46	3,63	S0, S1, S2, S3, 12, 23, 13
VO2 l/min	2,47	0,80	3,25	0,75	2,20	0,67	2,37	0,68	1,53	0,77	
Duration, min	12,33	2,80	16,73	3,44	13,71	2,95	13,69	2,70	9,85	4,58	S0, S1, S2, S3, 12, 23, 13
Distance, m	545,00	135,90	990,00	291,38	657,14	230,70	745,00	254,03	469,23	286,75	S0, S1, S2, S3, 12, 23, 13
VO2, l/min/kg	0,08	0,04	0,07	0,03	0,04	0,02	0,03	0,01	0,02	0,01	01, 12, 23, 13, 02, 03, S1, S2, S3
VO2, l/min/kg of lean	0,08	0,04	0,08	0,04	0,06	0,03	0,05	0,02	0,03	0,02	13, 23, 02, 03, S2, S3
Observed VO2max, ml/min/kg	79,77	40,36	66,33	29,97	39,39	17,39	28,70	11,82	15,44	10,20	01, 12, 23, 13, 02, 03, S1, S2, S3
Predicted VO2 max, ml/min/kg	45,52	4,98	43,00	4,18	44,28	6,56	40,58	5,96	34,58	4,83	23, 13, 03, S3
% of Predicted VO2 max	66,17	17,64	92,56	21,01	74,08	24,14	85,42	20,91	64,25	27,75	S0, 23, 03, S3
PEF0, l/min	441,67	73,60	485,45	96,06	412,86	96,51	407,22	121,26	386,92	139,55	
PEFmax, l/min	458,33	106,85	495,45	121,36	400,71	111,32	430,00	146,69	392,31	139,71	
Sa O2, %	98,33	11,34	98,80	3,79	100,60	2,99	99,14	2,85	99,33	1,97	

2. In terms of cardiorespiratory fitness, the most unfavorable is the reduction of oxygen consumption, as normalized to total body weight so to the lean mass. Obese children are prone to hypertension after the exercise boost and, relevantly to the acute events.

3. Than heavier child than fewer calories burn out could be triggered by the same physical load, which should be taken into account when forecasting effective weight loss under the influence of exercising.

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PSYCHOLOGICAL STATUS OF CHILDREN WITH DIFFERENT SOMATIC ABNORMALITIES AS A PREDICTOR OF CARDIOVASCULAR RISK

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Abstract: Psychological status of children with different somatic abnormalities was assessed with the Beck-Youth questionnaire. Psychological profile of children with different somatic abnormalities is not identical which requires obligatory evaluation. The study showed that it is necessary to provide the assessment of psychological state at all stages of management of children with chronic diseases, and provide them with timely psychological assistance. Changes in inner psychological state of the child will potentially give a possibility to provide better treatment in this group of children and prevent recurrence.

KeyWords: psychological status, somatic abnormalities, children.

INTRODUCTION

Formation of physically and mentally healthy personality capable of effective adaptation to the changeable living conditions is important as early as at children's age. Self-assessment plays an essential part as one of the most important indices of individual and personal development [1].

Researchers consider that even a disease caused by physical factors can be a source of emotional stress [2, 3]. However, prolonged stress leads to psycho-physiological impairment. Psychological factors can affect the course of a disease and its outcome. Thus, it is reasonable to study somatic abnormalities in relation to psychological factors. Psychological factors can be triggers intensifying the disease, or modulators influencing its course [4].

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The most potentially threatening fact is that according to the WHO, the level of suicide cases is closely associated with mental disorders, and its number (including individuals with somatic abnormalities) is steadily increasing [5].

Self-esteem has an impact on behavior, activity and development of a child, his relationship with other people, to a certain extent forming regulative and protective functions of an organism. The importance of investigating the features of personality development and, in particular, self-esteem in this group of children, is determined by the fact that childhood morbidity has been increasing recently and as a consequence there is a problem with the assessment of development in children with chronic somatic abnormalities [6].

The Beck Anxiety Inventory (BAI) is a measure for classifying levels of anxiety as a reaction to stress factors, more often of social-psychological type. The BAI focuses on somatic symptoms of anxiety developed to differentiate anxiety from depression.

The Beck Depression Inventory (BDI) is used for quantifying such symptoms as anxiety, phobias, somatic complaints and behavioral disorders, grief, irritability. The specific signs of psychotic depression in children are hallucinations and delirium, more frequently occurring in teen-

agers. These symptoms, lasting at least 2 weeks throughout the most part of day, lead to suffering and social maladjustment of the child.

The Beck Anger Inventory (BANI) is used to assess the level of anger which is an emotional state which arises spontaneously or in response to behavior of other people as defense reaction from real or mental disturbance of its psychological / physical borders.

The Beck Disruptive Behavior Inventory (BDBI) identifies behavior associated with aggression presenting physical or psychological threat to others. Aggression can take different forms and is diagnosed as persistence, assertiveness. The definition of "malignant" aggression is a hidden intention directed to offense or as the imagination of violence and destruction, for infliction of harm to other person who does not wish such action. It is accompanied by emotional conditions of hatred, rage, anger and hostility.

Obesity is not a disease in literal word meaning, but rather a physiological condition which is presented by extreme result of continual tendency [7]. At the same time development of obesity is associated with potential cardiovascular risk which is the leading factor of morbidity of adult population in the world [8].

Excessive calories intake, mainly sedentary lifestyle and psychological factors are main triggers of obesity development. Social-psychological factors include external triggers inducing the increased consumption and low rates of lipid-carbohydrate substances burning [9]. The role of psychological factors in the development of obesity is related to low self-assessment [10], frustration, anxiety [11] and depression [12], leading to disturbances of feeding behavior in children [13].

According to modern literature, functional relationship between psychological status and characteristics of breathing in children are not well understood [14]. Nevertheless the available data suggest that bronchial asthma as a chronic disease capable to incapacitate the patient, is accompanied by the development of somatic-psychological dysfunction that can influence the course of the disease [15]. Leading researchers believe that bronchial asthma development in children is to a great extent related to chronic stress which has various clinical, metabolic, psychological manifestations and can influence the course of the underlying disease [16].

The problem of the relationship of psychological and somatic triggers, their influence on the course of somatic abnormalities in children is currently under study because pain and dyspeptic syndromes in chronic gastroenterological disorders deteriorate psychological condition of the child and his personal characteristics [17].

Thus, in the context of pathogenic features of various somatic abnormalities children should undergo comprehensive assessment of psychosocial dysfunction necessary for early prognosis of complications, elaboration of differentiated approach to treatment and rehabilitation of patients.

2 PURPOSES, SUBJECTS and METHODS:

2.1 Purpose

Evaluation of psychological status in children with different somatic abnormalities as a predictor of cardiovascular risk.

2.2 Subjects & Methods

The study involved 350 children aged 4-17 years with different somatic abnormalities. The inspected children were divided into groups: group 1 included 66 children with chronic gastrointestinal pathologies, group 2 – 150 children with excessive body weight and obesity, group 3 – 21 children with acute bronchopulmonary diseases, group 4 – 25 children with bronchial asthma, group 5 – 88 children with chronic diseases of kidneys. The comparison group was formed by average population values in Kharkiv region [18]. The level of psychological stress was assessed by the Beck Youth Questionnaire (in translation) and BSCI assessment – self-concept, the BAI – anxiety, BDI – depression, BANI – anger, BDBI – aggressive behavior. All the data were processed by methods of variation statistics and correlation analysis by "EXCEL" and "STATISTICA 7.0" software.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

The results of examination of children with different somatic abnormalities are presented in Table 1.

As the data suggest, when compared to the recommended authors of the questionnaire, the results of the examination of teenagers in Kharkov region correlate with the regulatory level of American and European students of appropriate age and gender. The study also involved correlation analysis to establish the relationship between psychological indices which evidently demonstrated ($p < 0.01$), that self-esteem in teenagers in Kharkov region negatively correlated with the level of anxiety ($r = -0.21$), depression ($r = -0.41$) and deviant behavior ($r = -0.29$), anxiety levels were positively associated with the severity of depression ($r = 0.58$) and anger ($r = 0.52$), but follow-up level of depression was positively associated with deviant behavior ($r = 0.62$) and anger ($r = 0.74$) (Table. 2).

As shown in the presented correlation matrix self-esteem in adolescents significantly ($p < 0.01$) negatively correlated with the severity of anxiety, depression and deviant behavior, anxiety levels positively correlated with depression and anger, and the level of depression was also considerably associated with deviant behavior and anger. That connection was expressed by source for the general population and may be considered as a basis for further considerations. especially if they fully agree with the published data on features of teenagers' behavior.

Mental disorders accompany different diseases and their development is not a direct result of psychological deviations, but is quite closely connected with features of the course. Thus, we will consider the results concerning children with different somatic states.

Teenagers with obesity have a registered possible increase of anxiety levels and depression given a decreased self-esteem.

Most children with asthma (84.0 ± 5.0%) were found to suffer from instability and disorientation in psychosomatic stress, while 28.5 ± 3.8% group 1 patients had impaired emotional state. The average level of anxiety in group 2 was 40.0 ± 3.0% vs. 14.3 ± 2.7% in group 1. The highest level of anxiety in children with asthma was 32.0 ± 4.5%, compared to 9.5 ± 2.6% in group 1.

Self-esteem in children with respiratory diseases was identified as reduced, normal or high. Decreased self-esteem was observed in 64.0 ± 5.5% of children with asthma in group 1 of children with low self-esteem; normal in 28.0 ± 2.5% and 71.4 ± 3.1%; high in 8.0 ± 1.5% of children with asthma and in 28.6 ± 4.2% of group 1 patients. Signs of depression were detected in 12 ± 1.5% of group 2 children.

As for children with chronic gastroenterological disorders, average level of anger was observed in 60 (91%) of children, slightly increased in 3 (4.5%) children, moderately elevated in 2 (3%) children and significantly increased in 1 (1.5 %) child.

Among the surveyed children the average level of depression was identified in 52 (78.9%), slightly increased in 9 (13.6%), moderately increased in 4 (6%), significantly increased in one child (1.5%).

Assessment of anxiety level showed average rate in 49 (74.4%), slightly increased in 5 (7.6%), moderately elevated in 12 (18%); significantly increased level of anxiety was not found.

Significantly elevated levels of aggressive behavior was observed in 3 (4.5%) children, the vast majority of patients – 53 (80%) were shown to have an average level of aggressive behavior; a slight increase was observed in 9 (13.6%) and moderately increased in one child (1 5%).

Comparative analysis showed that self-esteem was low in all the children with chronic diseases and obesity, a condition that is not accompanied by any pain or limitations in physical activity, the rate was the lowest. The level of anxiety was significantly increased in obesity (and more) as well as in asthma and chronic kidney diseases. An interesting fact is that increased level of anger and aggression with a predisposition to deviant behavior was identified only in children with chronic kidney diseases.

Table 1.

Psychological profile of children with various somatic abnormalities (in points)

Group		Self-esteem	Anxiety	Depression	Anger	Aggression
Standards questionnaire Beck-Youth,		(45-55)*	(< 55)	(< 55)	(< 55)	(< 55)
The average value in the population, n=582	0	46.34 ± 8.05	48.61 ± 8.48	47.53 ± 8.40	46.22 ± 8.49	50.85 ± 9.56
Chronic GIT problems, n = 66	1	43.36 + 9.14	46.86 ± 13.28	45.12 ± 8.35	42.06 ± 2.14	47.08 ± 6.25
Overweight and obesity, n = 150	2	38.19 ± 6.28	61.77 ± 10.31	47.57 ±10.5	47.08 ± 7.7	49.03 ± 9.99
Acute bronchopulmonary diseases, n = 21	3	55.80 ± 6.40	37.61 ± 3.01	44.20 ±6.95	44.20 ± 9.12	46.83 ± 7.54
Asthma, n=25	4	41.20 ± 9.80	50.52 ± 12.30	49.73 ± 8.31	44.66 ± 6.82	49.66 ± 9.12
Chronic kidney disease, n=88	5	39.19 ± 4.27	50.62 ± 2.34	50.57 ± 9.76	52.86 ± 11.82	53.85 ± 11.82

Note: * - differences in the incidence of causative microorganisms in the groups are statistically significant ($p < 0.05$).

Table 2

Correlation matrix of psychological parameters in the population of teenagers in Kharkiv region (r)

	Self-esteem	Anxiety	Depression	Anger	Deviant behavior
self-esteem		- 0.2050	- 0.4164	- 0.2464	- 0.2951
anxiety		p=0.000	p=0.00	p=0.000	p=0.000
depression	- 0.2050		0.5801	0.5244	0.3252
anger	p= 0.000		p=0.00	p=0.00	p=0.000
deviant behavior	- 0.4164	0.5801		0.7405	0.6206
self-esteem	p=0.00	p=0.00		p=0.00	p=0.00
anxiety	- 0.2464	0.5244	0.7405		0.6679
depression	p = 0.000	p=0.00	p=0.00		p=0.00
anger	- 0.2951	0.3252	0.6206	0.6679	
	p=.000	p=0.000	p=0.00	p=0.00	

4 CONCLUSIONS

1. Psychological profile of children with different somatic abnormalities is not identical requiring obligatory evaluation.

2. Teenagers with obesity were found to have significantly increased levels of anxiety and depression secondary to low self-esteem.

3. Children with asthma had an increased level of anxiety in combination with low self-esteem, which distinguishes them from children with acute bronchopulmonary disorders, which corresponds to a population profile value.

4. Children with chronic diseases of the gastrointestinal tract were shown to have low self-esteem.

5. Chronic kidney diseases are accompanied by decreased self-esteem with a tendency to rage and aggressive children.

6. The abovementioned findings determine the necessity for the assessment of psychological state at all stages of management of children with chronic diseases, and providing them with timely psychological assistance.

7. Changes in inner psychological state of the child (in the family environment, related to the disease, education and communication with age-mates) will potentially give a possibility to provide better treatment in this group of children and prevent recurrence.

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NEUROLOGY

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COGNITIVE AND AFFECTIVE IMPAIRMENTS IN PATIENTS WITH TEMPORAL LOBE EPILEPSY

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Abstract: This article deals with the results of cognitive and affective impairments treatment in 133 patients with temporal lobe epilepsy. These patients underwent cognitive-behavioral therapy, a combination of cognitive-behavioral therapy and pharmacotherapy, pharmacotherapy and surgical treatment. The most effective treatment methods and correction of cognitive and affective impairments in pa-tients with temporal lobe epilepsy are antidepressant therapy and cognitive-behavioral therapy. None of these treatment methods resulted in increased at-tacks frequency which proves their safety. Antidepressants and cognitive-behavioral therapy result in affective impairments regression and cognitive im-pairments improvement.

KeyWords: temporal lobe epilepsy, cognitive impairments, affective impairments, neuropsy-chological testing.

INTRODUCTION

The spread of epilepsy among adult population makes up 0.05 – 0.1 per cent [9], in children epilepsy is observed in 0.05 – 0.1 per cent of cases [6]. According to other data there are about 50 million such patients in the world [10, 11].

In 2014 the International Antiepileptic League (IAEL) proposed a new clinical definition of this disease.

“Epilepsy is a cerebral disease which is determined by any of these states:

1. At least 2 unprovoked (or reflectory) attacks which occur at over 24 hours interval.
2. One unprovoked (or reflectory) attack and probability of further attacks similar to general relapse risk (at least 60 per cent) after 2 unprovoked attacks during further 10 years.
3. Epilepsy syndrome diagnosis.” [7]

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The risk of relapse attack after the first one amounts to 37 per cent after the second one it increases to 73 per cent [7].

Epileptic attacks are well curable in most patients but, besides convulsions, the quality of their life is affected by cognitive, psychiatric and psychosocial as-pects of this disease [7, 8].

2 PURPOSES, SUBJECTS and METHODS

2.1 Purpose

To assess effective diagnostic methods and to choose optimal treatment for cognitive and affective impairments in patients with temporal lobe epilepsy [5, 9].

2.2 Subjects & Methods

The study involved examination and treatment of 133 patients with tem-poral lobe epilepsy in 2012-2015. They were under observation of specialists of Neurology, Neurosurgery and Psychiatry Chair of Uzhhorod National University. The criteria for including patients into the investigation were: “temporal lobe epilepsy” diagnosis, age from 16 to 65, not less than 2 epileptic attacks a month, cognitive and affective impairments.

All tests and observations were held in Regional Clinical Centre of Neuro-surgery and Neurology in Uzhhorod. Neuropsychological testing was held ac-cording to

generally accepted methods: short scale assessment of cognitive func-tions (MMSE) – for defining patients' basic cognitive resource, test on 10 words retelling – for testing verbal memory index, Shulte tables to define attention, Hamilton Depression Rating Scale (HDRS) and Hamilton Anxiety Rating Scale (HARS) to assess depression and anxiety.

Our investigation structure is presented in Figure 1.

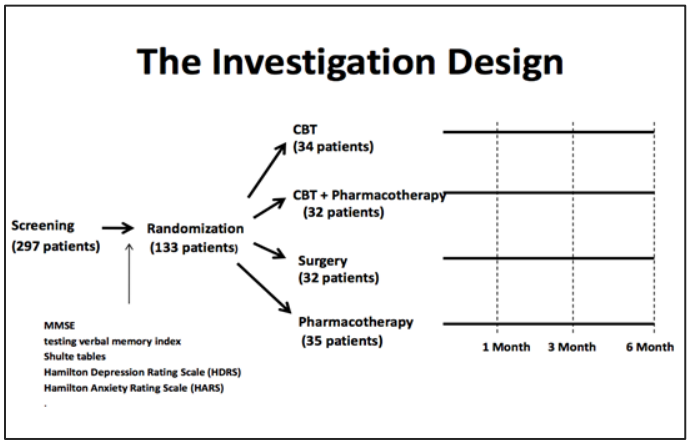

Fig.1 The investigation design

All patients were randomized according to the treatment methods into 4 groups. Patients included in group I underwent cognitive and affective impair-ments correction by means of cognitive-behavioral therapy (CBT), group II pa-tients were administered antidepressants (preparation of SSRIs group and prepa-rations affecting melatonin receptors). Group III patients received antidepres-sants in combination with CBT sessions, Group IV patients with refractory epi-lepsy underwent surgical treatment aimed at elimination of epileptogenic focus.

Testing was held at different periods: at screening stage, after the first month of treatment, after the third month and in 6 months.

All the above mentioned indices among the groups were compared by one-way disperse analysis (One-way ANOVA) with further post-shock analysis, Fisher function being used (Stat Soft statistic 12). The index changes analysis was held within the group during different periods of time by means of disperse analysis according to Fridman.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

We performed dynamics analysis of such important functions of higher nervous system, as memory and attention. The level of depression and anxiety in all 4 groups of patients was studied, too.

The dynamics of basic cognitive functions indices during the whole treat-ment period is shown on Figure 2.

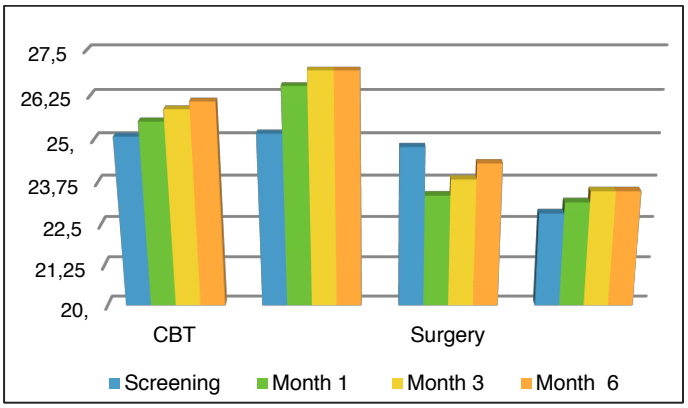

Fig.2 MMSE index dynamics in all 4 groups of patients

While analyzing the indices one should point out that in the patients' group who were on a cognitive-behavioral therapy the patients' condition improved, and the index increased from average 25.08 up to 26.08 during 6 months of treatment. This improvement was observed gradually during the whole treatment period. In the group where combined treatment with pharmacotherapy (antide-pressants) and cognitive-behavioral therapy was carried out the index MMSE dynamics was less significant because the first cognitive deficit was negligible. The improvement was observed during the first three months, during the follow-ing months the MMSE index remained stable.

In the group of patients who were treated surgically the screening scale in-dex decreased from 24.7 to 24.3 during the operational period and up to six months after the treatment. The minimal index value was observed a month after operation which gradually up to the end of the six-month period reached its ini-tial screening level. In the group which was treated only with pharmacotherapy the given index increased from 22.8 to 23.5 during 6 months of treatment. The improvement was gradual like in the first group. Thus, we can come to the con-clusion that cognitive-behavioral therapy is the most effective for improving the general cognitive status of these patients. In case this kind of therapy cannot be done antidepressants treatment is also effective.

The dynamics of verbal memory index during the whole course of treat-ment is shown in Figure 3.

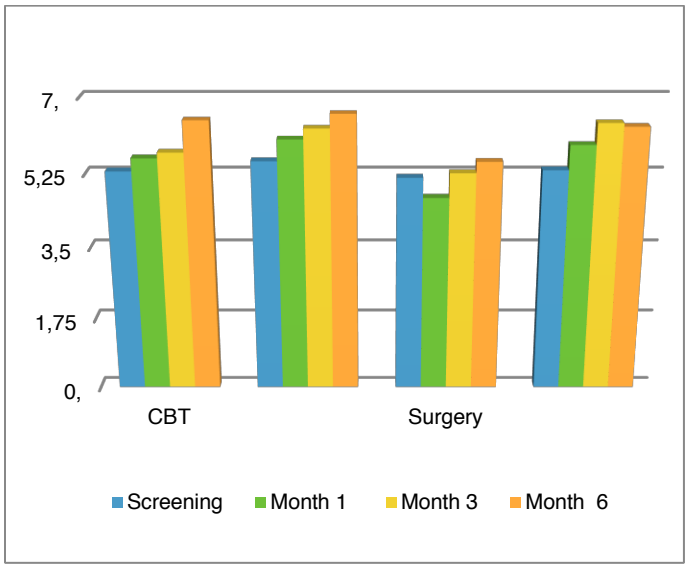

Fig.3 The dynamics of verbal memory index in all four patients' groups

The patients' group who underwent cognitive-behavioral therapy (CBT) increased their average verbal memory index from 5.3 to 6.4, which is the best result in all four groups. The verbal memory index improved gradually and turned out to be the fastest during the period between the third and the sixth months of CBT. The use of KBT and pharmacotherapy also appeared to be effective. During the whole treatment period – the verbal memory index increased from 5.5 to 6.6. In the group of patients who underwent surgical treatment the verbal memory index decreased from 5.1 to 4.6. Gradually this index was re-stored during 6 months and during the last control testing it proved to be better than during screening and was equal to 5.5. In the group of patients who were treated exceptionally with medicines the verbal memory index increased from 5.3 to 6.3. Thus, we can come to the conclusion that at the end of the treatment the best results were in the patients who were treated with cognitive-behavioral ther-apy.

The attention index during the six-month treatment is shown in Figure 4.

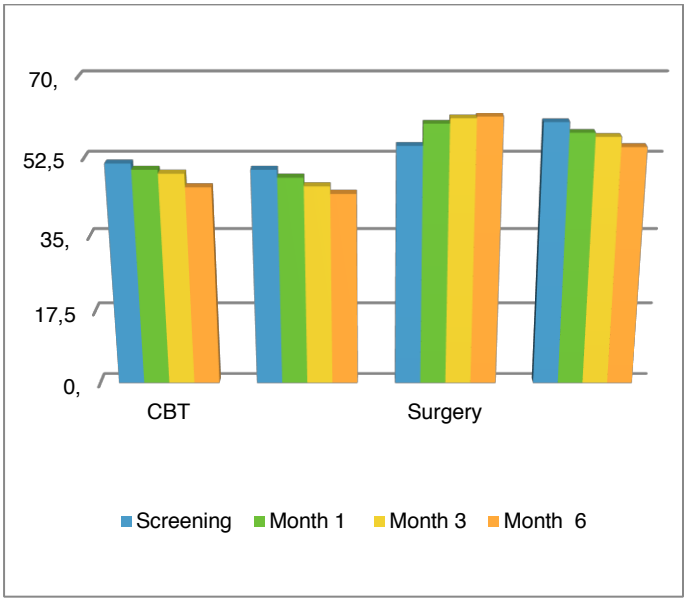

Fig.4 The dynamics of attention index in all four groups

According to these data we can conclude that the group of patients who underwent CBT gave positive treatment results and their attention index im-proved from 51.2c to 46.0c.

For the group of patients with combined form of treatment the results were similar and the attention index improved from 49.9c up to 44.5c. This index was the most vulnerable in the group of patients treated surgically. The average time necessary for testing increased from 55.1c to 61.4c. So, the attention was more vulnerable in the

patients who underwent surgical treatment which will need re-habilitation. The best results in attention correction occurred in the patients' group who underwent pharmacotherapy. This index increased in this group dur-ing 6 months of treatment from 60.2c to 54.9c. This kind of therapy can be rec-ommended as the main attention correction therapy in the patients with temporal lobe epilepsy.

Besides cognitive status the analysis of affective component of these pa-tients' groups was performed. In Figures 5 and 6 the effects of anxiety and depression treatment of patients with temporal lobe epilepsy are shown.

of convulsions after the operation. This index showed a regres-sion up to the end of the six-month period. The anxiety index decreased from 19 to 11.42 during the six-month treatment. The anxiety index regression in the group of patients who underwent CBT appeared to be the worst ones which can be accounted for the emotions resistant to psychotherapy related with unpredict-ed epileptic attacks. The anxiety index decreased from 20.4 to 13.1 during 6 months. Thus, one should recommend a combination of CBT and pharmacother-apy to correct anxiety. The dynamics of depression index in all four groups of patients is shown in Figure 6.

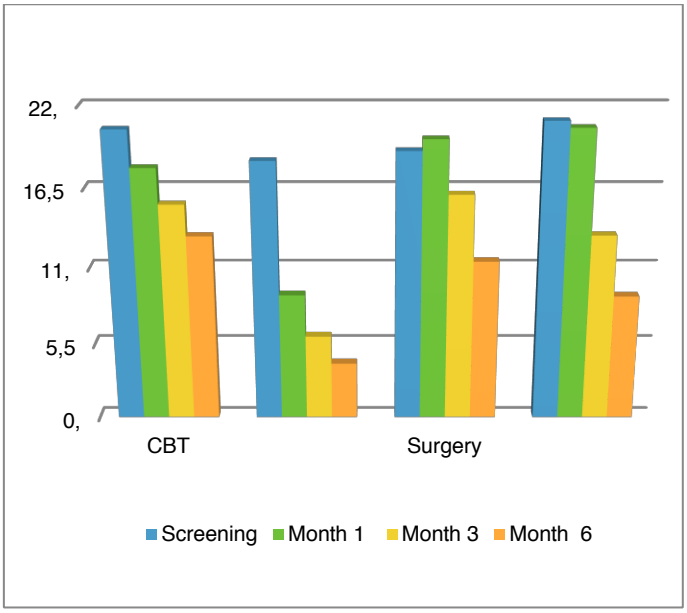

Fig.5 The dynamics of anxiety index in 4 groups of patients

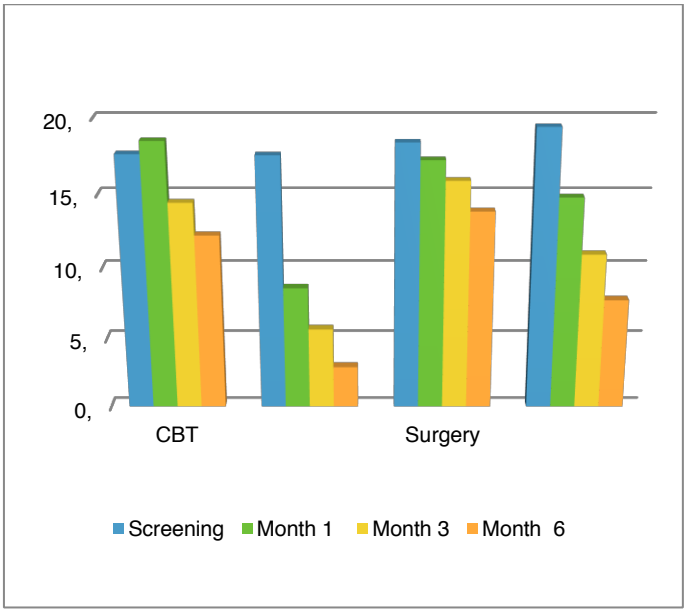

Fig.6 The dynamics of depression index in 4 groups of patients

While studying the anxiety dynamics the best results were found in the pa-tients' group who underwent combined treatment. In this case the anxiety index decreased from 20.4 up to 13.1 during 6 months of treatment. Then followed the next effective group who underwent pharmacotherapy. In the group of patients who underwent surgery a definite increase of anxiety index was from 19 to 19.7 a month after surgery which is probably connected with the patients' excitement about restoration

According to depression index dynamics we can come to the conclusion that the most effective method of treatment was a combination of CBT and pharmacotherapy. The depression index during 6 months of treatment decreased from 17.5 up to 2.9. The following effective group was the one who underwent pharmacotherapy and their index during 6 treatment months decreased from 19.3 up to 7.7. In the group of patients who underwent only KBT the depression in-dex decreased from 17.6 to

12.2. In the group of patients treated surgically the depression index during 6 treatment months gradually decreased from 18.2 up to 13.8. Thus, a combination of CBT and pharmacotherapy is the most effective in the treatment of depression.

4 CONCLUSIONS

The diagnostics of cognitive and affective impairments in patients with epi-lepsy is based on neuropsychological testing. Tests help to define the damaged domains during screening investigation and, assessing the dynamics, enable us to evaluate different treatment methods effectiveness.

The most effective methods of treatment and correction of cognitive and af-fective impairments in patients with temporal lobe epilepsy are antidepressant and cognitive-behavioral therapy. None of these kinds of treatment produced more frequent convulsions which proves their safety. Antidepressants therapy and cognitive-behavioral therapy result in affective impairments regression and cognitive impairments improvements. The patients who underwent surgery showed depression and anxiety indices regression in the postoperational period.

The only cognitive functions domain without significant positive dynamics in any group was memory. Cognitive rehabilitation is recommended for its im-provement.

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NEUROLOGY

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CEREBRAL HEMODYNAMICS AND CEREBROVASCULAR REACTIVITY IN PATIENTS WITH VERTEBROGENIC CERVICOCRANIALGIA

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Abstract: The application of the Transcranial Doppler sonography in patients with cervicocranialgia is discussed. The review of the original observation of the state of the arterial and vemous cerebral hemodynamics and cerebrovascular reactivity in these patients is presented. The authors performed clinical and Doppler sonography examinations of 148 patients with cervicocranialgia aged 18 to 45 years. According to the Doppler examination, patients mainly presented with cervicocranialgia, increased velocity parameters and functional asymmetries of blood flow in the basilar and vertebral arteries. Patients with cervicocranialgia had excessive blood supply in vertebral veins and direct sinus. Hyperreactivity in vertebral veins and direct sinus during orthostatic load is probably associated with the impaired regulation of cerebral blood flow at neurogenic level.

KeyWords: Cervicogenic headache, cervicocranialgia, Transcranial Doppler sonography, cerebral hemodynamics, cerebrovascular reactivity. functional X-ray study of cervical spine.

INTRODUCTION

Cervicogenic headache (CGH) is one of the best-known and most common neurological diseases occurring in the adult population. [1, 2]. The concept of CGH comprises the types of headaches having different origins, which are associated with pathology in the cervical spine and its other structural areas. GGH is induced by diverse pathogenic mechanisms and has different clinical manifestatiohs so it is reffered to different classifications categories [3]. The prevalence of CH in the population is as high as 20%. Pathological changes in the upper cervical spinal segments form the basis of the neuroanatomy of CH. [4]. Its diagnosis is based on the diagnostic criteria of the Cervicogenic Headache International Study Group and on the criteria of the Classification of Headache Disorders, 2nd Edition (2004) [5].

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Headache is the initial symptom of the majority of vascular diseases of the brain; hence, diagnosis of the causes of headache becomes essential for preventing the development of vascular disease [6, 7]. The available published data contain no results of a comprehensive study of the arterial and venous hemodynamics, cerebrovascular reactivity (CVR) in patients with CH. All the mentioned above determines the timeliness of our research.

2 PURPOSES, SUBJECTS and METHODS:

2.1 Purpose

is to study the cerebral hemodynamics and CVR using Transcranial Doppler sonography in patients with CGH.

2.2 Subjects & Methods

The study implied examination of 148 young patients (aged 18-45, 67 female and 81 male) with CGH. Cervicogenic headache manifested itself as cervicocranialgia (CCA). Diagnosis was made according to the criteria of the International Classification of HD, 2nd revision (2003).

All the patients underwent functional X-ray study of cervical spine with bending and unbending. Using the

method of Transcranial Doppler sonography (TDS), we studied the values of blood flow velocity (BFV) in vertebral (VA) and basilar (BA) arteries, vertebral veins (VV), tentorial sinus (TS) at rest and under functional loads.

The state of cerebrovascular reactivity was assessed using the following functional loads: functional metabolic test (coefficient of reactivity CrFMT), orthostatic load (CrOL), antiorthostatic load (CrAOL). The control group (CG) included 50 clinically healthy volunteers of both sexes, of appropriate age. The study results were processed by variation statistics with the calculation of arithmetical mean values: M±m, sigma, using spreadsheets «Exel-5".

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

The pain in patients with CCA was characterized by the following features: predominant occipital localization of pain (91.3%). The pulsating type of pain was observed in 18.4% of patients, bursting in 56.2%, their combination in 25.4%. Mainly left-sided localization of the pain attack was observed in 36.4% of patients, mainly right-sided in 30.2%, alternating sides in 33.4 %. Attacks on awakening occurred in 48.8% of patients, daily attacks in 22.3%, at night in 29.9%.

Patients with CCA in addition to the basic complaints presented with the following symptoms: dizziness, insomnia, decreased performance, increased fatigue, emotional instability, pain in the heart. Dizziness, as a rule, of non-systemic nature, was occasionally observed in 61.2% of patients. Unstable noise in the head bothered respectively 29.4%. Sleep disorders in the form of difficulty in falling asleep, restless, intermittent, superficial sleep occurred in 18.6% of patients.

Fatigue, weakness, decreased performance were observed in 22.3% of patients, emotional instability, irritability, tearfulness in 19.8% of patients. Complaints of the confusion, memory and attention loss were reported by 10.8% of patients.

Neurological examination of patients revealed an increase in tendon reflexes in 36.7% of cases, vegetative stigma in 34.8%, Romberg's sign in 17.2%, mild oculomotor disturbances in 15.1%, mild asymmetry of facial muscles in 10.6% of patients.

X-ray study of patients with CH more often revealed the signs of initial osteochondrosis of cervical spine and instability in one or several motion segments. All the patients with scalene instability manifested hyperreactivity to tests with bending and unbending and rotation loads combined with regional changes of hemodynamics in BA and one or both VAs. (Fig.1)

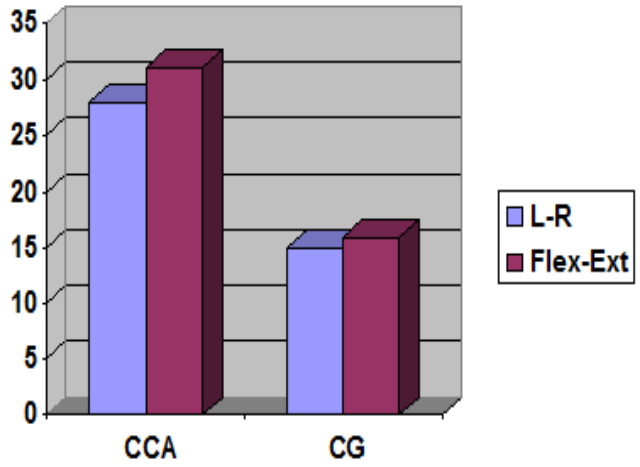

Fig.1 Reactivity (%) to functional load (left-right rotation, flexion-extension) in patients with cervicocranialgia

Hemodynamic disturbances in the individuals under examination often were manifested in the form of strengthened BFV in both VAs in 46.3% of cases, vasospasm in one VA and/or BA in 32.7%, blood flow asymmetry (25-30%) through VA in 37.8% (Fig.2).

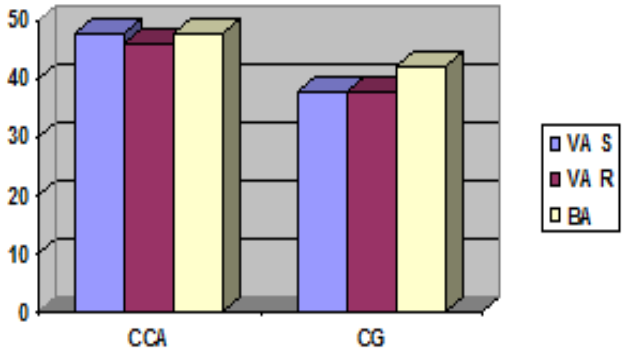

Fig.2 Blood flow velocity in the vertebral arteries and basilar artery in patients with cervicocranialgia

The CrFMT parameters were significantly increased (1.26 ± 0.04 (p <0.05) in patients with CCA (Fig,3).

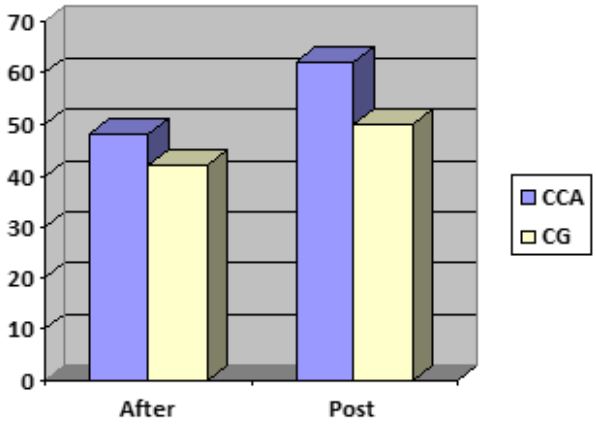

Fig.3 Blood flow velocity in the basilar arteries secondary to functional metabolic test

The vast number of patients with CCA had increased blood flow velocity in TS (37.3±3.6 cm/s) and VV (29.6±3.1 cm/s). Patients with CCA presented with an increase in systolic BFV in 48.2% in VV and in 29.4% of patients in TS (Fig.4).

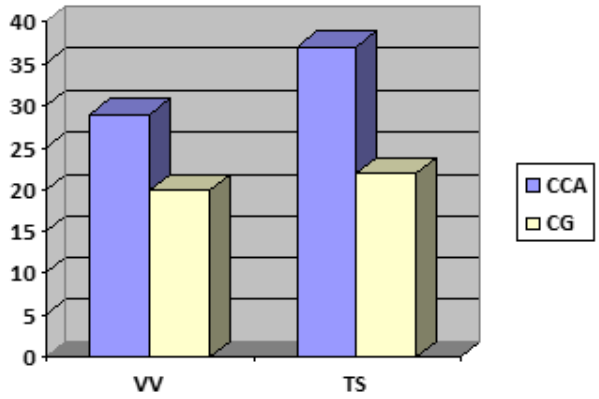

Fig.4 Blood flow velocity in the vertebral veins and tentorial sinus in cervicocranialgia

The orthostatic load indicated increased blood flow in the VV in patients with CCA by 66.5 ± 7.7%, and in the control group by 88.4 ± 11.7% (p <0.05). (Fig.5).

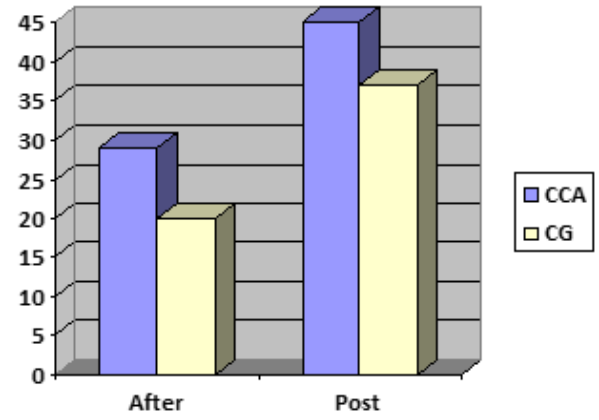

Fig.5 Blood flow velocity in the vertebral veins secondary to orthostatic load

Blood flow in patients with CCA during the orthostatic load was reduced in the TS by 36.3 ± 7.2%, and by 29.6 ± 6.7% in the CG (Fig. 6) .

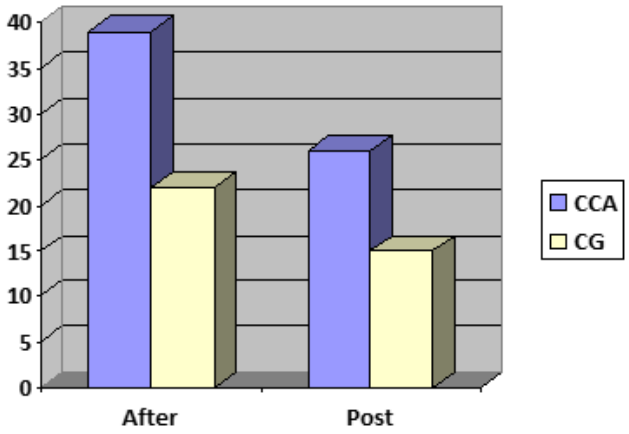

Fig.6 Blood flow velocity in tentorial sinus secondary to orthostatic load

During the antiorthostatic load the blood flow velocity in the VV decreased by 20.2 ± 3.4% in patients with TTH, and 27.6 ± 4.5% in the CG.(Fig.7)

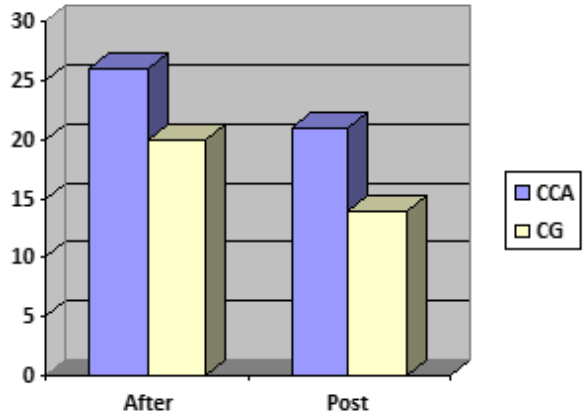

Fig.7 Blood flow in the vertebral veins secondary to antiorthostatic load

The blood flow velocity in patients with CCA in the SS was increased by 33.5 ± 8.3%, and by 30.6 ± 4.5% in the CG (Fig.8).

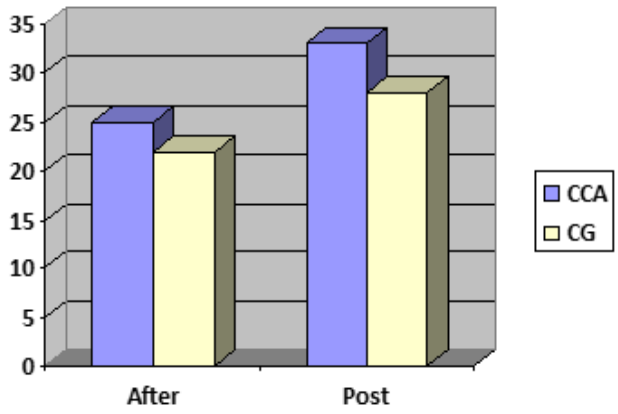

Fig.8 Blood flow velocity in tentorial sinus secondary to antiorthostatic load

4 CONCLUSIONS

Cervicogenic headache in young patients is mainly determined by the scalene instability of cervical spine. Hyperreactivity to rotation tests correlates with the presence of cervical spine instability. Cerebral hemodynamics in patients with CCA is characterized by angiodistonic manifestations, such as increased velocity parameters and functional asymmetries of blood flow in the BA and VA. Patients with CCA mainly present with venous discirculation in VV and TS. Hyperreactivity to FMT is typical for patients with CCA and reflects the tension of the metabolic regulation path of cerebral blood flow. Hyperreactivity in VV and TS during OL is probably associated with the violation of the regulation at neurogenic level of cerebral blood flow. It is necessary to perform a complex Doppler and X-ray study of all patients with supposed CCA.

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PSYCHIATRICS

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PSYCHOTHERAPEUTIC CORRECTION SYSTEM OF SOMATOGENIC DEPRESSIVE DISORDERS IN PATIENTS WITH CEREBRAL STROKE

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Abstract: The article shows the results of examination of 60 patients with cerebral stroke. The study implied the assessment of the development of somatogenic depressive disorders for one year. Acute phase of cerebral stroke was characterized by various disorders of consciousness which were further accompanied by cognitive impairments, and after disorders of consciousness disappeared patients developed various psycho-emotional disorders, predominantly somatogenic depression and anxiety. The proposed psychotherapeutic correction system has allowed to reduce the frequency and severity of this disorders and to improve quality of life and social functioning of post-stroke patients.

KeyWords: Somatogenic depression, anxiety, psychotherapy, cerebral stroke.

INTRODUCTION

Today, there are no doubts that "the era of neurotic disorders", the main mental group of diseases in the twentieth century, comes to an end, and the beginning of the twenty-first century is replaced by "Somatogenic depressive disorders era". Post-stroke depressive disorders usually develop within 3-24 months after the stroke and are defined as "mood disorders caused by cerebrovascular diseases associated with the symptoms of depression, anxiety and hypochondria, with the presence of episodes such as major depressive or mixed". The majority of cerebral stroke (CS) patients suffered from depressive disorders that complicated the course of treatment, the outcomes of the disease, the recovery and rehabilitation processes [1-5]. Approximately 10-15 % of patients with depression are prone to suicide attempts [6, 7].

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Headache is the initial symptom of the majority of vascular diseases of the brain; hence, diagnosis of the causes of headache becomes essential for preventing the development of vascular disease [6, 7]. The available published data contain no results of a comprehensive study of the arterial and venous hemodynamics, cerebrovascular reactivity (CVR) in patients with CH. All the mentioned above determines the timeliness of our research.

2 PURPOSES, SUBJECTS and METHODS:

2.1 Purpose

to assess the development of somatogenic depressive disorders in CS patients to elaborate a system of psychotherapeutic support and correction of such disorders.

2.2 Subjects & Methods

The study involved 60 patients with ischemic cerebral stroke. The main group included 70% (42) male and 30% (18) female patients. Most of them, 43.3% (26 patients) were aged 56-65 years, 41.7% (25 patients) were aged 46-

55 years, 15% (9 patients) were aged 36- 45 years. The average age of the patients was 53.3 ± 5.5 years. Among them, middle cerebral arteries were involved in the pathological process in 42 cases (70%), and vertebra basilar basin in 18 cases (30%). The number of patients with ischemic CS in the left or in the right middle cerebral artery was equal and amounted for 21 patients (35%).

The patients were examined in 4 stages: stage 1 – within 28 days after CS (acute phase), stage 2 – 3 months after the event, stage 3 – 6 months after the event (recovery period), Stage 4 – 1 year after the event (period of consequences). Throughout the period of the survey the patients underwent psychotherapeutic correction and psychological support secondary to basic therapy.

Clinical methods, psycho-diagnostic methods [by 8] (The Modified Rankin, Scale Hamilton scale of depression (HDRS), Beck scale of depression (BDS), Spylberger scale of personal and reactive anxiety, Mini-Mental State Examination (MMSE) and quality of life test [9].

All the data is processed by conventional medical methods of statistical analysis with Microsoft Excel 2010 package, Statistics for Windows 5,0 applications. Frequency of clinical signs presented in absolute values and expressed as a percentage. The findings of a number of psychodiagnostical techniques processed by methods of variation statistics with finding of the arithmetic mean and its error. The validity of the results is determined by Student's criteria (differences were considered significant at $p < 0.05$). In the analysis of the interrelationship of the results obtained using psychodiagnostical techniques correlation analysis method has been used. Correlation study was conducted to establish the links in quantified indices with.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

All the patients during acute stage of CS were found to have various impairments of consciousness (Table 1).

Table 1.

Impairment of consciousness in acute stage of cerebral stroke

Impairments of consciousness	Number of patients	
	Number of patients	%
Somnolence	6	10.0
Obnobulation	28	46.7
Torpor	22	36.6
Sopor	4	6.7

As shown on Table 1 all the patients had impaired consciousness of different severity. Depth of consciousness correlated with the severity of CS. There was a high representation (in 94% of cases) of surface forms of impaired consciousness, namely somnolence (10.0%), obnubilation (47.0 %), lung torpor (37.0%). Besides, 7 % of patients had sopor, which is a more severe impairment of consciousness.

These conditions were characterized by the preservation of all types of orientation, but with the difficulty of clear awareness due to the increased threshold of perception. Herewith torpor was characterized by a steady state and obnubilation by undulating. The main manifestations of this condition included relative bradikinesis and slow response to external stimuli. Within 1-3 days these syndromes transformed into clear consciousness. Transition to clear consciousness occurred in the following forms:

1) short-term (within 12-24 hours) period of somnolence, the original version of the disturbance of consciousness characterized by increased sleepiness;

2) same as a short-term (12 - 24 hours) period of elevated wakefulness, a condition characterized by a relative acceleration of thinking, agitation, hyperactivity of patients;

3) smooth transition directly into clear consciousness.

Presentation was as follows: headache associated with fluctuations in blood pressure, feeling of heaviness in the

head, pain in the eyes, dizziness, unsteadiness during walking, sleep disturbances, noise and ringing in the ears and head, asthenia, cognitive impairment.

Patients with CS in the system of the middle cerebral artery mainly presented with weakness in the contralateral limbs, numbness, and impaired sensitivity in the limbs. Patients with left-hemispheric carotid disorders had speech disorder in the form of motor, sensory and amnestic aphasia. Patients with stroke in the vertebra basilar basin more commonly complained of persistent dizziness, mainly started after changing the position of the body or turning the head, noise and ringing in the head or ears, nausea, difficulty in swallowing, dysarthria, visual disturbances.

Physical examination showed that all the patients had diffuse organic symptoms in combination with focal disorders. Oculomotor disorders were predominant: weakness of convergence, restriction in looking upwards, insufficiency of efferent nerves. Patients were found to have facial muscles asymmetry, nistagmus in extreme derivations, violation of statics and coordination, aphasia, motor aphasia (of varying severity), sensitive tone disorders, decreasing of strength in the extremities (contralateral impairment).

The study identified a group of symptoms: decreasing of corneal reflexes, swelling of the tongue with teeth imprints, soreness of the eyeballs with pressure, which were regarded as indirect signs of liquor hypertension. In addition the patients were found to have reflexes of oral automatism and other pathological signs.

Focal neurological symptoms corresponded to the affected vascular regions, the localization of the ischemic lesion.

Analysis of psychopathology in the examined patients showed a prevalence of symptoms typical for acute diffuse organic and focal cortical lesion of CNS (Table 2).

Acute diffuse organic lesions consisted of violations of all kinds of attention (concentration, volume, shifting). Sensory disorders were very frequent. Focal cortical symptoms included disturbances of higher cortical functions. The most common were various types of aphasia: sensory, motor, amnestic and their combined forms. Amnestic disorders were manifested mainly in the form of fixation amnesia which regressed during the recovery of attention.

The affective sphere was unstable, with rapid changes in the emotional background, emotional lability with excessive insecurity and vulnerability, irritability, uncontrolled emotional reactions, affective flashes, frequent changes of mood, with a predominance of fear and anxiety. Presentation also included general weakness, loss of appetite, fatigue, rapid exhaustion, sleep disorders (sleep process, depth and duration of sleep, daytime sleepiness), suspiciousness, feelings of guilt, tearfulness, diffidence.

Identification of clinical and psychopathological disorders in patients with CS, features of their clinical structure and dynamics allowed us to distinguish leading clinical syndromes and types of patients' attitude to their disease (Table 3).

At the acute stage of CS all the patients predominantly had impairment of consciousness (mostly superficial forms, somnolence, obnubilation, torpor) followed by cognitive disorders. Cognitive impairment was characterized by the deficiency of mnestical, intellectual functions and emotional sphere.

Asthenic syndrome was basic, characterized by fatigue, irritability, general weakness, unstable mood. Pain syndrome was characterized by headaches, pain in the epigastria, cardialgia.

At the second stage of the study (3 months after CS) presentation and the severity of cognitive impairments decreased, giving rise to different psycho-emotional disorders.

Asthenic syndrome remained leading and at the same time the amount of patients with depressive and anxiety syndrome increased to 33.3 % of the patients suffering from depressive syndrome and 16.7 % from anxiety.

Depressive syndrome was represented by the patients' pessimistic attitude to the environment.

Table 2.

Representation of psychopathology in patients after cerebral stroke at all the stages of survey

Symptoms	Representation on the survey stage							
	1		2		3		4	
	№	%±m%	№	%±m%	№	%±m%	№	%±m%
Hypersthesia	14	23.3±0.7	10	16.7±0.3	6	10.0±0.2	-	-
Hyposthesia	34	56.7±1.3	20	33.3±0.2*	12	20.0±0.2*	5	8.3±0.1*
Senestopathia	14	23.3±0.7	10	16.7±0.3*	6	10.0±0.2	2	3.3±0.1*
Bradikinesis	56	93.3±1.7	-	-	-	-	-	-
Disorientation in time and space	6	10.0±0.2	-	-	-	-		
Disorders in self estimation	-	-	10	16.7±0.3	12	20.0±0.2	5	8.3±0.1
Disorders of speech:								
Motor aphasia	4	6.7±0.1	4	6.7±0.1	2	3.3±0.1	1	1.7±0.1
Sensor aphasia	4	6.7±0.1	2	3.3±0.1	2	3.3±0.1	1	1.7±0.1
Sensor and motor aphasia	10	16.7±0.3	6	10.0±0.2	6	10.0±0.2	4	6.7±0.1
Amnestic aphasia	10	16.7±0.3	8	13.3±0.7	6	10.0±0.2	3	5.0±0.1
Disorders of attention	56	93.3±1.7	18	30.0±0.2*	24	40.0±0.4*	12	20.0±0.2*
Memory disorders	58	96.7±1.3	14	23.3±0.7*	16	26.7±0.3	9	15.0±0.5*
Disorders of sleep	54	90.0±1.6	40	66.7±1.3*	34	56.7±1.3*	16	26.7±0.3*
Fatigue	54	90.0±1.7	42	70.0±1.3*	34	56.7±1.3*	34	56.7±1.3
Irritability	10	16.7±0.3	20	33.3±0.2*	30	50.0±0.5*	30	50.0±0.5
Inability to control emotions	16	26.7±0.3	20	33.3±0.2*	26	43.3±0.7*	26	43.3±0.7
Instability of mood	12	20.0±0.2	20	33.3±0.2*	26	43.3±0.7*	26	43.3±0.7
Apathy	6	10.0±0.2	18	13.3±0.7	10	16.7±0.3	10	16.7±0.3
Filling of guilt	6	10.0±0.2	10	16.7±0.3	6	10.0±0.2	4	6.7±0.1
Diffidence	12	20.0±0.2	14	23.3±0.2	18	30.0±0.2*	16	26.7±0.3
* - p<0,05								

Table 3.

Leading depressive and associated disorders in patients with CS

Syndromes	Representation on the survey stage							
	1		2		3		4	
	№	%± m%	№	%± m%	№	%± m%	№	%±m%
Impairment of consciousness	60	100.0±1.7	-	-	-	-	-	-
Pain	40	66.7±1.3	32	53.3±1.7*	26	43.3±0.7*	20	33.3±0.7*
Phobic	6	10.0±0.2	8	13.3±0.7	12	20.0±0.2	10	16.7±0.3
Asthenic	40	66.7±1.3	24	40.0±0.4*	12	20.0±0.2*	10	16.7±1.3
Hypochondriac	2	3.3±0.1	6	10.0±0.2*	10	16.7±0.3*	8	13.3±0.7
Depressive	16	26.7±0.3	20	33.3±0.2*	24	40.0±0.4*	20	33.3±0.2
Anxiety	2	3.3±0.1	10	16.7±0.3*	14	23.3±0.7*	14	23.3±0.7
Hysteroform	-	-	4	6.7±0.1*	4	6.7±0.1	4	6.7±0.1
Cognitive disturbances	50	83.3±1.7	40	66.7±1.3*	48	80.0±1.7*	44	73.3±1.7
Scornful attitude to the disease	8	13.3±0.7	6	10.0±0.2	4	6.7±0.1	3	5.0±0.1
* - p<0,05								

They did not believe in the possibility of recovery, and thought of inevitable physical disability. Typical complaints included sharp decline of strait, loss of desires and aspirations, decreased attention, inability to concentrate on anything: difficulties to read, watch TV, etc. Patients worried about decreased work capacity, inability to perform the previous volume of mental or physical work due to fatigue and weakness. There was a feeling of inner tension, uncertainty, unmotivated anxiety. Sleep disorders were expressed in the form of early awakening, difficulty falling asleep, nighttime awakenings; absence of relaxation and cheerfulness in the morning.

Patients with anxiety syndrome mainly presented with restlessness, feeling of inner tension. At the forefront there were concerns related to physical health. Patients were pessimistic about the possibility of a safe outcome of the disease, did not believe in the possibility of recovery. In addition anxiety strongly associated with other areas of patients' life. Patients were afraid that they could not meet the expectations of others, to cope with the required volume of work. They noted that "all the time they were waiting for some kind of trouble", "something bad might happen."

"Anticipation" situations were especially psychologically painful for these patients. Any slightest delay of relatives caused another bout of anxiety, accompanied by vivid mental images of stroke event. Patients intently listened to conversations of medical staff in the hope of finding out information on their health, at the same time they had a fear of possible further trouble. In such situations they gradually developed emotional instability and irritability.

At the third stage of the study in 80.0 ± 1.7% of patients were shown to have cognitive impairments, with the severity of 70.0 ± 1.7% which corresponded to mild cognitive impairment. The intensity of psycho-emotional disorders and depressive reactions was increasing. Pain syndrome (40%), depressive syndrome (40.0%), cognitive impairments (80.0%) were predominant. The number of patients with isolated asthenic syndrome decreased to 20.0%. Representation of hysterophorm syndrome at this stage of the research was the same. The incidence of scornful attitude to the disease decreased to 6.7%. Depression and anxiety correlated with the intensity of neurological deficit and its impact on life quality.

At the fourth stage of the research the severity of psycho-emotional disorders and depressive reactions secondary to cognitive impairments remained unchanged, otherwise quantification of major syndromes decreased. So, depressive syndrome was observed in 33.3% of patients, anxiety syndrome in 23.3% of patients, hypochondria in 13.3 % of patients, phobic syndrome in 16.7 % of patients, scornful attitude in 5.0% of patients. At this stage of the study the incidence of cognitive impairment comprised 73.3%. A decrease in cognitive impairments was associated with the reduction in the incidence and severity of psycho-emotional disorders.

The study allowed us to elaborate a multimodal system of psychotherapeutic correction of somatogenic depression, depressive and associated disorders in CS patients (Table 4)

Implementing the system of psychotherapeutic correction, we have selected five stages:

Stage 1 - Diagnostic,

Stage 2 - Adaptational,

Stage 3 – Medical,

Stage 4 – Final

Stage 5 – Psycho-prophylactic.

The diagnostic phase has been directed mainly for the examination of patient's personality: examination of premorbid personality traits; determination of the type of psychogenic reactions; the establishment of the degree of compensation of disturbed functions; psychological testing, definition of suggestibility. This stage involves 5-7 individual sessions during 2 weeks.

The second stage, adaptational, implies therapeutic alliance and is comprised of 2 to 3 individual and 2-3 group sessions during 2 weeks. The main tasks of the stage include psychological, emotional contact with the patient; formation of trust to the psychotherapist, adequate and positive attitude to the psychotherapeutic process.

Table 4

Multimodal based system of psychotherapeutic correction of somatogenic depression and associated disorders in CS patients.

Stages	AIM	Orientation of psychotherapy	Methods of psychotherapy	The numbers and forms of sessions
Diagnostical	Examination of the patients personality	Diagnostic	Personal – orientated, rational CBT	5-7 sessions during 2 weeks
Adapta-tional	Setting psychological, emotional contact with the patient; Trust formation to the doctor; Adequate treatment, positive attitude to psycho-therapeutic process	Mostly symptomatical, Partially pathogenic	Rational, Inderect, CBT	2-3 individual and 2-3 group sessions During 2 weeks
Medical	Achievement of positive dynamics of the patient's emotional state, learning and transformation personal reactions of the patient, his relations system, scale experience of illness and its social significance, correction of psycho-emotional disorders	Mostly pathogenic, Partially - symptomatic	Hypnosuggestive, cognitive training, AT, CBT	5-6 individual and 8-12 group sessions During 9 weeks
Final	Consolidating process of therapeutic results, skills of psychological self-regulation, correction of the system of life goals, values, attitude to the disease	Mostly preventive, Partially - pathogenic	AT, rational, personal - orientated, self - hypnosuggestive, cognitive training, CBT	3-5 individual and 6-7 group sessions During 8 weeks
Psycho-preventive	Consolidating therapeutic process	Mostly preventive, Partially - pathogenic	AT, rational, personal - orientated, cognitive training, CBT	6-12 individual and 6-12 group sessions During 6 month

This phase involves important analysis of presentation, the severity of psycho-emotional disorders and cognitive deficits. At this stage it is necessary to establish psychological contact between the patient and the physician-therapist (the best type of relationship is the partnership principle).

The third stage, medical or main, consists of 5-6 individual and 8-12 group sessions during nine weeks. The main tasks of the stage are: the achievement of positive dynamics in the emotional condition of the patient, the study and the restructuring of personal reactions of the patients to the disease, their system of relations, understanding of the disease and its social significance. The main directions of psychotherapeutic correction of psycho-emotional disorders of patients included decrease in fear, reduction of anxiety levels as well as levels of depression, hypochondria, asthenia, normalization of mental status, correction of cognitive deficits, cupping clinical manifestations of physical illness.

The fourth stage, the final, includes 3-5 individual and 6-7 group sessions during eight weeks. The main objectives of the phase are to achieve consolidation of therapeutic outcomes, psychotherapeutic skills of self-control, correction of the system of life goals, values, attitudes to the disease, personal ego and the environment.

The fifth stage is psychoprophylaxis. Its duration is 6 months. At this stage patients get psychotherapeutic support. Patients visit their therapist 1-2 times a month. They undergo 6-12 group psychotherapy sessions, 6-12 individual sessions if necessary. The main aim of this stage is to prevent a recurrence of psycho-emotional disorders.

4 CONCLUSIONS

The proposed system demonstrated a significant improvement in 77% of CS patients, it allowed to decrease frequency and severity of somatogenic depressive and anxiety disorders, improve quality of life and social functioning of our patients.

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PSYCHIATRICS

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COMPLEX APPROACH TO REHABILITATION OF WOMEN WITH PARANOID SCHIZOPHRENIA

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Abstract: The article shows the results of examination of 60 patients with cerebral stroke. The study implied the assessment of the development of somatogenic depressive disorders for one year. Acute phase of cerebral stroke was characterized by various disorders of consciousness which were further accompanied by cognitive impairments, and after disorders of consciousness disappeared patients developed various psycho-emotional disorders, predominantly somatogenic depression and anxiety. The proposed psychotherapeutic correction system has allowed to reduce the frequency and severity of this disorders and to improve quality of life and social functioning of post-stroke patients.

KeyWords: Somatogenic depression, anxiety, psychotherapy, cerebral stroke.

INTRODUCTION

Schizophrenia is one of the most important mental diseases and its average incidence is 1% of the population. The disease differs by a long-term duration, quite often it leads to the reduction or loss of physical capability, has essential social consequences. Disability of the people with schizophrenia constitutes 40% to 80% in different regions, which testifies to the high level of the patients desadaptation [2, 8, 11, 12, 16].

The introduction of modern methods of schizophrenia treatment into the clinical practice, development and implementation of the new antipsychotic drugs, has essentially improved the treatment results due to the reduction of not only positive but also negative symptoms, and, in many cases, avoid the development of neuroleptic syndrome [5, 6, 7, 14].

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The rehabilitation of mentally disabled people is not limited to the elimination of psychopathologic symptoms and is aimed at the creation of the optimum social functioning conditions for them, improvement of the life quality, ability to the independent active life – nowadays this challenge is becoming even more pressing [1, 3, 13, 14,15, 16].

Quick and successful integration of patients into the society, improvement of their psychophysical activity, development of relations with the people around, require complex approach to schizophrenia therapy, which includes the combination of psycho-pharmacotherapy, psychotherapy and psycho-educational trainings [2, 4, 9, 10, 11].

2 PURPOSES, SUBJECTS and METHODS:

2.1 Purpose

The improvement of treatment efficiency and rehabilitation of patients with paranoid schizophrenia through implementation of the complex psycho-rehabilitation program based on the comparative (clinical and psychopathological, clinical and anamnestic, psycho-diagnostic) examination of the paranoid schizophrenia patients.

2.2 Subjects & Methods

To achieve this goal, on condition of the informed consent following the principles of bioethics and deontology

our study was conducted at Kharkiv Regional Clinical Mental Hospital No.3.

140 female patients aged 18-35 with the paranoid schizophrenia during the stabilization period were examined. The whole contingent was divided into two groups. The main group (group of study) constituted 94 patients. These patients received complex of treatment combined with the psychoeducational program developed on the basis of the results of our own research and psychopharmacological therapy. Another group (the control one) included 46 patients, who received the standard regulated therapy. In our research study, we used such methods: complex clinical and psychopathological, clinical and anamnestic, psychodiagnostic (psychometric questionnaires and scales) examination.

According to the examination results in the clinical hospital the examined patients predominantly suffered from the paranoid hallucinatory syndrome with the stable delusional and hallucinatory (including dialogues) syndromes. Besides, 8% of the patients were found to have signs of oneiroid syndrome, in most cases of negative mystically-religional nature. The primary negative syndromes were manifested by the essential disorders in thinking and speech, severe ambivalence and autism. Disorders of social communication ability dominated among secondary negative disorders and some patients suffered from hypokinesia. Cognitive disorders were essential and were manifested by detraction, operative memory reduction, and inability of planning.

A complex approach, combining pharmacopeia and pshychoeducational program, was used for the improvement of life quality and re-adaptation of the patients.

In order to address the challenge adequately, we used the integrated model of the psycho-educational work, which included the use of diverse informational modules, approaches of the cognitive and behavioral pshychoterapy, training interactions (informational trainings, trainings of positive self-perception, trainings of the compliance improvement, trainings on formation the communicative abilities and skills, trainings of solving the interpersonal communication issues), problem-oriented discussions and family psychotherapy.

The modules of the psycho-educational program were based on the information concerning the reason, development, methods of correcting the unfavorable factors separately for the clinical peculiarities, life quality, resocialization, treatment satisfaction. Additionally, each module had the element of the cognitive and behavioral therapy, which was aimed at the reinforcement of the effect and reduction of the intervention period.

Before the beginning of the psycho-educational intervention the average composite score according to the PANSS positive scales in the main group amounted to 26.1±4.1; 26.4±4.1 points in the control group; 6.7±1.5 and 13.1±1.3 points after therapy termination, correspondingly. The level of positive symptoms manifestation in the main group reduced by 71.3% and by 50.9% in the control group, correspondingly.

Before treatment the average complex score according to the negative PANSS scales in the key group amounted to 25.3±3.9; 25.4±4.2 points in the control group; 7.6±1.1 and 14.2±1.6 points after the therapy termination, correspondingly. The level of negative symptoms presentation in the main group reduced by 67.1%, and by 51.8% in the control group, correspondingly.

The average complex score according to general psycho-pathological disorders before treatment in the main group constituted 52.1±9.1; 52.3±9.0 points in the control group; 17.7±2.9 and 30.1±6.8 points upon therapy termination, correspondingly. The level of general psychopathological symptoms presentation in the main group reduced by 65.8%, and by 42.7% in the control group, correspondingly.

The level of general score expression according to the PANSS scale in the main group reduced by 67.1% and by 46.9% in the control group.

Assessment of social functioning in schizophrenia patients at the first stage of examination showed general behavioral dysfunction in the society: obvious – 24.2%, serious – 26.5%, and very serious – 28.1% dysfunction; disorders in fulfillment of the social roles in the society:

obvious – 24.8%, serious – 27.4%, very serious – 28.6% dysfunction; disorders of the patient functioning in the hospital: no dysfunction – 2.4%, minimum dysfunction – 10.9%, obvious dysfunction – 27.1%, serious – 33.5%, very serious – 25,9%; dysfunction of modifying factors of the patients (the patient's positive qualities, personal hazards, home atmosphere, outside support): no dysfunction – 3.4%, minimum dysfunction – 13.1%, obvious –25.6%, serious –24.1%, very serious – 34.2% of the examined patients.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

The results of the assessment of the patients' positive attitude to the conducted therapy using the "Method of predicting the medicinal compliance in psychiatry" and TSQM allowed to find statistically reliable changes (Tables 1, 2).

Table 1.

Changes in self-assessment of the patients' satisfaction with the therapy using the TSQM methods before and after complex treatment (in points)

Scales	Control group	Primary condition	After conducted psycho-educational influence	P
Therapy efficiency	49,1±1,9	47.8±2.5	76.4±0.3	<0.001
Convenience	53,6±1,3	52.1±2.5	64.3±1.6	<0.01
General satisfaction with the treatment	43,7±2,1	42.9±2.8	54.5±1.1	<0.01
Side effects	76,4±0,8	77.9±2.0	64.4±1.2	<0.01

Table 2.

Assessment of the positive attitude towards the therapy in schizophrenia patients before and after complex treatment (in points)

Scales	Control group	Primary condition	After conducted psycho-educational influence	P
Total compliance index	31,2±0,9	29.9±2.6	38.9±0.7	<0,001
Attitude to medication	17,1±1,4	16.3±1.8	22.4±0.7	<0.01
Patient-related factors	7,6±0,4	7.1±0.8	9.2±0.6	<0.05
Relatives-related factors	4,3±2,5	4.3±0.3	4.5±0.8	
Doctor-related factors	2,2±1,7	2.3±0.3	2.8±0.8	

During the work from the trialogue position the assessment of the schizophrenia patients' life quality was conducted (according to N.O. Maruta, 2004). With regard to all patients in the general life quality structure on the first stage of the examination, the following spheres were determined as the most problematic: socio-emotional support – 15.1%; physical welfare and capability – 11.3%; social and official support – 14.4%; self-servicing and independence in actions – 10.1%; self-realization – 7.9%; interpersonal communication – 8.3%; psychological, emotional welfare – 7.2%; general life quality perception – 11.6%.

After psycho-educational measures the life quality in the main group according to all scales increased by 40.2% and by 27.7% in the control group.

According to the results of the follow-up supervision in the main group secondary to the conducted complex therapy with the use of psycho-educational intervention 82.2% patients achieved the stable therapeutic effect, maintained during 2 years, in 11.1% the condition remained unchanged, and 6.7% showed the disease relapse. In the control group the condition improvement was observed only in 10% of patients, 48% were hospitalized due to relapse. The efficiency criteria included remission stability, hospitalization frequency, life quality, anxiety level, improvement of the mental condition.

4 CONCLUSIONS

Thus, according to the research results, complex approach in schizophrenia therapy, which included psychopharmacotherapy with the use of atypical antipsychotics in combination with the psycho-educational trainings, leads to the renovation of the social activity and successful resocialization of the patients. This, in its turn, testifies to the fact that psychological education not only increases the level of knowledge, improves the confidence in the fight against the disease, but also solves the problem of the patient's social reintegration.

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PATHOLOGY

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THE POSSIBILITIES OF MUSEUM STUDYING OF VACTERL SYNDROME

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Abstract: The article deals with VACTERL association, particularly non randomly associated birth defects, typically defined by the presence of at least three of the following congenital malformations: vertebral anomalies, anal atresia, cardiac malformations, tracheo-esophageal fistula, renal anomalies, and limb abnormalities. Museum collection of the Department of Pathological Anatomy of Kharkiv National Medical University, which devoted to prenatal and perinatal pathology, has numerous museum exhibits representing this pathology. The specimens help to discuss pathological anatomy of each of these defects.

KeyWords: fetus, VACTERL, congenital defect.

INTRODUCTION

VATER association was originally named in the early 1970s with the description of seven patients as including at least three of the following features: Vertebral defects, Anal atresia, Tracheo-Esophageal fistula, Radial and Renal dysplasia [1]. Shortly thereafter, additional features, such as Cardiac malformations and additional Limb abnormalities, were added, and the condition was called VACTERL association. Nowadays VACTERL association (VA) is described as the non-random co-occurrence of vertebral defects (V), anal atresia (A), cardiac malformations (C), tracheo-esophageal fistula/esophageal atresia (TEF/EA), renal anomalies (R), limb abnormalities (L) [2]. VACTERL association is estimated to occur in approximately 1 in 10,000 to 1 in 40,000 live-born infants, depending on the exact criteria and the type of ascertainment used [2]. The works investigating clinical presentation of VACTERL patients and probing of aforementioned components are limited [3].

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Moreover, the studies in neonates and mature fetuses are restricted to clinical analysis [4] and morphological research as ultrasound investigation is carried out in termination of pregnancy with severe congenital abnormalities. At the same time such experience is important for the development of clinical thinking of future doctors.

Part of the museum collection of the Department of Pathological Anatomy of Kharkiv National Medical University devoted to prenatal and perinatal pathology is one of the most representative among the academic collections in the world. The majority of specimens in the exposition arrived much earlier than the wide use of the term VACTERL in diagnosing malformations especially in the post-Soviet countries.

It is necessary to take into account that it may determine incorrect interpretation as some cases may be wrongly diagnosed according to VACTERL description.

2 PURPOSES, SUBJECTS and METHODS:

2.1 Purpose

The aim of the present study is to assess the significance of the study of museum specimens allowing to trace VACTERL syndrome.

2.2 Subjects & Methods

The study implied literature search and the assessment of macroscopic preparations of the museum of Department of Pathological Anatomy at KhNMU dedicated to pre- and perinatal pathology with congenital malformations where VACTERL syndrome could be presented.

Conflict of interests

There is no conflict of interests.

3 RESULTS AND DISCUSSION

Thus, among patients with VACTERL 60-80% of individuals have vertebral abnormalities with a possible injury of any vertebra. This pathology may involve single or multiple vertebrae and may vary in severity. Characteristic vertebral anomalies include segmentation defects and may be accompanied by rib anomalies and abnormal spinal curvatures. In cohort of adult patients, approximately 25% of medically significant malformations have component features of VACTERL association, including 40% vertebral ones [5]. The museum specimens demonstrate multiple abnormal curvature of the spine, scoliosis, syncephalus and other types of spinal abnormalities. Thoracopagi always have various forms of vertebral anomalies, which are presented in Fig.1.

Fig.1 - Different types of thoracopagi

Anorectal malformations are reported in 60% of affected individuals with VACTERL [6] and are important in clear detection for surgical manipulation. Defects are frequently accompanied by genitourinary (GU) anomalies including complex cloacal malformations. The museum collection of numerous congenital malformations is representative of such type of disorders.

Cardiac malformations have been reported in 70% of affected individuals. This pathology also includes vascular anomalies. Museum specimen of cardiac ectopy is a common example of this pathology. Ectopia cordis is a congenital malformation in which the heart is abnormally located either partially or totally outside of the thorax (Fig.2).

Fig.2 - Ectopia cordis associated with cerebral hernia (left) and anencephaly (right).

Tracheo-esophageal malformations are always characterized together because of their close anatomical location with common combination with Anorectal malformations. Tracheo-esophageal fistula (TEF) may be with or without esophageal atresia. A variety of TEF types have been described in 60% of individuals with VACTERL association, while esophageal atresia has been described in 70%. [6]. Early interventions, including those related to fluid and nutrition management, can decrease complications (e.g., aspiration).

Renal anomalies, which may be accompanied by ureteral and GU anomalies, have been described in 70% of affected individuals [2]. The pathology is represented by an irregular shape of kidneys, absence of one or both organs. Optimizing adequate bladder emptying is especially important in obstructive hydronephrosis.

Limb anomalies are the most visible form of congenital malformations in VACTERL association. It has the largest number of different manifestations [7-9]. They are represented by such malformations as amelia, sirenomelia, brachydactyly, syndactyly, monobrachia, hypodactyly, which occur in 40-50% of cases [7-9]. Amelia is the birth defect of lacking one or more limbs. It can also result in a shrunken or deformed limb. This pathology is shown in Fig.3.

Fig.3 - Mature female amelia

Sirenomelia or «mermaid syndrome» is a very severe syndrome of caudal regression (complex malformation the caudal portion of the embryo), which is a rare severe congenital malformation of the distal spine and spinal cord [9]. Its clinical picture is accompanied by hypoplasia of the lower half of the trunk and extremities, a fusion of the lower limbs (fig.4).

Fig.4 - Antenatally died fetus with sirenomelia. (Born from a 16-year-old pregnant with addictive injections in history. She reported no familial history of congenital anomalies or diabetes)

The same applies regarding its relationship with narrow pelvis syndrome and VACTERL (vertebral defect, anal atresia, interauricular communication; interventricular communication, tracheal and esophageal atresia, and renal or radial agenesis) syndrome [10].

Mermaid syndrome is a very severe form of caudal regression syndrome (complex malformation of the caudal portion of the embryo), which, in turn, is a rare severe congenital malformation of the distal spine and spinal cord (its clinical picture is accompanied by hypoplasia of the lower half of the trunk and extremities, fusion of the lower limbs). Fusion can occur within the bone or soft tissues only. Presentation is characterized by renal agenesis, blindly ending colon, absence of external and internal genitalia, single umbilical artery atresia of the anus in most cases of sirenomelia [9, 11].

The etiology of the syndrome of caudal regression is not fully understood. Most authors name such causative factors as maternal diabetes, genetic predisposition, and insufficient blood supply to the lower half of the body of the fetus in the development of this pathology. In a normal embryo two umbilical arteries pump blood from the fetus

to the placenta and one umbilical vein, which returns blood from the placenta to the fetus. Most infants with mermaid syndrome have only one umbilical artery and one vein. Rarely embryos with this syndrome develop typical two arteries and one vein [9,12].

The study allowed us to select the following specimens to assess VACTERL presentation: amelia, sirenomelia, brachydactyly, syndactyly, monobrachia, hypodactyly, cardiac ectopia, many macroscopic preparations with multiple congenital malformations.

Inspection of the body allows to detect anal atresia and limb defects from seven features that are included in VACTERL syndrome for fetus or newborn. Anomalies of vertebrae, heart defects, tracheal abnormalities, esophageal atresia, renal anomalies could be detected without the study of the internal organs only with severe defects associated with injury of the integument, the presence of hernial protrusion.

These anomalies are formed during fetal development, caused by the interaction of multiple genetic and environmental factors [13-15]. Inheritance pattern is usually not observed, although there was a high frequency of disease manifestations in children born from mothers with diabetes. Involvement of genetic factors in the etiology of VATER/VACTERL association is suggested by various independent reports and studies in humans and animal models [15].

4 CONCLUSIONS

As we can see in the museum collection of the Department of Pathological Anatomy of Kharkiv National Medical University, VACTERL association can be observed in the museum specimens with multiple malformations. Based on the above we found numerous macroscopic specimens with VACTERL which can be used for teaching of future young specialists.

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