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Coverage abstraction interpretation:

The art heals the soul, and medicine heals the body.
Altogether it heals the whole individual.

Kristian Teider

Abstraction is one of the form of art, and abstracting is one of the human conditions. Abstraction allows you to put the mind to the creation of ideal ideas that can serve as a guide in life. And reference points in life fill it with meaning. Sense fills the person with energy and helps to overcome obstacles. Obstacles can be also diseases, so for a healthy life it is very important to set meaningful goals and strive for them. This concentrates the body's energy and directs the person to build a healthy lifestyle. Thus, in our journal we decided to combine two forces that support both a healthy body and a healthy spirit.

The cover shows an abstraction that symbolizes the infinity of similar, but at the same time different phenomena that are always correlate. We can say that this abstraction symbolizes one moment of infinity, like an X-ray image of a space in which everyone can see the projections of their meanings, their goals and their dreams.

"Interconnections" 2020

Sincerely, art editor

Sofya Pokid'ko.

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Release date: 1 September 2020

IMMS Journal editor-in-chief

Bakhtiyar Azhken.

Dear colleagues, in October 2018, the first President, Nursultan Nazarbayev, delivered a regular message to the people of Kazakhstan: «It is necessary to create a broad platform of social elevators that will include a full range of measures to support all categories of youth. I propose to declare next year the Year of Youth». Also, N. Nazarbayev noted that «Youth is a key factor in the competitiveness of our country, ...and wins the country that will have a creative generation that will raise science, education and will not fall behind».

Guided by such high requirements of Elbasy, the idea of creating a scientific platform where each Kazakh scientist can exchange information with foreign colleagues and learn scientific medicine in a form convenient for him was realized. For the purpose of popularizing scientific thought, our team of young scientists began to act and formed the necessary links with the foreign colleagues who took up the posts of editorial board members. Alongside them, we also held talks with our Kazakh professors, doctors and teachers to ensure that youth and ambition go hand in hand with wisdom and knowledge.

The Council of Scientists and the Editorial Board have always followed the principles of honesty, scientific transparency and integration of scientific communities, selecting articles on a wide variety of fields of medicine.

As a result of the concerted efforts of the editorial staff, the council of young scientists, authors and reviewers, a wide readership was won. And today, the magazine provides information support, participates in publicizing social issues, organizes round tables, publishes interviews of leading specialists, gives information about new unique inventions, and supports the exchange of knowledge and experience between generations. Leading Kazakh scientists and specialists from near and far abroad are actively involved in publications.

Behind us are dozens of organized events and business meetings, hundreds of hours of painstaking work, a large team around the world and the first scientific release that I am so happy to present to you.

This issue was a step towards a new science that was ready to work for the benefit of the State and the people.
I would like to warmly congratulate the team of editors on this event and wish them further fruitful work.

Respectfully, Bakhtiyar Azhken.

Head of The Development and Strategy,
Director of UATL Scientific Research University,

Kristian Teider.

2020 was full of bright events in the life of the international medical and scientific community. Among these events - is the first issue of the international multidisciplinary journal «IMMS Journal», whose contribution to the development of domestic science can hardly not be estimated. During this year, the international team of editors and researchers have successfully completed one of their main tasks - made available a direct channel of scientific information for the population of Kazakhstan and other countries, as a result of which the scientific young generation of our country has become competitive and correspond the highest international standards.

The «IMMS Journal» is a public electronic resource for everyone around the world. It always provides an opportunity to get acquainted with the innovative development of methods for diagnosing and treating various diseases, fundamental and joint research.

Regards,

Kristian Teider.

Academic Supervisor of the IMMS Journal, Ph.D.,
Associate Professor of the Department of Surgery,
NJSC "Astana Medical University"

Vladimir Openko.

Among them, not one knew exactly what was happiness and what precisely was the meaning of life. So they took it as a working hypothesis that happiness lay in gaining perpetually new insights into the unknown and the meaning of life was to be found in the same process.
Strugatsky brothers.

Dear Colleagues! I would like to express my gratitude to the team of the international medical journal "IMMS Journal" and the European research university UATL for organizing a team of reliable and promising participants, as well as creating a platform for research work in Kazakhstan and abroad!

I am glad that I had the opportunity to work in such a professional team with eminent professors from Kazakhstan, the USA, Switzerland and Finland! They have acted as excellent mentors for young scientists, allowing them to unleash their talents and skills and help them achieve their goals in life and science!

I would like to express my gratitude to the UATL researchers for interaction with authors and the editorial board, for competent advice and timely execution of the assigned work, as well as the formation of international cross-research groups.

Dear Authors! I wish you not to be afraid to conquer new heights and conduct business negotiations, thereby tempering your willpower "in battle". I believe that you will be able to achieve excellent results by popularizing science in your native country and increasing its image and prestige in the international arena, which will be able to promote medicine in the world to a high level! Forward to new accomplishments and achievements!

Regards,

Vladimir Openko.

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DESCRIPTION AND OBJECTIVES

IMMS Journal is the official journal of the European Research University, UATL University and is published quarterly in February, May, August and November. It publishes original works in various fields of medicine. IMMS Journal's priority is to publish high-quality original on cardiology, oncology, ophthalmology.

It is an independent peer-reviewed international journal, printed in English and Russian. The manuscripts are reviewed by the method of «double blind review» for both reviewers and authors. The editorial board of the IMMS Journal works in accordance with the principles of the World Association of Medical Editors (WAME), the International Council of Medical Journal Editors (ICMJE) and the Ethics Committee of Publications (COPE).

1. Overview

All manuscripts should be understood by a wide range of medical readers and should improve the evidence base for decisionmaking in clinical practice, medical education and research. Article types include original research articles, systematic review articles, short messages, complete articles and metaanalyses, descriptive reviews and letters to editors. Manuscripts should be original and should not be considered by another publication at the time of submission. Make sure you read and understand the details of our editorial policy. Non-compliance may lead to delays in the processing of the manuscript or even to rejection.

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- All text must be written by using MS Word.
- Font type: Times New Roman.
- Font size: 14 for article header, 10 for article text.
- The line interval must be set as a single interval.
- At least 2 cm across each side.
- Page number must be added in the lower right corner.
- The main text shall not contain scientific or technical information containing information relating to a State, official or commercial secret.
- Abbreviations: the full term behind the acronym must precede the first use of the acronym in the bracketed text, and it is recommended to use the standard abbreviations listed in «Scientific style and format».

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IMMS Journal uses international standards to present scientific research in scientific journals. EQUATOR network («Improving quality and transparency of health research») - «an international initiative aimed at increasing the reliability and value of published health research literature by promoting transparent and accurate reporting and wider use of reliable reporting manuals». IMMS Journal recommends authors to visit the website of the EQUATOR network (http://ww.equator--network.org/) to find recommendations for all types of research. IMMS Journal promotes the use of the CONSORT checklist for randomized research, the STROBE checklist for observational research, and the STARD checklist for diagnostic / predictive research.

Original research articles

Research articles should include the following sections: cover sheet, annotation, keywords, main text (introduction, materials and methods, results, discussion), words of appreciation and bibliographic list. Articles should not exceed 5,000 words and 50 references. Systematic reviews and metaanalyses should contain a title, an annotation, keywords, main themes and references. It should not exceed 5,000 words or more than 150 references. It is recommended to use the PRISMA checklist for all systematic reviews and metaanalyses.

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- Research reports
- Case reports
- Series of cases
- Adverse reaction to the drug

The length of the letter should not exceed 500 words. Letters that do not meet the requirements will not be published. The letters will be published freely. If you want to comment on the published article:

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- Make specific, not general comments
- Comments should be based on scientific evidence
- Do not repeat the topics that were studied in the original article
- Approach the subject from another perspective

Images

The images are a brief clinical report describing a unique image. All images must have the patient's consent, and the author's application form must be sent with your submission. No annotation is required in the images. A maximum of 3 images can be represented. Each image should have a short history with details of the clinical observation, which should not exceed 250 words. There can be attached a maximum five links.

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Should contain the Title of the article (no abbreviations (even official ones), commercial names of medicines allowed;
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in the form of grants, equipment, medicines;
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Original articles should have a structured annotation including the following subtitles: Purpose, Introduction, Materials and Methods, Results and Conclusions, Keywords. Limits - 300 words. Annotations should be added at the beginning of the manuscript. Abbreviations should be avoided. References, tables and quotations should not be used in annotations.

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Any funding sources should be declared after a conflict of interest. Authors who have not received any funding should state: «The research has not had sponsorship support».

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The author's attachments should be added to the end of the manuscript after the information on financing. Contributions by authors should be clearly stated.

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Authors who do not meet the criteria of authorship but help in the research can be listed in the section «Words of Grace». They can be named and their function or contribution must be described.

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Tables should be as simple as possible, understandable, compact with all statistically processed data created in MSWord or Excel.

The total number of tables and figures should not exceed 4 pieces. The presence of figure captions and captions to tables is mandatory. Each table should be on a separate sheet, have a table of contents, it should be typed in 1.5 spacing, the font of the text in the tables should not be less than 10 pt.

Number tables in the order of their first mention in the text. All clarifications should be placed in notes (footnotes), and not in the title of the table. Use statistical parameters to represent possible differences in data, such as standard deviation or mean errors of the arithmetic mean. If there is a large amount of data, then it is recommended to use graphs: linear, planar, volumetric.

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Editorial contact: Yerkinbek Ualikhan
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Original article

CORRELATION OF INDICATORS OF INDEPENDENT METHODS FOR DETERMINING THE ANTIOXIDANT ACTIVITY OF BIOFLAVONOIDS

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Sapieva[1] Ardak Onalbekovna, Kazbekova[1] Ainagul Talgatovna,
Madiyeva[1] Sharapat Abdiganievna, Kenzheshova[1] Akniet Kazbekovna,
Baysarov[1] Gabiden Maratovich, Seytembetov[1] Talgat Sultanovich,
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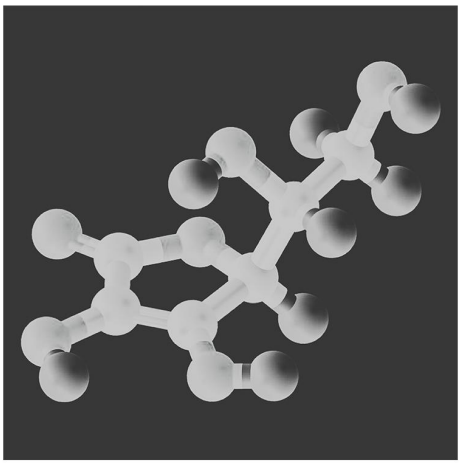

ABSTRACT

Introduction: It has been proven that a large number of diseases are caused and accompanied by the activation of reactions with the formation of free radicals (FR), lipid peroxidation (LPO), destruction of the structure of proteins. In this regard, there is an acute issue of creating drugs, the action of which would make it possible to minimize the consequences of the above processes. Much attention is currently paid to bioflavonoids, a large group of compounds with a polyphenolic structure. is currently very relevant.

Materials and research methods: Method for determining the iron-reducing potential - FRAP (Ferric Reducing Antioxidant Power) of the compounds under study. Optical density is measured at 700 nm on an Agilent Cary 60 spectrophotometer. Ascorbic and gallic acids are used to assess antioxidant activity (AOA).

Results: The antioxidant properties of the flavonoid pinostrobin and oxymapinostrobin were established and compared with the similar effect of ionol, butylhydroxyanisole and other antioxidants. An indicator of the antioxidant activity of the studied objects is the optical density, in particular, AA has the highest optical density, and the antioxidant effect is less pronounced for the compounds Af-1, Pb-3, and G3Pb. The flavonoids dihydroquercetin (DHQ) and oxympinostrobin, using the example of luminolin-induced chemiluminescence, inhibited free radical oxidation, and the degree of effect depended on the concentration of the exogenous substance.

Conclusions: FRAP-method investigated in vitro antioxidant activity of flavonoids and established this activity for solutions of dihydroquercetin, pinostrobin and its oxime, which is inferior to the effect of ascorbic and gallic acids, which have a pronounced antioxidant effect. The analysis of antiradical activity in vitro by the method of determining the ability to inhibit DPPH of a number of compounds showed activity for samples Af-1, Pb-3 and G3Pb, which is comparable to the property of butylhydroxyanisole. The data of chemiluminescence analysis indicate the presence of a correlation between antioxidant, antiradical activity and indicators of chemiluminescence of flavonoids, which confirms the possibility of a connection between these properties of the studied compounds.

Key words: Antioxidant and antiradical activity, Flavonoids, Ascorbic and gallic acids, Butylhydroxyanisole, Spectrophotometric determination, Chemiluminescent method.

[1] NJSC «Astana Medical University», 010000, Republic of Kazakhstan, Nur-Sultan, 49A Beibitshilik street.
[2] JSC " International research and production holding "Phytochemistry", 010000, Republic of Kazakhstan, Karaganda, 4 M.Gazaliyev street.

Relevance.

In the process of studying biological activity, the determining factor is the reliability and independence of the assessment of the effect of a potential drug. In this connection, a compre - hensive study of the studied object by modern and independent invitro methods is necessary, which determines the possibility of studying and the corresponding manifestation of this biolo - gical property invivo.

Introduction

Kazakhstan has unique reserves of plants of wild-growing species with medicinal properties, a significant part of which is promising for studies of their chemical composition and biological activity. Medicinal plants are the raw material for phytopreparations with a diverse spectrum of pharmacological and therapeutic effects, which, as a rule, are not accompanied by undesirable side effects.

Currently, many antioxidant and hepatopro - tective drugs used in clinical practice are synthetic and cause allergic reactions. This circumstance determines the relevance of "free radical pathology" in pharmacotherapy and prevention of diseases and the corresponding use of herbal products, the effect of which is caused by the synergistic action of such natural compounds as polyphenols, aminophenol acids, higher fatty acids and others. In connection with the above aspects, the urgent problem of the development and implementation of phytopre - parations and industrial use of plant materials in production [1,2]. Effective therapy of chronic liver diseases, as well as the prevention of drug hepatopathies are some of the urgent problems of modern medicine. In the pathogenesis of liver damage, oxidative stress is of great importance. One of the factors modifying the phospholipid composition of biological membranes is the development of free radical oxidation of unsaturated fatty acids in them. Flavonoids have the ability to neutralize reactive oxygen species and terminate chain reactions; therefore, a wide range of biological activity and their low toxicity, the absence of allergenic and cumulative properties allow us to consider bioflavonoids as a promising source for practical use in medicine [3,4].

Purpose.

To study the antioxidant and antiradical activity of natural flavonoids and their functional derivatives by independent spectrophotometric methods.

Materials and research methods.

The method for determining the ironreducing potential is FRAP (Ferric Reducing Antioxidant Power) of the studied compounds. To 0.1 ml of an alcohol solution of the test sample in the concentration range of 0.25; 0.5; 0.75 and 1.0 mg / ml are added 0.25 ml of phosphate buffer (0.2 M, pH 6.6) and 0.25 ml of 1% potassium hexacyanoferrate (III) solution. The reaction mixture is incubated for 20 minutes at 50 ° C, the reaction is stopped by the addition of 0.25 ml of a 10% solution of trichloroacetic acid. The mixture is centrifuged for 10 minutes at 3000 rpm. The upper layer of the resulting solution with a volume of 0.5 ml is mixed with 0.5 ml of distilled water and 0.1 ml of 0.1% FeCl3. The absorbance is measured at 700 nm with an Agilent Cary 60 spectrophotometer. Ascorbic and gallic acids are used to evaluate antioxidant activity (AOA).

Determination of antiradical activity (ARA) by inhibition of DPPH (1,1-diphenyl-2-picrylhydra - zyl) radical by the analytes. 0.1 ml aliquots of the test sample in the concentration range of 0.01-1 mg / ml were added to 3 ml of 6 × 10- 5M ethanol solution of DPPH radical. After vigorous stirring, the solutions were left in the dark for 30 minutes. The optical density was measured on an Agilent Cary 60 spectrofluorometer at 520 nm, butylhydroxyanisole was the standard [5].

The use of the method of initiated chemilumi - nescence (CL) to determine the antioxidant and antiradical activity. The intensity and dynamics of the intensity and dynamics of chemilumine - scence were recorded on a CaryEclipce spectro - fluorometer (Agilent Technologies) at 420 nm. The method is based on the free radical oxidation of luminol with hydrogen peroxide (pH 7.4), which results in the emission of light, which decreases in the presence of a potential antioxidant [6,7].

Results.

In the scientific literature there is a wide range of biological activity of flavonoids of plant origin. In recent years, the study of the possibility of using the FRAP method for assessing the antioxidant activity of invitro exogenous objects and for determining the total content of antioxidants has gained some development. Our task was to carry out studies to study the relationship between the content of substances with established chemical structures and their antioxidant activity, which is an urgent problem. So, the solution of this issue opens up the possibility of a directed synthesis of new com -

mpounds with potential biological activity by chemical modification of natural compounds. According to the method of determining the iron-reducing potential - FRAP, the results obtained are shown in Table 1.

To assess the antiradical activity of these objects, we used the method of inhibition of 2,2-diphenyl-1-picrylhydrazyl radical by the analyzed substances. It was established that the antiradical activity of the studied object is manifested in a decrease in the optical density of the DPPH solution due to the transition of the DPPH radical into a nonradical form as a result of the antiradical effect of the individual substance under study. The quantitative characteristic of the anti-radical property in this method is the value of anti-radical activity, therefore, to explain the mechanism of the established action of a particular object, it is advisable to know the chemical structure of the organic compound.

The objects for the study of antiradical activity were compounds dihydroquercetin (DHQ); 2-(3,4-dimethoxyphenyl) -5- hydroxy -3,6,7-trimethoxy-4H-chromen4-one (Af-1); 5-hydroxy, 7-methoxy-2- phenyl-4H-chromen-4-one (Pb-3) and (R, E) -7-methoxy-4- (propan-2-ylidene hydrazine) -2-phenyl chromen-5-ol (G3Pb). It was found that for a control solution containing 2,2-diphenyl-1- picrylhydrazyl radical, the optical density was 1.1457 ± 0.0010. Previously, the presence of a relationship between the dynamics of the activity of the studied object and the value of the optical density of the solution was determined. This dependence is visible on the example of BHA and flavonoids. The dynamics of the optical density and concentration of the compound solution is shown in Table 2 and the change in the antiradical activity of ARA flavonoids (%) in Figure 1.

Substance	0,25 mg / ml	0,5 mg / ml	0,75 mg / ml	1 mg / ml
DHQ	84,81±0,3243	88,23±0,5181	85,93±0,0677	88,05±0,4581
Af-1	6,67±0,0152	15,02±0,0326	46,13±0,2703	59,18±0,2006
Pb-3	38,32±0,0561	59,88±0,1218	66,39±0,0728	68,93±0,0900
Ascorbic acid	87,74±0,1086	86,66±0,1042	86,33±0,0286	85,87±0,1412

Table 1 - Dependence of antioxidant activity (%) on the concentration of solutions of the investigated substances.

In our experiments, repeated measurements of identical working solutions showed almost similar curves of induced chemiluminescence.

Discussion.

In the aspect of studying the correlation between the data of different methods for assessing bioactivity, the issue of the relation - ship between the data of different indicators is relevant.

For example, for antioxidant activity, we performed a comparison between the com - pounds of the optical density, concentration and antioxidant effect values (%) of a substance. It has been established that there is a definite correlation between these indicators: an increase in antioxidant activity with an increase in concentration and an increase in antioxidant activity with an increase in the optical density of a solution.

Substance	0,25 mg / ml	0,5 mg / ml	0,75 mg / ml	1 mg / ml
Af-1	0,7667±0,0479	0,7218±0,0368	0,6944±0,0307	0,6739±0,0332
Pb-3	0,7857±0,0193	0,7840±0,0200	0,7249±0,0345	0,6972±0,0200
G3Pb	0,7892±0,0200	0,7725±0,0431	0,7729±0,0205	0,4681±0,0269
BHA	0,2850±0,0020	0,2400±0,0300	0,2290±0,0180	0,2610±0,0150

Table 2 - Change in optical density depending on the concentration of the solutions of the investigated substances.

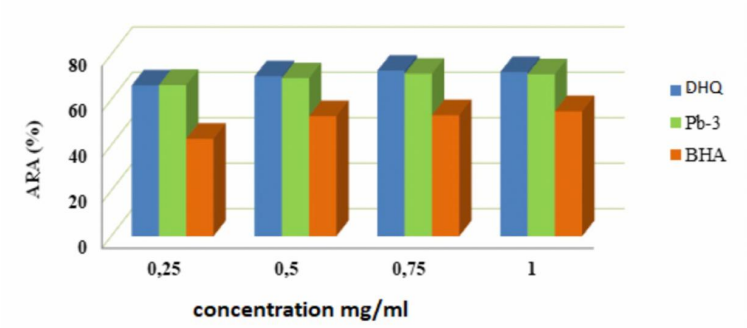

Figure 1 - Change in the antiradical activity of flavonoids.

The obtained results indicate the presence of a single mechanism of inhibition of peroxide processes in the presence of exogenous flavo - noids. In this work, we evaluated the antioxidant activity of flavonoids dihydroquercetin (DHQ); 2-(3,4-dimethoxyphenyl)-5-hydroxy-3,6,7-trimet-hoxy-4H-chromen-4-one(Af-1);5-hydroxy, 7-methoxy-2-phenyl-4Hchromen-4-one(Pb-3) and (R, E) -7-methoxy-4-(propan-2-ylidene hydrazine)- 2-phenyl chromen-5-ola (G3Pb). The antioxidant property of flavonoids pinostro-bin and oxymapinostrobin was established, which was compared with the similar effect of ionol, butylhydroxyanisole and other antioxi - dants.

An indicator of the antioxidant activity of the studied objects is the optical density, in parti - cular, AK has the highest optical density, and for compounds Af-1, Pb-3, and G3Pb, the antioxi - dant effect is less pronounced.

Flavonoids dihydroquercetin (DHQ) and oximpinostrobin, using the example of lumino - linated chemiluminescence, inhibited free radical oxidation and the degree of effect depended on the concentration of exogenous substance, which follows from the form of the kinetics curve of this reaction (Figure 2) [8, 9]. An analysis of the literature on chemiluminescent analysis of both individual organic compounds isolated from plants and subsequent chemical modification, and total objects (plant extracts) indicates the prospects of this method and may find application in further studies on the development of new antioxidants and hepatoprotectors [10].

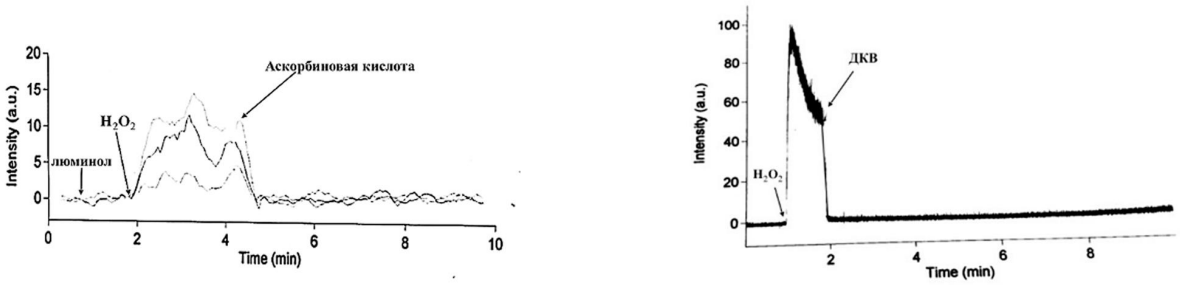

Figure 2 - Chemiluminograms of the studied compounds:

A. Ascorbic acid; B. Dihydroquercetin (DHQ)

Conclusion

Using the FRAP method, the antioxidant activity of flavonoids was investigated invitro and this activity was established for solutions of dihydroquercetin, pinostrobin and its oxime, which is inferior to the effect of ascorbic and gallic acids with a pronounced antioxidant effect. Analysis of the anti-radical activity of invitro by determining the ability of DPPH inhibition of a number of compounds showed activity for samples Af-1, Pb-3 and G3Pb, which is comparable with the property of butylhydroxyanisole. The data of chemiluminescent analysis indicate a correlation between antioxidant, antiradical activity and chemiluminescence indices of flavonoids, which confirms the possibility of a relationship between these properties of the stu died compounds.

Contribution of the authors.
Concept and design: A.O. Sapieva, A.T. Kazbekova, Sh.A. Madiyeva.
Data collection and processing: A.K. Kenzheshova, Sh.A. Madiyeva.
Provision of research materials: G.M. Baysarov, S.M. Adekenov.
Analysis and interpretation of data: A.O. Sapieva, T.S. Seytembetov.
Manuscript Preparation: A.O. Sapieva, A.T. Kazbekova, Sh.A. Madiyeva, A.K. Kenzheshov.
Final approval of the manuscript: A.O. Sapieva, T.S. Seytembetov.
Administrative support: A.O. Sapieva.

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SIAQA score: 10

UDC: 61

Original article

COMPREHENSIVE ASSESSMENT OF THE HEALTH STATUS OF STUDENTS OF THE REPUBLIC OF KAZAKHSTAN

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Kuat[1] Sultan Sabriuly, Bektursynova[1] Balausa Kulymbekovna,
Khasenova[1] Akerke Daurenkyzy.

ABSTRACT
Introduction: Young people are the locomotive of the prosperous future of any country, therefore, the training of highly qualified personnel is the main priority of a modern healthy society. To achieve this task, it is necessary to take into account a huge number of factors that contribute to the development and self-realization of the young generation of citizens, but the foundation will always be the physical and mental health of a person.
Materials and research methods: The survey included 301 students aged 17 to 26 years. The average age of the respondents was 18.7 ± 1.5 years. Among the study participants there were 134 boys (44.5%) aged 17 to 24 years (18.7 ± 1.5 years), girls - 167 (54.5%) aged 17 to 26 years (18.7 ± 1.5 years).
Results: Among students, the most common diseases of the digestive system and respiration (15.9%). 22.39% of men and 1.79% of girls use tobacco products, 22.39% of men and 14.97% of girls use alcoholic beverages. The physical activity of students is insufficient, only 1/4 of the survey participants are engaged in physical culture and sports. Of the total number of respondents, 20.9% are regularly exposed to stress, the trigger factors of which are problems that arise in the learning process.
Conclusions: It was established that 25.59% of students have chronic diseases, of which 1% have 2 or more chronic diseases. Students noted a heavy load in the educational process - 42% and in work - 31.9%, which does not allow to take care of their health. Analysis of the respondents' answers showed: 62.12% of boys and 95.2% of girls do not smoke; smoke for 1-3 years - 22.39% of boys and 1.79% of girls; smoked, but quit 16.42% and 2.99% respectively. 44.7% of boys, 19.7% of girls irregularly use alcoholic beverages, 52.2% and 77.6%, respectively, do not drink alcohol at all (the main reason for bad habits, students consider the stress caused by overloaded curricula). Only 26.25% of the respondents are actively involved in sports. Students' food is monotonous and erratic. There are long breaks in food followed by food load in the evening, which adversely affects the state of the gastrointestinal tract. The group of actually healthy students was only 22.3%. The remaining 77.7% have various deviations, that is, risk factors for the development of chronic diseases.
Key words: Students, Chronic diseases, Stress resistance, Risk factors, Healthy lifestyle.

[1]NJSC «Astana Medical University», 010000, Republic of Kazakhstan, Nur-Sultan, 49A Beibitshilik street.

Introduction.

Young people are the locomotive of a prosperous future for any country, so the training of highly qualified personnel is the main priority of modern healthy society. To achieve this goal, it is necessary to take into account a huge number of factors that contribute to the development and self-realization of the young generation of citizens, but the foundation will always be the physical and mental health of the person. For example, during the period of adaptation to new changing conditions, their sexual and physical development occurs, because it is during this period of life that young people graduate from schools, enter univer - sities, etc. And in universities, they are expected to study with high mental loads, a different lifestyle, independence, and a high level of responsibility.

According to official statistics, about 30% of University graduates are professionally unfit due to poor health, and 60% of them suffer from chronic diseases [1].

In connection with the above situation, we have conducted a study to assess the baseline health and the presence of risk factors for chronic diseases among students of various universities in the Republic of Kazakhstan.

Materials and research methods.

The survey included 301 students aged 17 to 26. The average age of the respondents was 18.7± 1.5 years. Among the participants in the study, 134 were boys (44.5%) aged 17-24 years (average age 18.7 ± 1.5 years), and 167 girls (54.5%) aged 17-26 years (average age 18.7 ± 1.5 years).

For statistical processing of experimental data, statistical criteria of differences were used for connected samples (paired T-Wilcoxon test and Mcnemar test) and disconnected samples (stu - dent's T - criteria, U-Wilcoxon test, Mann-Whitney test), Fisher's criterion, and correlation analysis (according to Pearson).

To determine the level of morbidity, the established diagnoses were encrypted using ICD codes of the 10th revision and intensive characteristics were calculated for disease classes and nosological forms.

The results and their discussion.

Based on data from the social survey, it was found that 25.59% of students enrolled in 1-5 courses have chronic diseases. Among students, digestive and respiratory diseases (15.9%) are the most common.

In the structure of morbidity, the first three places took diseases of the digestive organs, respiratory and musculoskeletal systems, allergies. Circulatory diseases were in the 4th place. This can be explained by a sedentary lifestyle, as mentioned by 75% of all respondents. The incidence rate per 1000 people for the following classes of diseases: digestive organs, nervous, respiratory systems, skin, and subcutaneous tissue, as well as allergies in girls, exceeds those in boys (1.8; 3.3; 1.3; 6.6; 2.7 times, respectively). However, diseases of the cardiovascular and musculoskeletal systems in boys are more common than in girls by 4 and 1.5 times, respectively.

It should also be noted that young men suffer from hypodynamia and obesity 5 times more than girls.

Besides, there is 1% of students who have several chronic diseases at the same time.

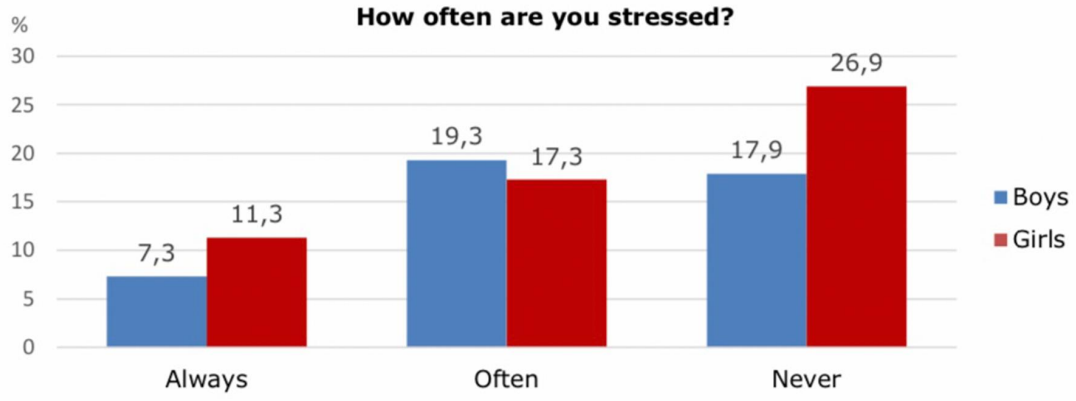

Figure 1 - Results of the study of the presence and intensity of stress in students

Data from an anonymous survey of behavioral risk factors revealed the prevalence of alcohol, smoking, and sedentary lifestyles. 22.39% of boys and 1.79% of girls use tobacco products, 22.39% of boys and 14.97% of girls use alcoholic beverages. Physical activity of students is insufficient, only one-quarter of the survey participants are engaged in physical culture and sports.

Student life is filled with difficult situations, so students often experience stress and neuropsychiatric stress. This stress develops due to a large flow of information, due to the lack of systematic work in the semester and, as a result, stress during the session. Therefore, the questionnaire included questions to assess the presence of stressful situations and the impact of the educational process on their health. The results are shown as a histogram in Figure 1.

This histogram shows that the level of constant stress is present in 18.6% of students. Girls are exposed to stress 1.56 times more than boys. According to the results of the observation, a trend was revealed that in addition to studying, 17.28% of boys and 14.62% of girls are engaged in part-time work outside of school, which affects the state of mental health, as the cause of stress in 15.63% of boys and 13.5% of girls are problems at work.

Figures 2 and 3 show the results of a study on the impact of the educational process on health.

Out of the total number of respondents, 20.9% are regularly exposed to stress, triggered by problems that arise in the learning process. The huge share of these problems is significant periodic loads during learning, in addition, 9% of students have problems with understanding the material, which is also a serious stressful factor.

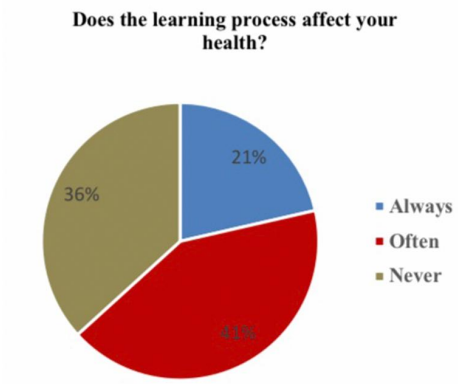

Figure 2 - Educational process and health

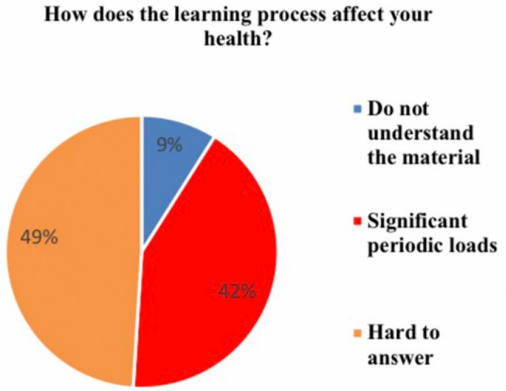

Figure 3 - Causes of stress during the educational

Comparing the results of our research with similar works, we can identify the tendency of girls to be susceptible diseases of the digestive and nervous systems, while boys suffer more from diseases of the cardiovascular system [2].

It also identified factors such as adaptation to the learning process, the state of the emotional and vegetative system, and chronic diseases that directly affect the level of health, but also indirectly, including the number of family members and financial situation. This study also does not exclude the influence of the student's origin (village, city), family size, and money spent monthly on health status.

Conclusions.

1. It was established that 25.59% of students have chronic diseases, including 1% who have 2 or more chronic diseases.
2. Students noted a high load in the educational process - 42% and in work - 31.9%, which does not allow them to take care of their health.
3. The analysis of respondents' responses showed that 62.12% of boys and 95.2% of girls do not smoke; 22.39% of boys and 1.79% of girls smoke for 1-3 years; 16.42% and 2.99% get rid of smoking, respectively.
4. 44.7% of boys and 19.7% of girls drink alcohol irregularly, and 52.2% and 77.6% do not drink at all, respectively.

5. Only 26.25% of respondents are actively engaged in sports. (Doctors agree that physical education and sports are necessary for optimal recovery of young people).
6. Students ' meals are monotonous and disorderly. There are long breaks in food followed by a food load in the evening, which adversely affects the state of the gastrointestinal tract.
7. The group of actually healthy students amounted to only 22.3%. The remaining 77.7% have different deviations, i.e. risk factors for developing chronic diseases.

Conclusion.

In modern society, the social significance of higher education is increasing. However, universities need to reformat their educational processes to help students in self-education, selfdetermination, moral self-improvement, and the development of social experience, while ensuring a high professional level of training for young people. Good health is essential as a resource of mental and physical strength for future work to preserve the health of the country's population. Human health is 50% dependent on lifestyle (diet, stress, living conditions, studies and professional activities), so improving health depends on the desire and ability to develop reasonable behavior under the conditions of life. It is necessary to learn to strengthen your health from the moment of birth. This, in many ways, should be facilitated by parents and teachers, and to a lesser extent by doctors. However, there is a lot of social pressure on young people (parents, social circle, teachers). As a result, students become more vulnerable to the influence of the factors identified by us, which significantly affects their health. Therefore, it is necessary to put the formation, preservation and strengthening of the health of young people, by the students themselves, in the first place.

Acknowledgement.

The authors express their gratitude and deep appreciation to Ph.D., Professor, Head of the Department "Public Health" NJSC "Astana Medical University" Turgambaeva Asiya Kairbaevna for advice and valuable comments during the work on this article. Also, express gratitude to Ospanova G. K. (senior lecturer in biostatistics, bioinformatics, and information technology in NJSC "Astana Medical University") for the special contribution in the writing of the article.

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SIAQA score: 12,5

UDC: 618.6-092

Original article

CESAREAN SECTION. PER TEMPUS POSTOPERATIVE

Nurzhanov[1] Khamit Nurzhanovich, Arystanova[2] Ardak Nurlanovna, Sakiyeva[2] Ayim Muratovna.

ABSTRACT

Introduction: Caesarean section (CA) (caesarean section) is a surgical operation in which the fetus and afterbirth are removed through an incision in the abdominal wall (laparotomy) and uterus (hysterotomy), with the restored integrity of the uterus and abdominal wall.

Materials and research methods: The study data were based on data on Caesarean section operations in 2018 at the Perinatal Center and Pediatric Cardiac Surgery (050060, Republic of Kazakhstan, Almaty, Basenova str., 2a), performed by 1507 women. For a more detailed analysis, complete information about the history of life and illness was taken, additional factors relevant for the study were taken into account.

Results: According to the indicators of this study, 149 out of 150 women who underwent caesarean section had a postoperative period without complications, and all women in labor were eventually discharged safely. Despite this, Caesarean section has a number of disadvantages for mother and baby during vaginal delivery, both before and after surgery.

Conclusions: Based on our study, more than half of the operated women underwent emergency surgery, and not as planned. The interventions, according to certain indications, were forced. This explains the importance of planning a pregnancy before it occurs and careful management of the pregnancy by the doctor and the woman herself.

Key words: Caesarean section, Laparotomy, Hysterectomy, Peritonitis, Fetal cardiomonitoring, IVF.

[1] UE based on the REM "Center of Perinatology and Pediatric Cardiac Surgery", 050060, Republic of Kazakhstan, Almaty, 2a Basenova street.
[2] NPI "Kazakhstan-Russian Medical University", 050000, Republic of Kazakhstan, Almaty, 51/53 Abylai Khan street.

Introduction

Caesarean section (caesarean section) is a surgical operation in which the fetus and the placenta are removed through an incision in the abdominal wall (laparotomy) and uterus (hysterotomy), and the integrity of the uterus and abdominal wall is restored [1].

History reference.

There are conflicting opinions about the origin of the name of the operation. According to one version, the operation got its name in honor of Guy Julius Caesar, which was extracted abdominally, for which he received the name Caesar [2].

In modern obstetrics, CS is of great importance, since with a complicated course of pregnancy and childbirth, it allows you to save the health and life of the mother and child. CS, like any surgical intervention, can have adverse consequences both in the immediate postope - rative period (bleeding, infection, pulmonary embolism (pulmonary embolism), embolism, peritonitis), and in long periods of a woman's life. Despite the use of high-quality suture material, complications of the operation in the mother continue to be recorded. CS can affect the further reproductive function of women: it is possible to develop infertility, habitual miscarriage, menstrual irregularities, placenta previa, placenta accrete during subsequent pregnancy. CS cannot always maintain the health of the child, especially with deep miscarriage, prolongation, infectious disease of the fetus, severe hypoxia [2,3].

Despite the possible complications of CS, the frequency of this operation is constantly growing throughout the world, which causes reasonable alarm for obstetrician-gynecologists of all countries. CS is performed in cases when delivery through the natural birth canal is impossible or dangerous for the life of the mother or fetus.

Objective reasons for the increase in the number of surgical operations in modern obstetrics are:

1. Decrease in parity (most primiparas);
2. An increase in the number of primiparous older age 30-35 years;
3. History of C-section;
4. The desire to expand indications for CS in the interests of the fetus;
5. An increase in the number of pregnant women with repeated attempts at in vitro fertilization (IVF);
6. Cicatricial changes in the uterine wall after myomectomy;
7. Hyperdiagnosis using additional research methods (fetal CTG, ultrasound, X-ray pelvic geometry).

Classification.

Surgical access for CS is most often abdominal and extremely rare at short gestation - vaginal.

Abdominal cesarean section is usually used for delivery with a viable fetus. It is produced to terminate a pregnancy for medical reasons in a short time (17-22 weeks), and then it is called a small caesarean section.

Depending on the location of the incision on the uterus, currently distinguish:

1. Corporeal (classical) CS - a section along the midline in the body of the uterus;
2. Isthmic-corporal - a section along the midline of the uterus, partly in the lower segment, partly in the body of the uterus;
3. Bottom CS - a section along the midline in the bottom of the uterus with a transition from the front wall to the back;
4. In the lower segment of the uterus, a transverse section with the opening of the vesicoureteral fold;
5. In the lower segment of the uterus, a transverse section without opening the vesicoureteral fold.

The most rational method of CS in the whole world is considered to be a transverse incision in the lower segment of the uterus.

Many obstetrician-gynecologists suggest that if there are indications for CS during pregnancy, it is preferable to carry out the operation in a planned manner, since it is proved that the number of complications for the mother and fetus is significantly less than those who underwent emergency interventions. But planned CS cannot prevent the negative impact of antenatal factors leading to the development of hypoxia or infection in the fetus, as well as a violation of the surgical technique of performing CS, can lead to trauma to the fetus during extraction. CS can also be performed on the basis of the testimony. These include a combination of postponed pregnancy and the unpreparedness of the birth canal, the age of the primiparous over 35 years and the large size of the fetus or previous prolonged infertility and pelvic presentation, etc.

Currently, the world is discussing the question of conducting CS at the request of a woman due to various motivations (fear of trauma to the child during childbirth, reluctance to experience pain during childbirth, changes in the anatomy and function of the genital organs after the spontaneous birth). Here it is necessary to explain to patients about the feasibility and benefits of natural childbirth, the doctor should make every effort to avoid delivering by CS at the request of the woman [4].

A special role in the outcome of CS for the mother and fetus is played by the determination of contraindications and conditions of operative delivery.

Contraindications:

1. Intrauterine death of the fetus or deformity incompatible with life;
2. Fetal hypoxia in the absence of urgent indications on the

mother, if there is no certainty in the birth of a living (single heartbeat) and a viable child.

With vital indications by the mother, the listed contraindications do not take into account.

Conditions for the CS:

1. A living and viable fetus. In the event of a threat to the life of a woman (bleeding during placenta previa, abruptio placentae, uterine rupture, neglected lateral position of the fetus, etc.), CS is also performed with a dead and nonviable fetus;
2. The consent of the patient to the operation. You must sign an informed consent for the operation [5].

Cesarean section technique.

CS is performed in an operating room by a specialist who knows the technique of abdominal gluttony in compliance with the rules of asepsis and antiseptics.

During the operation, a neonatologist and, if necessary, a pediatric resuscitator should be present. To produce CS, 4 methods of opening the anterior abdominal wall can be used (Figure 1):

1. Lower middle section, line a;
2. Lower-middle section with a detour;
3. Pfannenstiel section, line b;
4. Joel-Cohen section, line c [6].

Suturing of the uterine wound after cesarean section.

The technique of suturing the uterus and suture material (synthetic absorbable sutures: Vicryl, Dexon, Monocryl or Safil) is very important. Correct comparison of the edges of the wound is one of the conditions for the prevention of infectious complications, the strength of the scar, which prevents rheumatism during subsequent pregnancies and childbirth. Two or one-row muscle sutures are used. In many clinics, it is preferable to suture the incision in the uterus with double-row muscular to muscular of safil or vikryl sutures, while using both separate and continuous sutures.

Many obstetrician-gynecologists prefer to put a continuous single-row suture according to Reverden on the uterine incision. There is an opinion that a continuous suture causes myometrial ischemia, which in the future can lead to the development of scar failure. Therefore, individual seams are applied at a distance of no more than 1 cm [7,8,9].

The main purpose of the study is to study the indications and features of delivery by cesarean section and the course of the postoperative period.

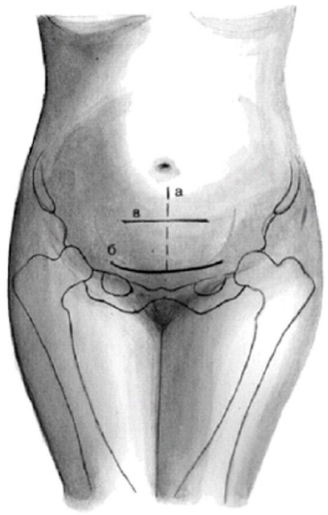

Figure 1 - cut lines at cesarean section.

Materials and research methods. In 2018, caesarean sections were performed on 1507 women at the Perinatal Center and Pediatric Cardiac Surgery (050060, Republic of Kazakh - stan, Almaty, Basenova St., 2a). As can be seen from Table 1, the largest number of women were operated on in August, only 150 women. For a more detailed analysis, we took the birth history of this month.

Results and its discussion.

1. Over 1 year (Table 1) in the PC and PCS, they delivered under caesarean section (CS) of 1507 pregnant women, they performed surgery more often in the month of August, compared to other months.
2. The majority of women in childbirth were between the ages of 30 and more (64.7%), which indicates an increase in the number of deliveries at an older age. The ethnic composition was dominated by Kazakh women (77.3%). According to the type of activity, among the women permitted by CS, the majority were women who were engaged in household work (60.6%).
3. The overwhelming number of women in labor had a favorable heredity (91.3%), as well as a large number of them with registered marriage (92.0%).
4. A third (30.7%) of pregnant women operated on and had a history of infectious diseases.
5. About 2/3 (62.6%) of the observed women had a history of somatic diseases, 45% of them with urinary tract pathology.

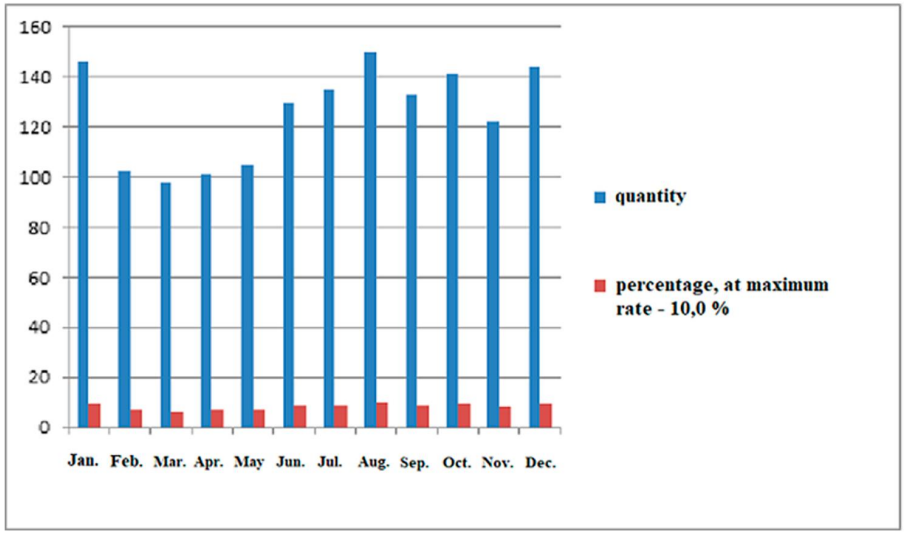

Diagram 1 - The number of cesarean section surgeries performed in 2018 at the Perinatal Center and Children's Cardiac Surgery in Almaty

In addition, 70% of women in labor underwent various surgical interventions. One third (36.7%) of the operated pregnant women had various gynecological diseases.

6. In 1/4 (26.6%) of pregnant women who underwent surgery, menstrual function began early (from 11-12 years), as well as early (from 15-19 years) sexual life (23.3%). In the majority (80%) - menstrual function went well.

7. Only in 1/5 (18.7%) of women this was the first pregnancy, and the rest were pregnant again, among which 24% of patients had a burdened obstetric history.

8. The overwhelming majority (78%) of pregnant women received birth through "self-treatment", the rest - by ambulance and only 2% - in the direction of women's consu - ltation.

9. Only half (49.4%) of the pregnant women who were operated were shown planned CS, while the rest were operated on urgently!

10. Basically (98%), operations of CS, according to the technique and duration, were performed according to the generally accepted method, with analgesia, in many cases (91.3%) by spinal anesthesia. In most cases (70%), a continuous single-row suture was applied to the uterus after the incision, and the rest had a double-row suture with vicryl, and, as a rule (95.3%), a cosmetic intradermal suture was applied to the skin.

11. Complications of the operation in the form of hypotonic bleeding were noted only in 1 operated woman in labor.

12. At the end of the surgical intervention, in 100% of the operated joints, the sutures healed by "primary intention", in almost all (93.3%) the postoperative scar was consistent.

13. The main part of women in labor who underwent surgery of the CS (81.2%) were in a hospital lasting from 4 to 9 days. 7.4% of the women spent more than 13 days, mainly due to problems with children. All examined women in labor, as well as their children were discharged in good condition under the supervision of doctors of the antenatal clinic and local pediatricians of the clinic.

Conclusion

According to the indicators of this study, in 149 out of 150 women who underwent cesarean section, the postoperative period was uneventful, and all women in labor, as a result, were safely discharged. But it is worth since at birth, the child must swallow a lot of beneficial bacteria contained in the birth canal. These bacteria create the very basis for the formation of a healthy microbiome. This is a big drawback of the operation, since after the first section of the uterus, without certain indicators, further labor through the vagina is contraindicated. It is also important to remember that any extraneous intervention in the human body, whether it is the operation itself or anesthesia, carries undesirable characteristics. Nature herself came up with the best method of delivery, let's not argue with her for no good reason!

A WHO spokeswoman, Dr. Marlin Temmerman, says: "Women who have cesarean have a higher risk of bleeding. Also, do not forget about the scars that have remained from previous births that have passed through surgical intervention. Serious complications can occur. And even in some developed countries, where cesarean is often done, a higher level of maternal mortality is registered in comparison with other developed countries. Of course, this operation is not the main cause of death among women in childbirth, but the link certainly exists."

Conclusions.

From year to year, the rate of delivery by Caesarean section around the world tends to increase. At the same time, there is a risk that this phenomenon may persist. Based on our study, more than half of the operated women underwent surgery urgently, and not in a planned manner. That is, interventions, according to certain indications, were forced. This explains to us the importance of planning a pregnancy before it occurs and the careful management of the pregnancy by the doctor and the woman herself. There is also a category of women who have chosen this method of childbirth on their own, because of their fear of the coming torment. In this case, the doctor must explain that there are different methods of relaxation and pain relief during childbirth, as well as invaluable support can be provided by a spouse or partner.

In this regard, it is necessary to develop new ways to reduce the number of operative delivery methods, just as carefully consider the indications for it in each case.

SIAQA score: 15,5

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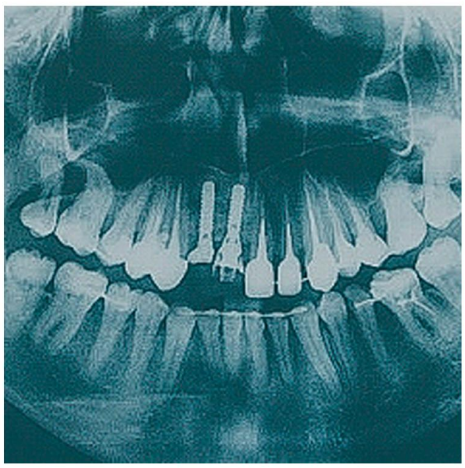
UDC: 616.314-77:616.325.1

REVIEW

MODERN MATERIALS FOR MANUFACTURING TEMPORARY PROTECTIVE STRUCTURES

Aldabergenova[1] Taurzhan Kalibekovna, Asanova[1] Aliya Kanatovna, Baitursynova[1] Ainur Beibutovna, Baimukanova[1] Asem Ernarovna, Erbaturova[1] Botazhan Bazylbekovna, Esengazina[1] Daniya Ruslanovna, Mirzatayeva[1] Assem Khassankyzy, Moldagali[1] Sultan Serikkazyuly.



ABSTRACT

Introduction: A prerequisite for replacing a defect in the teeth, dentition with fixed prostheses is the preparation of teeth. At all stages of orthopedic treatment with fixed prostheses, it is necessary to use temporary fixed prostheses to protect the prepared teeth from the influence of the oral microflora, external stimuli, replenishment of function, aesthetics and diction. This literature review discusses the use of modern dental materials for the manufacture of temporary fixed structures in orthopedic dentistry.

Materials and research methods: A patent literature review has been carried out for the last 10 years. During the review, were studied the full characteristics and requirements for modern materials for the manufacture of temporary fixed structures.

Results: Dental materials science is separated into a particular area of knowledge, and all dental materials are divided into three main classes depending on their chemical structure - ceramics, metals, polymers. An "ideal" material for dentistry must fully meet the following requirements: be biocompatible, withstand the effects of the oral cavity environment, ensure a strong and permanent connection with the hard tissues of the teeth, fully reproduce their appearance, have a complex of physical and mechanical properties corresponding to the properties of the tissues being replaced and, if possible, promote the healing and regeneration of biological tissues.

Conclusions: Analysis of literature data showed that the evolution of the problem of using synthetic substances and their combination for the manufacture of temporary fixed structures in the treatment of defects in hard tissues of teeth has led to the creation and implementation of high quality materials in terms of functional and aesthetic properties in dental practice. Methyl acrylic polymers are the materials that have received absolute dental recognition. Composite materials based on methyl acrylic polymers are in second place for the manufacture of temporary protective prostheses. In third place, non-composite materials made of methyl acrylic polymer are widely used in orthopedic practice. However, of particular interest is the fact that up to the present there are cases of undesirable side effects or ineffectiveness of prosthetics associated with the material of the orthopedic construction.

Key words: Provisional crowns, Modern polymers, Composite materials, Ceramics, Metals, Temporary nonremovable protective structures.

[1]NJSC "Astana Medical University", 010000, Republic Of Kazakhstan, Nur-Sultan, 33 Sary-Arka street.

Introduction

The necessity of manufacturing temporary protective structures to ensure high-quality treatment of defects in hard dental tissues and create the most comfortable conditions for the patient at all stages of prosthetics has been known since the 19th century [1,2,3]. This stage is a period from preparing the tooth for a permanent artificial crown to manufacturing and fixing the final prosthesis.

At the current stage of development of orthopedic dentistry, the manufacture of temporary protective structures is due to the high expectations and requirements of patients for dental treatment, especially when it comes to the restoration of teeth with highly aesthetic crowns [4,5,6,7]. The manufacture of temporary protective structures is dental treatment, especially when it comes to dental restoration with highly aesthetic crowns.

Using modern methods of planning and diagnostics, it has become much easier for the orthopaedic physician-dentist to achieve the predicted results of aesthetic rehabilitation. For this purpose, it can use X-ray data, clinical photographs, special software, diagnostic reproductions from wax and composite, allowing the patient to participate directly in the treatment process.

The use of temporary protective reproduction allows you to fully copy the appearance of future final restorations, and at the same time determine which corrections are required to fully integrate oral restorations, also provides com - fortable orthopedic treatment at all stages of prosthetics.

According to the protocols of the American Dental Association (ADA), which prescribe the volume and sequence of manipulations in the orthopedic treatment of patients using various fixed dentures, the manufacture of dental prostheses is a mandatory and integral part of medical operations. Orthopedic dentists of the Republic of Kazakhstan also offer and manu - facture temporary prostheses for their patients.

Purpose: To familiarize respondents with modern materials for the manufacture of tem - porary protective prostheses used nowadays in orthopedic dentistry.

Results and their discussion.

Dental material science is separated into a distinct field of knowledge, and all dental materials are divided into three main classes depending on the chemical structure—ceramics, metals, and polymers [13,14,15,16,17].

In modern dentistry, high functional and aesthetic requirements are imposed on materials intended for the manufacture of temporary protective prostheses [8,9,10,11,12]. And in dentistry, a combination of materials of different chemical nature is used, since none of the materials can be considered ideal [16,18].

The "ideal" material for dentistry must fully meet the following requirements: be biocompatible, resist the effects of the oral environment, provide a strong and permanent connection with the hard tissues of the teeth, fully reproduce their appearance, have a complex of physical and mechanical properties corres - ponding to the properties of the replaced tissues and, if possible, contribute to the recovery and regeneration of biological tissues [16,19,20].

Requirements for temporary protective materials.

Literature analysis has shown that temporary protective prostheses provide a comfortable state of the patient if they fully meet the requirements for temporary protective prostheses:

— provide thermal insulation of the tooth tissues from temperature influences and precise fit, eliminating edge see page;

— to avoid correction or alteration of permanent restorations ensure the stability of the tooth position, excluding its displacement;

— provide a full function of chewing and thus prevent the development of neuromuscular imbalance in the temporomandibular joint;

— provide a uniform redistribution of chewing load on the periodontium of remaining teeth;

— provide an accurate edge fit.

Inflammation caused by the overhanging edges of dental crowns can cause proliferation, recession, and bleeding when removing an impression or cementing a permanent resto - ration;

— has the same color and anatomical shape of natural teeth, thereby providing a good aesthetic and phonetic result;

— do not interfere with the hygienic treatment of the oral cavity. If the gum tissue remains healthy during the use of dental prostheses, this reduces the likelihood of problems during cementation and restoration;

— provide modeling of rational parameters of the future design of a permanent dental prosthesis;

— contribute to the rapid adaptation to the permanent prosthesis.

Properties of protective dental materials.

The analysis of material properties has not only theoretical but also practical significance associated with the regulation and prediction of properties by changing the chemical and compositional structure, technological modes of production for various areas of dentistry.

The entire set of properties of dental materials can be classified into physical, mechanical, chemical, aesthetic, biological, and techno - logical, which determine the possibility of manufacturing an orthopedic structure from a particular material [16,22]. The basic properties of dental materials include:

— physical: thermal conductivity, changes in linear dimensions and volume depending on temperature humidity and other factors, sorption of oral fluid, the possibility of galvanic currents (for metals), optical characteristics that determine the aesthetic quality of dental replacement, etc.;

— chemical: properties that provide molecular changes in the material as a result of chemical interactions; this class is associated with such important processes for use in dentistry as curing and adhesive interaction of the replacement material with the surrounding tissues;

— mechanical: a separate group of physical properties aimed at overcoming functional loads that affect the recovery materials and impose certain requirements on them.

The following requirements are applied to biocompatible dental materials: do not damage the pulp and soft tissues of the oral cavity; do not contain diffusioncapable substances of damaging action, sensitizing substances; do not have carcinogenicity; form reliable adhesive compounds with hard tissues of the tooth; have a regenerating and healing effect [16,22].

The biocompatibility of the material is assessed by the types of their effects on the body — it is general (resorptive) — allergic, toxic and local — mechanical, locally toxic, locally allergic, changes in temperature perception [16].

All materials for temporary structures are classified into categories, depending on the type of body tissue that the material should contact and the time of contact [21,22].

The aesthetic properties of materials and biocompatibility indicators are "tied" to their physical and chemical characteristics [16,22].

The mechanical properties of dental materials are very significant because chewing and other functional loads are forces that act on dental materials when replacing lost tooth tissues [16].

The most important characteristic of any material is its strength. It represents the ability of a dental prosthesis to resist the loads applied to it, without collapsing and without showing excessive and, especially, irreversible deformation [21,22,23].

An important indicator that determines the stiffness and ability of the material to withstand the applied loads without significant deformations is the modulus of elasticity. It is determined by knowing the stress and strain data that occur in a material sample under the action of the applied load force [24,25].

The adhesive ability of dental material is an essential characteristic of any material for the implementation of highquality prosthetics [26,27,28].

Some authors believe that sometimes adhesion may turn out to be stronger than cohesion, in such cases, when a tensile force is applied, a break occurs in the volume of the less durable of the two materials in contact [27,29].

The material that is applied in the process of obtaining an adhesive compound is called an adhesive, and the material that is applied is called a substrate [30].

There are several mechanisms for the formation of an adhesive compound due to different types of adhesive bonds [27,30,31]. Mechanical adhesion consists of jamming the adhesive in the pores or irregularities of the substrate surface; chemical adhesion is based on the chemical interaction of molecules in the surfaces of two materials that make up the adhesive compound [16].

In most cases, when using materials of various chemical nature for tooth restoration, an adhesive interaction takes place with the inclusion of mechanical, diffusion, and chemical components [21,22].

In recent years, aesthetics in dentistry has gained priority. The indicators that characterize the aesthetic properties of reducing materials include color, translucency, surface, gloss and fluorescence [21,22,32]. Important properties of dental restorative material include hygienic properties, which determine the ability of a material to be cleaned with means for hygienic cleaning of teeth and oral cavity and without changing its properties under their influence [21,22].

Polymers for the manufacture of temporary protective structures.

It should be noted that the industry of using crowns for temporary permanent prosthetics (unlike other orthopaedic directions) began

directly with the use of polymer materials. The term "polymers" was first introduced by J. J. Berzelius in 1833, in reference to substances of the same composition but different molecular weight. The synthesis of polymers is carried out by polycondensation and polymerization reactions, and the chemical structure of plastics is synthetic polymer materials [33,34,35].

There are thermoplastic and thermostable plastics. Thermoplastic materials are capable of repeatedly passing into a softened plastic state upon heating (these are materials based on polymers with a linear or branched structure). When reheated, thermostable plastics cannot go into a plastic state. They have a mesh or cross-linked structure that forms when the material is first heated.

The low strength of polymers in comparison with ceramics and metals is clear from the features of the molecular structure, according to which there are strong bonds within the polymer chains and weak — between the chains. Weak secondary bonds between polymer chains allow these chains to slide relative to each other at stresses much lower than the stresses required to break the bonds in the chains themselves [29]. The main attractive feature of plastics is their manufacturability and ease of manu - facturing dental products of any, the most complex shapes and purposes [16,19,20]. Neither metals nor ceramics have the same high technological properties as polymer materials.

Composites for the manufacture of temporary protective structures.

The hardness of composites is inferior to that of enamel, but is equal to or even higher than that of dentine [39].

Microfilled composites are thermally con - ductive with a large proportion of the polymer matrix than fine-filled composites or hybrid composites [16].

The shrinkage of micro-filled composites is greater than that of finely filled and hybrid composites [16, 21, 22].

The original color of polymer orthopaedic materials is much better and lasts longer [16].

The radiopacity of the restorative materials should be slightly higher than the radiopacity of the natural tooth enamel. This result can be achieved by introducing elements with a high atomic number into the filler, such as barium, strontium, and zirconium [16,21,22].

For the direct method of manufacturing temporary fixed structures, various cold polymerization plastics are used — mainly vinyl-ethyl-methacrylic ("Luxatemp", "DMG";" Protemp3","3MESPE", etc.) [24]. Table 1 describes the advantages and disadvantages of these polymers.

The emergence of bis-acrylic materials made it possible to simplify and speed up the method of manufacturing temporary fixed prostheses using the direct method. Additional advantages of this group of materials provide properties such as low polymerization temperature, no residual monomer, high strength, smooth surface, no smell, and color stability. When studying the color stability of various types of materials for the manufacture of temporary structures, a number of authors in different years confirmed minimal color changes in bis-acrylic materials [24].

Conclusion.

Analysis of the literature data has shown that the evolution of the problem of using synthetic substances and their combinations for the manufacture of temporary fixed structures, in the treatment of defects in hard dental tissues, has led to the creation and introduction of high-quality materials in dental practice in terms of functional and aesthetic properties.

Materials that have received absolute recognition from dentists are methyl acrylic polymers.

Composite materials based on methyl acrylic polymers are in second place in terms of application for the manufacture of temporary protective prostheses.

In the third place, non-composite materials made of methyl acrylic polymer are widely used in orthopedic practice [16,21,22].

However, it is of particular interest that there are still cases of undesirable side effects or ineffectiveness of prosthetics associated with the material of orthopedic construction [8,32,41].

Thus, the problem of using "perfect" materials for temporary permanent prosthetics, such as composite ones, still has some unresolved aspects.

Materials	Advantages	Disadvantages
Vinylethylmethacrylic	1. Low cost; 2. Does not stick to teeth; 3. Long period of working time.	1. Poor color stability and low aesthetics; 2. Bad smell when kneading; 3. Poor wear resistance
Methylmethacrylic	1. Low cost; 2. Good polish ability; 3. Acceptable color stability.	1. Polymerization heating; 2. Significant shrinkage; 3. Sticks to teeth; 4. Short working hours; 5. Unpleasant odor when kneading.
Bis-acrylic	1. Excellent mechanical properties; 2. Low temperature during polymerization; 3. Good polish ability; 4. Color stability; 5. Lack of smell; 6. Minimal polymerization shrinkage.	1. The presence of a layer inhibited by oxygen; 2. Invariable viscosity.

Table 1 – Comparative characteristics of various materials for temporary prostheses

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REVIEW

MODERN ASPECTS OF PROTECTION OF THE PREPARED TEETH

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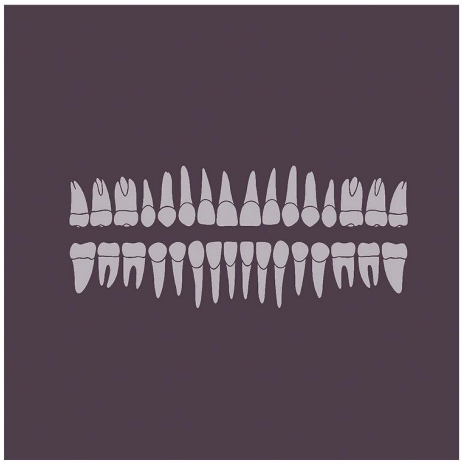
Aldabergenova[1] Taurzhan Kalibekovna, Asanova[1] Aliya Kanatovna, Baitursynova[1] Ainur Beibutovna, Baimukanova[1] Asem Ernarovna, Erbaturova[1] Botazhan Bazylbekovna, Esengazina[1] Daniya Ruslanovna, Mirzatayeva[1] Assem Khassankyzy, Moldagali[1] Sultan Serikkazyuly.



ABSTRACT
Introduction: Experiences that longed for many years in the use of temporary protective prostheses have proved the feasibility of their manufacture, and in world clinical practice it is not just normal, but the standard of prosthetics. All of the temporary restorations must meet clinical, functional, and aesthetic requirements and have to be fixed immediately after tooth preparation. This article describes modern technologies for the manufacture of provisional prostheses, summarizes the literature data.
Materials and research methods: In the course of the research, in order to achieve the set goal and achieve the planned results, a literature review was conducted over the past 15 years. The review examined various methods for the manufacture of temporary fixed structures used in prosthetic dentistry.
Results: At the moment, in orthopedic dentistry, according to many authors, the action of such factors as material and perfect methods of manufacturing temporary protective non-removable orthopedic structures comes to the fore.
Conclusions: The problem of choosing a material for these dental constructions is still relevant, in addition, there are still damages and violations of fixation of temporary fixed structures during the operational period, the addition of material-induced inflammatory changes in the tissues of the oral cavity, often the issues of the availability of materials in the aspect of economics .
Key words: Provisional crowns, Prepared teeth, Temporary fixed structures, Freeform method.

[1]NJSC "Astana Medical University", 010000, Republic Of Kazakhstan, Nur-Sultan, 33 Sary-Arka street.

Introduction.

In modern orthopedic dentistry, the wishes and requirements of patients who are concerned about aesthetic appearance, chewing disorders, speech formation during indirect restorations,as well as the condition of soft tissues around them are of great importance for the orthopedic dentist. In addition, patients can hardly tolerate the appearance of a prepared tooth and do not want to go with their teeth prepared for permanent restorations.

Many years of experience in the use of temporary protective prostheses has proven the feasibility of their manufacture, and in the world of clinical practice, this is not just the norm, but the standard of prosthetics.

The appearance, intensity, and dynamics of pain sensitivity after dental preparation under the influence of environmental factors depend not only on the degree of preparation of hard tissues, but also on the type of protective coating [1,2,3].

During temporary protective prosthetics, fixed structures are used with Pro-visor (temporary) crowns – these are orthopedic structures that are installed during the production of permanent prostheses. These structures are quite functional, allowing the patient to comfortably survive the period of prosthetics, as the patient is able to fully chew food and feel confident due to maintaining the aesthetics of the face and diction [1,2,4].

Failure to use temporary prostheses can lead to the appearance of pulpitis (infectious, thermal), the appearance of pathology of the temporomandibular joint, changes in the marginal boundaries of the preparation due to the displacement of the gingival edge. Opening the dentine tubules, the doctor must create a barrier to the penetration of bacteria. Therefore, a mandatory step after tooth preparation is the hybridization of surface dentin and the production of temporary protective structures [5].

Prolonged contact of saliva with unprotected stumps of teeth after their preparation leads to deep penetration of microorganisms into the open dentine tubules, which may result in insufficient effectiveness of aseptic dental treatment performed before permanent fixation of fixed prostheses. This, in turn, contributes to the destruction of the supporting teeth under the crowns in the long term as a result of secondary caries.

Some authors attribute the refusal to use temporary protective structures to the main medical errors that lead to complications of prosthetics [6].

Manufacturing of dental structures improves the adaptation to a fixed prosthesis, allows you to discuss with the patient the shape and color of the future design, allows you to make changes at the stage of temporary prosthetics, create conditions for healing and forming the internal epithelial lining of the marginal edge of the gum, injured as a result of dissection, allows you to reduce sensitivity and discomfort, providing thermal insulation and protection of the prepared tooth.

The only negative aspect of the use of temporary protective crowns is the additional time spent and the increase in the cost of the manufactured design of the dental prosthesis.

All temporary protective prostheses must meet clinical, functional, and aesthetic requirements and must be fixed immediately after dental preparation.

The purpose of the research: to study the problems of modern methods of manufacturing prosthetics as a preliminary stage of prosthetics with fixed permanent structures.

Materials and research methods: to achieve this goal and achieve the planned results, a review of the literature over the past 15 years was conducted. During the review, various methods of manufacturing temporary fixed structures used in orthopedic dentistry were studied.

Results and their discussion.

At the present stage of development of orthopedic dentistry, the action of such a factor as the material and advanced methods of manufacturing temporary protective fixed orthopedic structures comes to the fore, many authors believe [7,8,9].

Traditional methods for obtaining various types of temporary structures include direct and indirect methods [5,10,11].

Depending on the time of manufacture temporary prostheses are divided into the following types:

- direct prosthetics - "immediate prostheses" made before teeth preparation by clinical and laboratory methods;
- early prosthetics - prostheses made in one visit immediately after the preparation of teeth in the clinic [12].

Direct methods of fabrication of provisional prostheses.

A single-session, direct method of manufacturing dental prostheses with preserved anatomical shape of the teeth is known using

matrix technologies, where silicone or alginate impression materials, celluloid caps, mouth guards ("strips") and thermoplastic materials ("LuxaForm", DMG, Germany; basic wax) are used as the matrix. However, it should be remembered that they are not able to accurately display prosthetic tissues and do not have elastic properties [13].

The authors [14] consider the lack of a direct method of manufacturing a temporary crown in a pre-received impression with a base layer of silicone mass to be the presence of a preserved anatomical shape of the tooth before its preparation, which does not always happen in practice.

The literature describes a method for manufacturing temporary dentures by matrix method when the crown part of the tooth is destroyed using a photopolymer material Block-out Resin, which is included in the set of the system for teeth whitening "Opalescence" ("Ultradent", USA). Block-out Resin is applied layer by layer to hard tooth tissues to restore the anatomical crown, without using adhesive systems. Blockout Resin is well layered, easily packed with filling tools, provides satisfactory adhesion to the tooth tissues and is well treated with abrasive tools. After temporary restoration, the production of a dental crown is carried out using an impression [15].

It is proposed to manufacture dental crowns in the partial absence of teeth using matrix technology in a direct way (manufacturing the matrix directly in the oral cavity) using a silicone matrix in the absence of one tooth. To temporarily eliminate a dental defect, standard plastic teeth are used from removable denture headsets, which are sanded taking into account the dental defect and occlusal relationships. Fixation of the plastic tooth is carried out using Blockout Resin. Before preparing the supporting teeth, an impression is made using silicone or alginate impression materials. After receiving the impression, the artificial tooth is removed and the supporting teeth are prepared. A prostheses is made based on a previously obtained impression (matrix) [12].

There are known clinical (singlesession) methods of manufacturing temporary prostheses using standard factory sets of polymer temporary crowns of different sizes, styles, colors, and different firms. After selecting the crown of the required shape and size, it is stored in the neck edge in accordance with the contour of the neck of the tooth in the oral cavity. Then spend the specification of the topography of the stump of the tooth using self-curing plastic material, after polymerization of the plastic correction is made, the edges of the crown and fix it with temporary cements [12].

There is a direct method of manufacturing prosthetics using the freeform method, when the temporary restoration is made from polymer plastics of cold polymerization directly in the patient's mouth. After preparing the tooth for the future permanent structure, a plastic test is prepared. Next, the plastic is adapted to the stump of the tooth with closed dental rows. After hardening, excess plastic is removed by a milling cutter while simulating the anatomical shape of the future temporary crown [16].

There is a direct method of manufacturing temporary bridges from propylene, and their intermediate parts from self-hardening plastic [17].

As a result of a comparative clinical trial of temporary artificial crowns made directly from acrylic plastic-acryl oxide and composite plastic-Protemp-4, it was concluded that it is necessary to use Protemp-4 composite plastic, since It does not have a negative effect on the prepared teeth and surrounding tissues, as acryl oxide [18].

The effectiveness of the direct method of manufacturing temporary pin structures and crowns from fasthardening TEMPRON plastic is proved [19].

There are known direct methods of manufacturing provisional stump structures made of self-curing composite material "Structur 2 SC" and a silicone template that must be fixed to a temporary non-ethylene cement "TempBondNE" [20].

In order to improve the effectiveness of the preparatory stage of prosthetics, it was proposed to reuse the patient's permanent dentures that are subject to replacement [21].

A comparison of the technological properties of materials for the manufacture of temporary structures during prosthetic treatment with a direct method of composite materials Protemp 4 Garant firm 3M and Strucrur 2 SC firm Voco for strength, fracture, fluidity and the degree of exothermic showed that each material has its own indications for the manufacture of prosthetics:

- Structur is best used for temporary inlays, single crowns and bridges with an intermediate part of no more than one tooth, Protemp-when increasing the intermediate part;
- Structur may make it difficult to remove a newly made temporary structure, as there is a high risk of breaking off in the neck area;
- with Structur it is preferable to work in the cold season, with Protemp in the warm [22].

It is suggested that the manufacture of dental prostheses using the Wax-up method is the restoration of the shape of the future restoration with wax on a diagnostic plaster model, followed by the removal of the silicone wax-up template. The doctor-the stomatologist-orthopedist re - moves some silicone impressions with a wax reproduction on the model. One of the impressions is used as a matrix for making temporary structures, the rest are cut in different planes and used as templates for preparing the patient's teeth. After completion of the preparation, the initial matrix is filled with a polymer material and fixed in the patient's mouth [16].

Direct single-session methods of manufac - turing temporary prostheses have their advan - tages: the production of dental prostheses is carried out in one visit; they accurately repeat the anatomical shape of the tooth, ensuring individual shape and maintaining the position of the teeth; they do not need to be modified; speed and relative ease of manufacture, strength and good stabilization of the prosthesis; patients easily adapt to these structures; they do not require expensive equipment and special training of staff, which makes it possible to use it in an outpatient appointment without additional financial expenses of the doctor and the patient for its implementation.

Despite the relative perfection and technical "working out" of the direct method of manufacturing temporary permanent dental prosthetics by fixing crowns, immediately after preparing the teeth, its potential or actual effectiveness still depends on a number of factors: compliance with the necessary treatment conditions; on the qualification of the specialist; on the patient's conscientiousness in relation to the treatment and diagnostic process [24].

Indirect method of manufacturing temporary prostheses.

In the dental laboratory, you can make more aesthetic temporary restorations. With the help of various masses, the dental technician can adapt the color and structure of the restoration to the characteristics of the patient's natural teeth as much as possible.

The first stage of manufacturing temporary structures by indirect method is the removal of impressions for the manufacture of diagnostic models. In the laboratory, a technician on a model dissects teeth for a future temporary construction. Next, a simulation of a temporary structure made of wax is performed, followed by its replacement with plastic. The finished design is sent to the clinic. In the clinic, an orthopedic doctor dissects teeth using a model and a ready-made design as a template. After being stored and relocated, the finished structure is fixed on temporary cement [16].

The indirect method involves the production of temporary protective prostheses in a dental laboratory, which takes a certain time (from several hours to one day). Taking into account the need to cover the teeth immediately after preparation, it is more rational to use the direct method [5, 25].

An improved standard method for manufacturing a temporary crown using the indirect method according To N. G. Abolmasov is performed as follows: the gingival edge is cut to the deepest imprint in the gingival groove, thereby ensuring minimal immersion of the plastic crown edge in the gingival groove (no more than 0.5 mm), then the anatomical shape is modelled using colorless wax [26].

There is a known method for manufacturing temporary prostheses in the partial absence of teeth by an indirect method using matrix technology in the case of a dental row defect. This method is shown in the absence of up to 4 incisors for the group of front teeth and 2-3 teeth in the lateral Department. Manufacturing of the matrix by an indirect method can be carried out in a dental laboratory in parallel with carrying out operative manipulations on preparation of supporting teeth in the clinic by a dentist-orthopedist. This method allows you to make dental prostheses in one visit, saving the time of the doctor and the patient [13].

A method for manufacturing bridgelike temporary prostheses with an impression engraving is described. Before preparing the supporting teeth, a working impression is obtained. In the resulting print and remove the display of the vestibule of the oral cavity margins 2-3 mm from the level of the necks of the teeth preserved, which simplifies the reintroduction of the print, and using cutting tools to create indentations in the material in place of missing teeth. Next, the supporting teeth are prepared, the impression is filled with material for dental prostheses and the impression is inserted on the tissue of the prosthetic bed. At the end of the time of polymerization of the structural material, the impression is removed from the oral cavity, the prosthesis is separated from the impression material and processed. This method requires much more time, because it is almost impossible to engrave the impression in accordance with the anatomical shape of the missing teeth and with the preservation of occlusal relationships

between the dentition [14].

An indirect method of manufacturing dental crowns on a plaster model of the dentition using a cellulose plastic mouth guard by thermo - forming is proposed. From the obtained plate cut out the mouth guard, and then make cutting mouth guard on gingival line of restored teeth. After preparation of the supporting teeth, the mouth guard with artificial teeth is packed to the patient's dentition with a preliminary introduction of self-hardening plastic [26].

Each method of manufacturing temporary prostheses has disadvantages that can not be ignored:

1. on a plaster model made of self - curing plastic disadvantages: time and material costs; inability to reuse a wax reproduction of a temporary structure in order to accurately copy it in compliance with individual typological characteristics of the terrain.
2. by hot polymerization or injection method under pressure in the patient's oral cavity using a silicone template made from an unassembled plaster model after preliminary wax modeling - disadvantages: frequent need to reRefine the internal surface of the temporary crown, its correction when storing in the oral cavity; difficulty in reproducing all occlusal-articulation parameters and individual typological characte - ristics of the relief.
3. using a cap that is made from a set of "Adapta" - disadvantages: the use of an individually selected tooth from a set of artificial teeth does not provide the transfer of all individually typological characteristics of the relief of occlusal surfaces of teeth in the form of localization, areas of occlusal contacts and near-contact zones, occlusal surfaces of antagonizing teeth [27].

The literature also describes direct and indirect methods of manufacturing temporary crowns using a template tire, where a self - curing "paste-paste" system based on multifunctional ethers of methacrylic acid Structur 3 was used as a material for the temporary structure [28, 29].

Automatic CAD/CAM milling of temporary prostheses.

Currently, the most modern and most expensive method of manufacturing temporary structures using digital technologies is automatic CAD/CAM milling. The first stage of this method is to scan the model of the initial situation or take a digital impression of the patient's oral cavity. After scanning, the received data is processed, and special software allows you to simulate the type of future restoration on a computer screen and discuss it with the patient. The obtained data can be used for final prosthetics. As the source material, fully polymerized standard blanks are used, which consist of several layers and have an optimal shape. Blanks are available in 4 sizes (S, M, L, XL). The choice of a specific workpiece depends on the size of the temporary restoration. After milling, the finished restoration is separated from the standard workpiece by a cutting disc. In the clinic, the restoration is tried on in the oral cavity and fixed. Temporary structures do not require timeconsuming polishing, as they have a high surface quality and glossy gloss immediately after milling.

Using the method of manufacturing temporary structures using FDM (fused deposition modeling) 3D-printing on a 3D-printer, the authors achieved high anatomical and functional accuracy of the provision structures, reduced the time spent by the dentist and the amount of waste of expensive dental materials, without the participation of a dental technician [30].

An integral factor in the clinical success of implant-based prosthetics is the restoration of the removed tooth with a temporary prosthesis made using modern CAD/CAM systems, which allows you to simulate the optimal contour of the intermediate part of the temporary bridge in the soft tissue surrounding the implant. This, in turn, allows you to close the existing defects and create optimal conditions for the formation of an aesthetic gingival profile for final restoration, reliably protecting the augmentation from contact with saliva and food. Patients leave the clinic with a temporary structure that does not load the implant, thus supporting the twostage treatment process, and also protects it from adverse effects of the oral environment [31].

Conclusion.

The methods of manufacturing temporary protective prostheses described in the literature are relatively perfect at the present stage of development of orthopedic dentistry.

In particular, the problem of choosing the material for these dental structures is still relevant. The success of prosthetics depends on its characteristics.

There are still damages and violations of fixation of temporary fixed structures during the operational period, the addition of material-induced inflammatory changes in oral tissues, and often the issues of material availability in the economic aspect are not resolved.

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SIAQA score: 8

UDC: 612.12-007.2

CLINICAL CASE

A CASE OF COMBINED COURSE OF EBSTEIN ANOMALY AND WOLF-PARKINSONWHITE SYNDROME

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Sadykova[1] Dinara Zeinullovna, Rib[1] Elena Aleksandrovna,
Orazaly[1] Sholpan Serikbergenkyzy, Spabekov[1] Yessimkhan Baidibekuly,
Turanova[1] Assel Danyarkyzy, Ibrayeva[1] Gulzhazira Zeinulaevna,
Seilkhan[1] Aidana Asylkhankyzy, Bissen[1] Shynar Akhmetkyzy,
Mamyrov[1] Zhasulan Telibaevich.

ABSTRACT
Introduction: Wolff-Parkinson's (WPW) syndrome in patients with Ebstein's anomaly, according to various authors, occurs in 7-30% of cases. At the same time, mortality from not diagnosed and not eliminated arrhythmias, which are often found in this combined pathology, in patients who have successfully undergone surgical correction of a heart defect reaches 32%. As a reflection of the late diagnosis of Ebstein's anomaly and WPW syndrome, we give a clinical example of a patient with a long history of arrhythmia, manifested at a young age.
Materials and research methods: An analysis of the case histories of a patient who was hospitalized in the cardiology department of the City Hospital No. 1 of Nur-Sultan in February 2020 was carried out. The Department of Interventional Cardiology of the City Hospital No. 2 of Nur-Sultan in March 2020. Holter monitoring of this patient was performed on a General Electric apparatus (MARS system), echocardiographic examination was performed on a General Electric Vivid 7 apparatus. Electrophysiological examination (EPI) and radiofrequency ablation were performed at the Boston Scientific EPI station.
Results: After a comprehensive examination and RFA, the final diagnosis was made: "Latent WPW syndrome. DPVD of posterior paraseptal localization. Cardiac arrhythmia: paroxysmal form of atrial fibrillation. Condition after effective RFA of CPVD. Background disease: CHD. The postoperative period was uneventful. Disorders: no rhythm was observed (including with control HM ECG). Discharged with positive dynamics with recommendations.
Conclusions: Timely diagnosis of Ebstein's anomaly in this patient with an early history of arrhythmia could accelerate the correction of congenital heart disease, prevent the development of dilatation of the right heart chambers and, possibly, delay the development of pulmonary and chronic heart failure. In cases where immediate correction of the defect is not required, it is preferable to first perform RFA of the arrhythmogenic substrate in order to avoid the development of intra- and postoperative arrhythmias.
Key words: Ebstein anomaly, Wolff-Parkinson-White syndrome, Atrial fibrillation, Intracardiac electrophysiological examination, Radiofrequency ablation.

[1]NJSC «Astana Medical University», 010000, Republic of Kazakhstan, Nur-Sultan, 49A Beibitshilik street

The purpose of demonstrating this clinical case is to improve the diagnosis of Ebstein's anomaly in patients with arrhythmias, in particular with WPW syndrome, since timely diagnosis and correction of the combined pathology significantly increases the life expectancy of such patients.

Materials and research methods:
the analysis of medical records of a patient who was on inpatient treatment in the cardiology Department of the city hospital № 1 in Nur-Sultan in February 2020 and in the Department of interventional cardiology of City hospital № 2 in March 2020 was carried out.

Holter monitoring of this patient was performed on the GeneralElectric device (MARS system), echocardiography was performed on the GeneralElectricVivid 7 device.
Electrophysiological research (EFI) and radiofrequency ablation were performed on the BostonScientific EFI station.

Description of the clinical case. The patient, born in 1971, was taken by an ambulance team to the city hospital of Nur-Sultan with complaints of rapid, irregular heartbeat," heart disruption", discomfort in the pericardial area, nausea, double vomiting, general weakness. Arrhythmia attacks from the age of 17 were rare, short-term and were stopped earlier independently. Not examined. During the last 2 years, arterial hypertension with a maximum of 170 mm Hg, hypotensive drugs are taken situationally. The deterioration happened suddenly when a heart attack occurred. The patient independently took Valerian, validol - without effect. Called the ambulance team due to the remaining symptoms and deterioration of the condition. The ambulance team recorded an ECG, suspected ventricular fibrillation (Fig. 1), administered cordarone 300 mg intravenously (IV) - without effect, the patient was taken to an urgent clinic.

In the clinic, hospitalized in the cardio intensive care unit. During physical examination: the patient's condition is severe due to arrhythmia syndrome with high heart rate. The patient is conscious, adequate, oriented. The color of the skin and visible mucous membranes is normal. No peripheral edema. The skin turgor is preserved. Subcutaneous fat is moderately developed. With percussion of the lungs, a clear pulmonary sound is heard. Breathing in the lungs is vesicular, weakened in the lower parts, no wheezing is heard. Breathing 20/min.The heart area is not visually changed. The limits of relative stupidity are normal.

Heart activity is irregular, heart rate 240 / min. Blood pressure 110/70 mm Hg. The abdomen is soft and painless. Liver at the edge of the costal arch. The symptom of pounding is negative. On an ECG atrial fibrillation with a heart rate of 200/min. Wolf-Parkinson-White syndrome (WPW) is suspected (Fig. 2).

In the hospital, the patient underwent general clinical analyzes, chest x-ray, ultrasound of the carotid arteries, arteries and veins of the lower extremities - without pathology. A blood test was performed for the content of thyroid hormones to exclude the thyroid etiology of arrhythmia (T3 free 6.76 pmol / L, T4 free 38.34 pmol / L, TSH 0.23 μMU / ml), ultrasound of the thyroid gland (diffuse changes in the parenchyma of thyroid glands). Also, Holter ECG monitoring (HM ECG) was performed during therapy with beta-blockers and cordarone and echocardiography (EchoCG). With HM ECG, the main rhythm atrial fibrillation (AF), tachycardia during the day. During the day, the pattern is incomplete with the transition to complete blockade of the right leg of the bundle His (BRLBH), repeatedly throughout the day - transient conduction to the ventricles through the additional path of the atrioventricular connection (AVC) with a duration of QRS of 176 ms and delta waves in the left channels (Fig. 3). Also recorded single monomorphic ventricular extrasystoles (177 per day) and one episode of paired monomorphic ventricular extrasystoles. No ST segment changes detected.

When conducting echocardiography (the study was conducted on the background of arrhythmia), pathological changes from the left heart were not detected, the contractility of the left ventricle (LV) was normal (ejection fraction 55%). Noteworthy to dilation of the right ventricle (RV) to 34 mm, a decrease in its contractile function (12 mm TAPSE), dilatation of the fibrous ring of the tricuspid valve with tricuspid regurgitation of the 1st degree and pulmonary hypertension of the 1st degree (RSDLA 31 mmHg). The sinus rhythm was restored on the third day of stay in the department medically (received betablockers and cordaron according to the scheme). Against the background of the restoration of the sinus rhythm, an HM ECG was again performed, where recorded the main sinus rhythm, shortening of the PQ interval, negative T wave in the left channels, signs of incomplete BPNPG, an episode of ventricular tachycardia from 5 complexes, single and paired ventricular extrasystoles.

The patient was consulted by an arrhythmologist, and it was recommended that routine intracardiac electrophysiological studies (IC EPS) and radiofrequency ablation of an additional route be performed.

Discharged with positive dynamics. Then she entered the planned order according to the quota to the City Hospital No. 2 of Nur-Sultan for conducting IC EPS and RFA. At the clinic, upon admission, general clinical tests of blood and urine were performed (without pathology), blood tests for hepatitis B and C, HIV (negative), repeated echocardiography.

Echocardiography diagnosed with congenital heart disease - Ebstein's anomaly with tricuspid regurgitation of 4 degree, significant dilatation of the right atrium (apically 5.8 x 4.7 cm) and the right ventricle (apically 6.4 x 5.0 x 4.6 cm), pulmonary hypertension 2 degree (RSDLA 54 mm Hg), the contractility of the right ventricle is preserved (TAPSE 2.2 cm). Left departments without features (Fig. 4,5).

After detecting signs of an Ebstein anomaly on the Echocardiography, the patient was consulted by a cardiac surgeon and diagnosed with an «Ebstein Anomaly. Tricuspid insufficiency of 4 degrees. Pulmonary hypertension of 2 degrees. CHF FC (by NYHA)». Given the high frequency of development of tachyarrhythmias that were not eliminated before the operation on the tricuspid valve, which in most cases lead to death, it was decided to conduct the first stage of IC EPS and RAH AVC. Tricuspid valve surgery is recommended as planned. On the third day of their stay in the clinic, VSEFI (latent WPW syndrome. Paroxysmal orthodromic orientation tachycardia of the right ventricular posterior paraseptal localization) and effective RAH AVC were performed (20 minutes after RAH tachycardia was not induced by program and accelerating stimulation).

After a comprehensive examination and RAH, the final diagnosis was made: "Hidden WPW syndrome. AVC of posterior-paraseptal localiza - tion. Heart rhythm disturbance: paroxysmal form of atrial fibrillation. Condition after effective RAH AVC. Background disease: CHD". Postoperative period was uneventful. Rhythm disturbances was observed (including with the control HM ECG). It was written out with positive dynamics with recommendations:

1. planned plastic tricuspid valve (hospitalization as planned),
2. HM ECG in a month,
3. perindopril 4 mg to correct concomitant arterial hypertension,
4. cardiomagnyl 75 mg / day.

Conclusions:

1. Timely diagnosis of Ebstein's anomaly in this patient with an early history of arrhythmia could accelerate the correction of congenital heart disease, prevent the development of dilatation of the right heart chambers and possibly delay the development of pulmonary and chronic heart failure.
2. In cases where immediate correction of the defect is not required, it is preferable to first perform an RAH of the arrhythmogenic substrate in order to avoid the development of intra- and postoperative arrhythmias.

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SIAQA score: 13

"Medical University Astana - is a institute of higher education in the city of Nur-Sultan, opened in ı964 under the name of Tselinograd Medical Institution. Now this university is one of the most advanced in the whole CIS countries, with annually graduating more than 500 specialists from different faculties, which fill the ranks of domestic career personnel.

The first rector of the Institute was appointed Candidate of Medical Sciences Stanislav Poletaev (ı964 - ı970), who worked in the Kazakh Research Institute of Tuberculosis deputy director for scientific work. During his reign all main departments of the Institute were formed and the first student hostel was built.

From ı970 to ı978, candidate of medical sciences, associate professor Nikolay Mikhailovich Khomenko became a candidate of medical sciences. Under his guidance, the Institute opened a dissertation council to defend doctoral theses in the specialties "Surgery" and «General Anatomy", which became the first in Astana. The construction of two new hostel buildings was also started and lecture halls were modernized.

To replace Khomenko, in ı978 and until ı997 Professor Valentin Gavrilovich Korpachev was holding his position, a major scientist-pathophysiologist and founder of the experimental resuscitation in the Republic of Kazakhstan. At the Institute were organized the student clubs, were completed student hostels, as well as to this day there is a "Korpachev Scholarship", it is given to students who have excellent study results during the first 3 years of the bachelor's degree.

From ı997 to 200ı the Institute was headed by Corresponding Member of The National Academy of Sciences Rais Kazhkenovich Tulebaev. The same year the Institute was transformed into Akmola State Medical Academy. Until 200ı, 3 dissertation councils were opened at the Academy.

From 200ı to 2004, the rector of the Academy was Professor Polat Kazymbetovich Kazymbet, an outstanding scientist in the field of medical radiobiology. He opened the Faculty of Advanced Medical Studies with 6 departments: Obstetrics and Gynecology, Traumatology and Orthopedics, Pediatrics, Surgery, Internal Diseases, Anesthesiology and Critical Care.

In 2004 and up to 2007, the Academy was headed by an academician from the Academy of Medical Sciences, Professor, Doctor of Medical Sciences Zhaksylyk Akmurzaevich Doskaliev. Under his board, an educational association of medical universities of the Republic of Kazakhstan was established and a department for development of the state language was opened. A quarterly scientific and practical journal of national importance "otorhinolaryngology" began to be published.

From October 2007 to 2008, the Academy was headed by Doctor of Medical Sciences Timur Salavatovich Tapbergenov. Under hid guidance the resolution of the Government of the Republic of Kazakhstan № 45ı from May ı3, 2008 the republican state enterprise "Kazakh State Medical Academy" of the Ministry of Health of the Republic of Kazakhstan was reorganized into a joint stock company "Kazakh Medical Academy" with complete participation of the state in the authorized capital.

From December 2008 to 20ı0, the rector of the Academy was the Doctor of Medical Sciences, Professor, Honored Worker of the Republic of Kazakhstan, Ph.D. Zhaksybai Shaymardanovich Zhumadilov. January 6, 2009 JSC "Kazakh Medical Academy" was transformed into JSC "Medical University of Astana", which became part of the National Medical Holding.

From 20ı0 to February 20ı9 the University is headed by Doctor of Medical Sciences, Honored Worker of the Republic of Kazakhstan Mazhit Zeynullovich Shaydarov.

From February 28, 20ı9 by the order of the Minister of the Republic of Kazakhstan, Dainius Pavalkis was appointed to the position of Rector of NJSC «Medical University Astana" .

In total, NJSC "Medical University of Astana" was headed by ı0 rectors, each of them has made an unwavering contribution to the development of the university, as well as the establishment and development of our medicine.

And now we will tell you how to master a profession from God - to become a doctor, very often I face this question, both from future entrants, and from simply interested people. In total there are 5 faculties in the bachelor's system: "general medicine", "public health", "dentistry", "nursing", "pharmacy". The next 2 years of study are occupied by an internship - "General Medical Practice", followed by a residency - from 3 to 5 years, on the chosen specialty, after that a long way we can begin practical activities - the profession of their dreams. If you wish, to improve your skills and science, you can enter the magistracy, phD - doctoral studies. As a result, study at the Medical University takes from 7 years to ∞.

ALPHABETICAL INDEX OF ARTICLE AUTHORS:

INDEX OF TERMS:

SIAQA (The system of indicators for assessing the quality of articles) article

Assessment level	Metrics for determining the quality of IMMS journalarticles		Score	Score
Study design	1. Study design			3
	Observational descriptive	Case report	0,5	
		Case series	0,5	
		Cross -sectional study	0,5	
	Observational analytical	Case-control	0,75	
		Cohort	0,75	
	Experimenta luncontrolled		1	
	Experimental controlled	Randomised	1,5	
		Non-randomised	1,5	
	2. Article type			
	Review paper / perspectives – Review Articles		0,5	
	Short Communication Article – Short message		1	
	Full article		1,5	
Sample	3. Number of organizations included in the study			3
	1		0,5	
	2		1	
	>2		2	
	4. Response rate,% (the share of people who agreed to take part in the research in the total number of people who were invited to participate in the research)			
	Not applicable		0	
	<50		0,5	
	50-74		0,75	
	> 75		1	
Data type	5. Data type			3
	Assessment of the research participants themselves (ideas, theories)		0,5	
	Objective measurement (high-quality evidence)		1,5	
	6. Methodological foundations of research			
	Conformity SMART		0,5	
	Conformity FINER		0,5	
	Conformity PICOT		0,5	

Validity of assessment tools	7. Internal structure		3
	Not applicable	0	
	Not reported	0	
	Reported	1	
	8. Content (purposeful process of development of assessment tools)		
	Not applicable	0	
	Not reported	0	
	Reported	1	
	9. Relation to other variables (predictive or discriminant validity)		
	Not applicable	0	
	Not reported	0	
	Reported	1	
Data analysis	10. Feasibility o fanalysis		3
	Data analysis is not appropriate for study design and / or data type	0	
	Data analysis is suitable for study design and / or data type	1	
	11. Complexity of analysis		
	Descriptive analysis (means and variances only)	1	
	In addition to descriptive analysis, other methods are used	2	
Results	12. Results and their applicability		3
	Satisfaction / opinions and general facts	1	
	Attitude / perception	1	
	Knowledge, skills	1,5	
	Behavior (e.g. medical practice)	2	
	Patient / healthcare	3	

P.S. Developed on the basis of MERSQI (Medical Education Research Study Quality Instrument).