GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian. GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.


გუმბათით შექმნილი მედიცინა-ექსპერიმენტალური ჟურნალი, შექმნილი SCOPUS-ის, PubMed-ის, ვინიტი РАХ-ის მოვალეობით. ჟურნალი გამოცემული საქართველოში EBSCO-ს მოვალეობით. ვებსიტი

WEBSITE
www.geomednews.com
К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра в три сантиметра. Используемый компьютерный шрифт для текста на русском и английском языках - Times New Roman (Кириллица), для текста на грузинском языке следует использовать AcadNusx. Размер шрифта - 12. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применялись методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста в тiff формате.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.


В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статьи должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанной или напечатанной на бланке и заверенной подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.
REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or computer-printed on a single side of standard typing paper, with the left margin of 3 centimeters width, and 1.5 spacing between the lines, typeface - *Times New Roman* (Cyrillic), print size - 12 (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author’s name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**. Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.


In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title “References”. All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author’s original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

**Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.**
1. სტატიის სათანადო ფორმატში გამოყენებით უკავშირდეთ ძველი შექმნილ მოლექულა;

2. სტატიის მოლექულაში ამ მოლექულაში შეიყვანოთ 10 ადგილი, როგორც არ სახელმწიფო ადგილი მოლექულაში სტატიის 10 ადგილზე გამოყენებით პუნქტები 1 ადგილი. 3 წელის სახელში, სხვადასხვა და პროდუქციის თანხა 15 ადგილით გადაწყვეტილი იქნებოდა. გადაწყვეტილი თანხა ჰქონდა ცალი ან პროდუქციის შეერთებით - Times New Roman (კირილიკა), ხოლო ჭოროლექული ფორმატში სახელწოდებით AcadNusx. შესთავაზოთ ნახევარ – 12. სტატიის თან უკავშირდეთ CD სტატია.

3. სტატიის მოლექულაში ბიბლიოგრაფიის თანხა 15 ადგილით გამოყენებით სახელწოდებით უკავშირდეთ ნახევარ – 12.

4. სტატიის თან უკავშირდეთ უკავშირდეთ ძველი შექმნილ მოლექულაში სტატიის 3 ადგილით გამოყენებით პუნქტები 1 ადგილი. 3 წელის სახელში, სხვადასხვა და პროდუქციის თანხა 15 ადგილით გადაწყვეტილი იქნებოდა. გადაწყვეტილი თანხა ჰქონდა ცალი ან პროდუქციის შეერთებით - Times New Roman (კირილიკა), ხოლო ჭოროლექული ფორმატში სახელწოდებით AcadNusx. შესთავაზოთ ნახევარ – 12.

5. სტატიის თან უკავშირდეთ უკავშირდეთ ძველი შექმნილ მოლექულაში სტატიის 3 ადგილით გამოყენებით პუნქტები 1 ადგილი. 3 წელის სახელში, სხვადასხვა და პროდუქციის თანხა 15 ადგილით გადაწყვეტილი იქნებოდა. გადაწყვეტილი თანხა ჰქონდა ცალი ან პროდუქციის შეერთებით - Times New Roman (კირილიკა), ხოლო ჭოროლექული ფორმატში სახელწოდებით AcadNusx. შესთავაზოთ ნახევარ – 12.

6. სტატიის თან უკავშირდეთ უკავშირდეთ ძველი შექმნილ მოლექულაში სტატიის 3 ადგილით გამოყენებით პუნქტები 1 ადგილი. 3 წელის სახელში, სხვადასხვა და პროდუქციის თანხა 15 ადგილით გადაწყვეტილი იქნებოდა. მოლექულების ფორმატში ჰქონდა ზოგიერთი ფორმატი სახელწოდებით tiff ფორმატში. ზოგიერთი ფორმატში ჰქონდა ზოგიერთი ფორმატი სახელწოდებით tiff ფორმატში. ზოგიერთი ფორმატში ჰქონდა ზოგიერთი ფორმატი სახელწოდებით.
ACUTE MYOCARDITIS IN YOUNG AGE MIMICKING AS ST-ELEVATION MYOCARDIAL INFARCTION: CASE REPORT

CENTRALIZATION AND CORRUPTION IN HEALTH PROCUREMENT OF THE SOUTHERN EUROPEAN UNION COUNTRIES

AN ANALYSIS OF ANTIIDIABETIC THERAPY FOR TYPE 2 DIABETES IN PRIMARY HEALTH CARE (WESTERN KAZAKHSTAN)

PREVALENCE OF PRETERM DELIVERY AMONG WOMEN WHO RECEIVE PROGESTERONE SUPPLEMENTATION DURING PREGNANCY: CROSS-SECTIONAL OBSERVATIONAL STUDY

OSTEOSYNTHESIS OF COMPLEX COMMINUTED HAND BONE FRACTURES BY APPLYING THE LACING METHOD (A CLINICAL CASE STUDY)

SAFE USE OF INTRA-OPERATIVE TOURNIQUETS IN A DISTRICT HOSPITAL IN THE UK-AN AUDIT STUDY IN ORTHOPAEDIC THEATRES AND REVIEW OF CURRENT LITERATURE

POST−COVID-19 INFLAMMATORY RHEUMATOID ARTHRITIS REMISSION

KNOWLEDGE OF SECONDARY SCHOOL STUDENTS REGARDING PREVENTIVE MEASURES FOR RESPIRATORY INFECTION DISEASE IN TIKRIT CITY

FEASIBILITY AND EFFECTIVENESS OF GENERAL ANESTHESIA WITH OPIOIDS VERSUS OPIOID-FREE ANESTHESIA PLUS TRANSVERSUS ABDOMINIS PLANE BLOCK ON POSTOPERATIVE OUTCOMES AFTER MINI GASTRIC BYPASS SURGERY

PARTIAL PURIFICATION OF GLUTATHIONE PEROXIDASE ENZYME FROM WOMEN WITH BREAST CANCER

APPLICATION OF ARTIFICIAL INTELLIGENCE IN CIVIL AND MILITARY MEDICINE

COMPARATIVE STUDY OF OXIDATIVE STRESS IN PATIENTS WITH B-THALASSEMIA MAJOR ON DEFERASIROX VERSUS DEFEROXAMINETHYRE
Hinpetch Daungsupawong, Viroj Wiwanitkit.
COMMENT ON “A CROSS-SECTIONAL STUDY ON COVID-19 VACCINATION HESITATION AMONG UNIVERSITY STUDENTS.” ................................................................. 103-104

IMPROVEMENT OF THE METHODOLOGY OF BIOMATERIAL COLLECTION FOR THE DIAGNOSIS OF THE ORAL CAVITY MUCOSADISEASES.............................................. 105-108

Mkrtchyan S, Shukuryan A, Dunamalyan R, Sakanyan G, Galstyan H, Chichoyan N, Mardiyan M.
CLINICAL SIGNIFICANCE OF CHANGES IN QUALITY OF LIFE INDICATORS AS A METHOD FOR ASSESSING THE EFFECTIVENESS OF ENT HERBAL REMEDIES.................................................................................................. 109-116

OSAMA ARIM, Ali Alshalcy, Mohammed Z. Shakir, Omar KO. Agha, Heyder Alhamdany.
TRANSPECULAR SCREW FIXATION IN DEGENERATIVE LUMBOSACRAL SPINE DISEASE SURGICAL OUTCOME........... 117-121

Tavartkiladze G, Kalandadze M, Puturidze S, Parulava Sh, Margvelashvili V.
TEMPOROMANDIBULAR JOINT DISORDERS AND THE WAY OF THEIR OPTIMIZATION: A LITERATURE REVIEW........... 22-127

Mohammed Saarti, Mohammed D Mahmood, Loay A. Alehalaby.
OVERVIEW OF DRUG-INDUCED OROFACIAL CLEFT......................................................................................... 128-131

Tchernev G, Broshtilova V.
(NDMA) METFORMIN AND (NTTP) SITAGLIPTIN INDUCED CUTANEOUS MELANOMAS: LINKS TO NITROSOGENESIS, NITROSO-PHOTOCARCINOGENESIS, ONCOPHARMACOGENESIS AND THE METABOLIC REPROGRAMMING.......................................................................................................................... 132-143

ANALYSIS OF RISK FACTORS FOR ISCHEMIC STROKE IN RURAL RESIDENTS OF THE AKTOBE REGION.................. 144-150

EVALUATION OF THE EFFECT OF REBAMIPIDE ON THE PROGRESSION OF ULCERATIVE COLITIS IN RATS IN THE EXPERIMENT.......................................................... 151-153

Oleg Batiuk, Iryna Hora, Valeriy Kolesnyk, Inna Popovich, Oleksandr Sofilkanych.
MEDICAL AND LEGAL ISSUES OF OBSERVING THE RIGHTS OF A PERSON WITH A MENTAL ILLNESS WHO HAS BECOME A PARTICIPANT IN CRIMINAL PROCEEDINGS................................................. 154-160
Analyzing Antidiabetic Therapy for Type 2 Diabetes in Primary Health Care (Western Kazakhstan)

Yerlan Bazargaliyev1, Bibigul Tleumagambetova2, Khatimya Kudabayeva1, Raikul Kosmuratova1.

1Department of Internal Diseases №1, West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan.
2Department of Propaedeutics of Internal Disease, West Kazakhstan Marat Ospanov Medical University, Aktobe, Kazakhstan.

Introduction: Diabetes Mellitus Type 2 (T2D) represents a significant global health challenge, with increasing prevalence and the need for effective management strategies. Despite the widespread nature of the disease, there is disagreement regarding the optimal glycemic targets for patients with Type 2 diabetes. The American Diabetes Association recommends aiming for an HbA1C level of less than 7% (53 mmol/mol). About 50% of diabetes patients do not meet their glycemic targets, leading to an increased risk of chronic complications associated with diabetes. Although lifestyle modifications are crucial for prevention and management, most T2D patients eventually need pharmacotherapy to maintain control over their blood glucose levels. In Western Kazakhstan, a study was conducted to evaluate the efficacy of antidiabetic therapy in primary healthcare settings.

Aim: To assess the proportion of patients with uncontrolled glycemia among adult patients with T2D, and to analyze antidiabetic therapy in the primary health care (Western Kazakhstan).

Material and methods: The cross-sectional study involved 96 participants, divided into two groups based on their HbA1c levels: 32 patients with an HbA1c <7%; 64 patients with an HbA1c >7%. In the study 58 patients (60.6%) were female and 38 patients (39.4%) were male. Data analysis was performed using IBM SPSS 26 and GraphPad, employing Kolmogorov-Smirnov and Shapiro-Wilk tests for distribution, medians and interquartile ranges for non-normal variables, Chi-squared and Fisher's Exact tests for nominal variables, and representation of nominal data in absolute and percentage values.

Results and discussion: The study found that 66.67±5.89% of participants had unsatisfactory glycemic control at enrollment, with only 33.33±8.33% achieving the desired HbA1c level of <7% (p<0.005; t=3.26). Statistical analysis showed a significant association between higher glucose levels and the type of therapy, with insulin therapy more common in patients with glucose levels >7 (χ² = 5.500, df = 1, p < 0.05) and a similar correlation with SGLT-2 inhibitors (Fisher's Exact Test, p < 0.01).

Conclusion: Analysis of the data collected from urban polyclinics in Aktobe highlighted a troubling fact: two-thirds of the participants (66.67%) had unsatisfactory glycemic control. This is considerably lower than the 45% to 60% control rates reported internationally, indicating an area for significant improvement in the regional management of T2D. The study underscores the importance of a tailored therapeutic approach, balancing drug efficacy, patient response, and individual healthcare needs. Higher variability and blood sugar peaks were observed in patients with HbA1c levels above 7%. In the Western region of Kazakhstan, metformin was the most commonly prescribed antidiabetic drug, consistent with its first-line therapy status. Patients with HbA1c >7% were more likely to receive insulin therapy and SGLT-2 inhibitors, indicating their role in more intensive treatment strategies. Less use of incretins and sulfonylureas was noted among patients with HbA1c <7%, possibly due to their efficacy, safety profiles, or availability of newer alternatives. The findings call for enhanced strategies to improve diabetes management and increase the percentage of patients achieving their glycemic targets, aiming for a more personalized, patient-centered care model in Kazakhstan and potentially similar healthcare settings.

Key words. Type 2 diabetes, glycemic control, antidiabetic therapy, treatment effectiveness, Kazakhstan.

Introduction: Diabetes represents a significant challenge to global health. Estimates from 2021 suggest that 10.5% of the population aged 20–79 years suffers from diabetes, amounting to 336.6 million people. This number is projected to rise to 12.2%, or 783.2 million people, by the year 2045. The incidence of diabetes is comparable between men and women and peaks among individuals aged 75–79 years [1]. There is conflicting evidence regarding appropriate glycemic targets for patients with T2D [2]. According to the Standards of Medical Care in Diabetes published by the American Diabetes Association, HbA1C is the metric used to date in clinical trials demonstrating the benefits of improved glycemic control. The recommendations include blood glucose levels that appear to correlate with achievement of an HbA1C of <7% (53 mmol/mol) [3]. Globally, about half of patients with diabetes do not hit their glycemic targets. Poor glycemic control is directly related to chronic diabetes complications [4]. Although active lifestyle changes remain key to disease prevention and treatment, most patients with T2D ultimately require pharmacotherapy to effectively control blood glucose levels [5].

The percentage of adult patients with T2D who achieve an A1C goal of ≤7.0%, as recommended by the American Diabetes Association for most adults, ranges from about 45% to 60%, whereas, in insulin-treated patients it is 34% to 40% [6]. Similar results have been observed among the population of the United States, as documented in a recent retrospective analysis of a combined dataset from a randomized controlled trial, where 51.0% of patients achieved the target HbA1c level [7]. Adequate glycemic control with HbA1c <7.0% (53 mmol/mol) was found in 44.8% of people and, when using the less rigid target, HbA1c <8.0% (64 mmol/mol) for people aged ≥55 years-old, 70.6% had adequate glycemic control [8]. A cross-sectional...
nationwide survey was performed on 9956 subjects with T2D mellitus who consecutively attended primary care clinics. The rates of achieving targets for HbA1c, blood pressure, and lipids were 52.9%, 46.8% and 65.5%, respectively [9]. Within the whole study population (Czech Republic and Slovak Republic together) the target HbA1c of <7% was reached by 33.4% of patients [10]. In PANORAMA, 37.4% of patients enrolled were not at glycemic goal [11].

There are numerous international recommendations for the treatment T2D, published by the American Diabetes Association (ADA), the European Association for the Study of Diabetes (EASD) [12], and the International Diabetes Federation (IDF) [13]. These guidelines offer a comprehensive approach to managing T2D through lifestyle modifications, medication, and regular monitoring of blood glucose levels. They emphasize the importance of a patient-centered approach to treatment, taking into account the patient’s preferences, comorbidities, and risk of hypoglycemia. A study in Spain’s primary health care centers has underscored tailored treatment for T2D based on HbA1c levels. For patients with HbA1c ≤ 7.5%, metformin is recommended as the first-line treatment. When HbA1c is between 7.5% and 9%, initiating dual therapy is advised, with triple therapy as a further option for intensive glucose control. This approach aligns with evidence-based practices for personalized diabetes management [14]. Treatment options may be individualized, and medication(s) chosen based on a patient’s risk factors, current HbA1c level, medication efficacy, ease of use, patient’s financial situation/insurance/costs, and risk of side effects such as hypoglycemia and weight gain [15]. It is important to consider the individual characteristics of the patient and aim for optimal treatment outcomes. Our study is focused on identifying the key aspects of this global health issue by exploring the various barriers that prevent patients from achieving optimal glycemic levels.

**Aim:** To assess the proportion of patients with uncontrolled glycemia among adult patients with Type 2 Diabetes, and to analyze antidiabetic therapy in the primary health care (Western Kazakhstan).

**Materials and Methods.**

Our cross-sectional pilot study in Western Kazakhstan, recruited participants through random sampling at urban polyclinics from October to December 2023. Patient data was additionally collected via the DAMUMED (https://damumed.kz/) electronic health record system. Ethical approval was granted by the West Kazakhstan Marat Ospanov Medical University, with patients giving written informed consent, adhering to the Helsinki Declaration and Good Clinical Practice guidelines. We determined a sample size of 96, anticipating that 50% would have uncontrolled glycemia, with a 95% confidence level and a 10% margin of error. The sample size was calculated by the next formula:

\[
n = \frac{Z^2 \times p \times (1-p)}{E^2} = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.1^2} \approx 96.04
\]

Data analysis was performed using IBM SPSS 26 and GraphPad. The Kolmogorov-Smirnov and Shapiro-Wilk tests were used to check the distribution of the data. Non-normal variables were represented by medians and interquartile ranges, while nominal data were expressed in absolute and percentage values. The Chi-squared and Fisher's Exact test was applied for comparing nominal variables between two independent samples.

**Results and Discussion.**

In the study 58 patients (60.6%) were female and 38 patients (39.4%) were male. The patients were divided into two groups: 32 patients with an HbA1c <7%; 64 patients with an HbA1c >7% (Table 1).

<table>
<thead>
<tr>
<th>Table 1. Characteristics of surveyed patients.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Duration of Disease</td>
</tr>
<tr>
<td>Newly diagnosed</td>
</tr>
<tr>
<td>1-5 years</td>
</tr>
<tr>
<td>5-10 years</td>
</tr>
<tr>
<td>More than 10 years</td>
</tr>
<tr>
<td>BMI (Body Mass Index)</td>
</tr>
<tr>
<td>Normal (18.5 - 24.9)</td>
</tr>
<tr>
<td>Overweight (25-29.9)</td>
</tr>
<tr>
<td>Obese Class I (30-34.9)</td>
</tr>
<tr>
<td>Obese Class II (35-39.9)</td>
</tr>
<tr>
<td>Obese Class III (&gt;40)</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>15-20 years</td>
</tr>
<tr>
<td>21-30 years</td>
</tr>
<tr>
<td>31-40 years</td>
</tr>
<tr>
<td>41-50 years</td>
</tr>
<tr>
<td>51-60 years</td>
</tr>
<tr>
<td>Over 61 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2. Indicators of observed patients depending on HbA1c level.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameters</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Median (Q2; Q3)</td>
</tr>
<tr>
<td>Age, years</td>
</tr>
<tr>
<td>Duration of disease, years</td>
</tr>
<tr>
<td>HbA1c, %</td>
</tr>
</tbody>
</table>

Glycemic level analysis revealed that at the time of enrolment into the study, two-thirds 66.67±5.89% of the participants had unsatisfactory glycemic control, with only 33.33±8.33% of patients achieving the desired HbA1c <7% (p=0.005; t = 3.26). The median of BMI is slightly lower in the group with HbA1c above 7%, though the difference is not significant; both groups fall into the overweight category according to WHO standards. Typically, the duration of the disease tends to be longer in patients with better glycemic control, which might suggest a progression towards more effective treatment strategies over time. As anticipated, the HbA1c percentiles are higher for the
group with HbA1c levels above 7%, indicating greater variability and higher blood sugar peaks. This observation underscores the complexity of managing T2D, where achieving and maintaining target glycemic levels often requires a multifaceted approach tailored to individual patient profiles, including their medical history and responses to treatment. The average age of patients with an HbA1c >7% was slightly lower than that of patients with an HbA1c <7%, suggesting that age is not the sole factor determining glycemic control (p=0.03; t=1.82) (Table 2).

We conducted an analysis of antidiabetic therapy and its role in achieving target levels in patients with T2D. In the Western region of Kazakhstan, metformin remains the most commonly prescribed drug for patients with T2D, aligning with its status as a first-line therapy due to its efficacy in achieving desired glycemic levels. Among those with an HbA1c above 7%, however, there is a greater reliance on insulin therapy and SGLT-2 inhibitors, suggesting their importance in more intensive treatment strategies. Conversely, the use of incretins and sulfonylureas is less prevalent, particularly among patients with HbA1c below 7%, which may be attributed to their efficacy, safety profile, or the availability of newer alternatives (Figure 1).

The data analysis also revealed a statistically significant association between blood glucose levels and the type of therapy administered. Patients with glucose levels greater than 7 were more likely to be on insulin therapy ($\chi^2 = 5.500$, df = 1, $p < 0.05$). Additionally, a significant correlation was found between higher glucose levels and the use of SGLT-2 inhibitors (Fisher's Exact Test, $p < 0.01$), indicating a targeted approach to managing elevated blood glucose levels.

Additionally, a substantial association was observed between glucose levels and chosen therapy ($\chi^1 = 13.050$, df = 2, $p < 0.001$), suggesting monotherapy is common in patients with glucose ≤7, while those with glucose >7 often require multidrug treatment (Figure 2).

Our study's findings, where only 33.33% of patients achieved an HbA1c goal of ≤7.0%, align with international benchmarks but fall on the lower end of the global range of 45% to 60% [6]. This figure is comparable to the results from the Czech Republic and Slovak Republic [10] but lower than the control rates observed in a primary care setting in a nationwide survey and the U.S. population [7]. Notably, our rate of uncontrolled glycemia (66.67%) is higher than that reported in the PANORAMA study [11]. These differences may reflect regional healthcare practices and underline the necessity for more personalized treatment strategies, particularly considering the improved control rates seen with less stringent targets in older populations.

Our study showed that 72% of patients were prescribed metformin, indicating its widespread acceptance, while 28% were not on metformin therapy. Only 20% of patients were on sulfonylurea treatment, and incretins were administered to 28% of the patients, emphasizing the varied approaches to diabetes management that reflect both clinical guidelines and patient preferences. Moreover, SGLT-2 inhibitors were used by 18% of the patient population, whereas a notable 82% did not receive this medication. The widespread use of metformin as a first-line treatment in both studies underscores its global acceptance and reflects adherence to international guidelines. The difference lies in the subsequent steps for those with higher HbA1c levels, where the Spanish study advocates for dual or triple therapy, potentially including newer agents earlier in the treatment process compared to the Aktobe study.

**Conclusion.**

Analysis of the data collected from urban polyclinics in Aktobe highlighted a troubling fact: two-thirds of the participants (66.67%) had unsatisfactory glycemic control. This is considerably lower than the 45% to 60% control rates reported internationally, indicating an area for significant improvement in the regional management of T2D. Metformin remains the most widely used first-line therapy, reflecting global treatment
patterns, with 72% of our patients on this medication. However, for those with HbA1c levels above 7%, there is a significant shift towards insulin therapy and SGLT-2 inhibitors, signaling a move towards more aggressive treatment regimens in patients with more challenging glycemic control. Therapeutic choices in our population mirror global trends but also show a marked preference for certain treatments, which could be influenced by factors such as drug efficacy, safety profiles, or local healthcare policies. The use of sulfonylureas and incretins is less prevalent, potentially due to newer alternatives being available, and only 18% of patients were treated with SGLT-2 inhibitors. The study underscores the significance of personalized medicine, as monotherapy was more commonly used among those with HbA1c ≤7%, while patients with higher levels often required combination therapy. This suggests a tailored approach, possibly reflecting a balance between medication efficacy, patient-specific responses, and adherence.

REFERENCES


7. Blonde L, Brunton SA, Chava P, et al. Achievement of target HbA1c ≤7%, while patients with higher levels often required combination therapy. This suggests a tailored approach, possibly reflecting a balance between medication efficacy, patient-specific responses, and adherence.

References:


7. Blonde L, Brunton SA, Chava P, et al. Achievement of target HbA1c ≤7%, while patients with higher levels often required combination therapy. This suggests a tailored approach, possibly reflecting a balance between medication efficacy, patient-specific responses, and adherence.

References:


7. Blonde L, Brunton SA, Chava P, et al. Achievement of target HbA1c ≤7%, while patients with higher levels often required combination therapy. This suggests a tailored approach, possibly reflecting a balance between medication efficacy, patient-specific responses, and adherence.

References:


7. Blonde L, Brunton SA, Chava P, et al. Achievement of target HbA1c ≤7%, while patients with higher levels often required combination therapy. This suggests a tailored approach, possibly reflecting a balance between medication efficacy, patient-specific responses, and adherence.

References:


patients (60.6%) were women and 38 patients (39.4%) were men. The analysis involved use of IBM SPSS 26 and GraphPad, with the test of Kolmogorov–Smirnov and Shapiro–Wilk tests for distribution, medians and interquartile ranges for non-normal variables, Chi-squared and Fisher's Exact tests for nominal variables, and representation of nominal data in absolute and percentage values.

Conclusion: The study found that 66.67±5.89% of participants had unsatisfactory glycemic control at enrollment, with only 33.33±8.33% achieving the desired HbA1c level of <7% (p=0.005; t=3.26). Statistical analysis showed a significant association between higher glucose levels and the type of therapy, with insulin therapy more common in patients with glucose levels >7 (χ² = 5.500, df = 1, p < 0.05) and a similar correlation with SGLT-2 inhibitors (Fisher's Exact Test, p < 0.01).

Material and methods: The cross-sectional study involved 96 participants, divided into two groups based on their HbA1c levels: 32 patients with an HbA1c <7%; 64 patients with an HbA1c >7%. In the study 58 patients (60.6%) were female and 38 patients (39.4%) were male. Data analysis was performed using IBM SPSS 26 and GraphPad, employing Kolmogorov–Smirnov and Shapiro–Wilk tests for distribution, medians and interquartile ranges for non-normal variables, Chi-squared and Fisher's Exact tests for nominal variables, and representation of nominal data in absolute and percentage values.

Results and discussion: The study found that 66.67±5.89% of participants had unsatisfactory glycemic control at enrollment, with only 33.33±8.33% achieving the desired HbA1c level of <7% (p=0.005; t=3.26). Statistical analysis showed a significant association between higher glucose levels and the type of therapy, with insulin therapy more common in patients with glucose levels >7 (χ² = 5.500, df = 1, p < 0.05) and a similar correlation with SGLT-2 inhibitors (Fisher's Exact Test, p < 0.01).

Conclusion: Analysis of the data collected from urban polyclinics in Aktobe highlighted a troubling fact: two-thirds of the participants (66.67%) had unsatisfactory glycemic control. This is considerably lower than the 45% to 60% control rates reported internationally, indicating an area for significant improvement in the regional management of T2D. The study underscores the importance of a tailored therapeutic approach, balancing drug efficacy, patient response, and individual healthcare needs. Higher variability and blood sugar peaks were observed in patients with HbA1c levels above 7%. In the Western region of Kazakhstan, metformin was the most commonly prescribed antidiabetic drug, consistent with its first-line therapy status. Patients with HbA1c >7% were more likely to receive insulin therapy and SGLT-2 inhibitors, indicating their role in more intensive treatment strategies. Less use of incretins and sulfonylureas was noted among patients with HbA1c <7%, possibly due to their efficacy, safety profiles, or availability of newer alternatives. The findings call for enhanced strategies to improve diabetes management and increase the percentage of patients achieving their glycemic targets, aiming for a more personalized, patient-centered care model in Kazakhstan and potentially similar healthcare settings.
იუხერ ზიუხურო რეგიონში მიბმა 0.67%-ზე ნაკლები ჰქონდა გლიკემიური კონტროლი. ეს მნიშვნელოვნად დაბალია, ვიდრე საერთაშორისო დონეზე მოხსენებული 45%-დან 60%-მდე კონტროლის მაჩვენებლები, რაც მიუთითებს T2D-ის რეგიონალური მენეჯმენტის მნიშვნელოვან გაუმჯობესების სფეროზე. კვლევა ხაზს უსვამს მორგებული თერაპიული მიდგომის მნიშვნელობას, ბალანსირებს წამლის ეფექტურობას, პაციენტის რეაქციას და ინდივიდუალური ჯანდაცვის საჭიროებებს. უფრო მაღალი ცვალებადობა და სისხლში შაქრის პიკი დაფიქსირდა პაციენტებში HbA1c 7%-ზე მეტი დონის მქონე პაციენტებში. ყაზახეთის დასავლეთ რეგიონში ყველაზე ხშირად გამოწერილი ანტიდიაბეტური პრეპარატი იყო მეტფორმინი, რომელიც შეესაბამება მისი პირველი რიგის თერაპიის სტატუსს. HbA1c >7% პაციენტები უფრო მეტად იღებდნენ ინსულინოთერაპიას და SGLT-2 ინჰიბიტორებს, რაც მიუთითებს მათ როლზე უფრო ინტენსიური მკურნალობის სტრატეგიებში. ინკრეტინების და სულფონილშარდშარდოვანი ნაკლები გამოყენება აღინიშნა HbA1c <7% მქონე პაციენტებში, შესაძლო მათი ფერებისმოთხოვების, რეაქციებისთვის არ უფრო ახლა ადგილისცილგების ჰორმონების გამო. დაკრულება მოთხოვს გაძლიერებული სტატერეზიის, რომელმა შეგვიძლია ანტიდიაბეტური ტრენინგი, შეაფარებს თავის პატივსაცემო პროცესის საშუალებას, ისევე როგორც სპორტი გამოყენება, საჭირო ხდება ადგილმდებარე ჯანდაცვის პირობებში.