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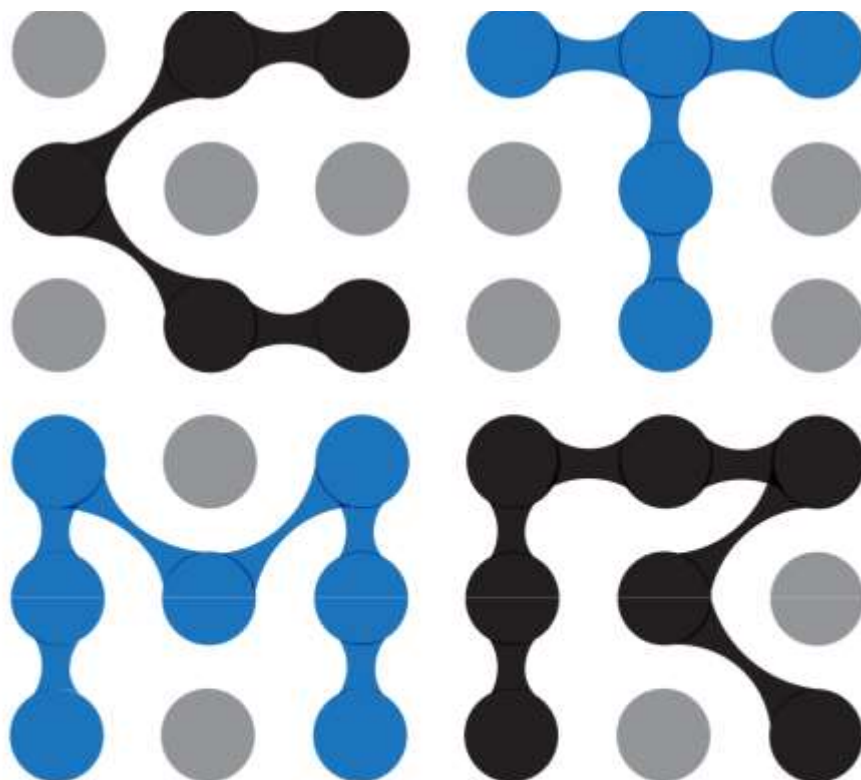
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HEATING SWIMMING POOLS WITH SUNLIGHT IN THE CONDITIONS OF UZBEKISTAN**Jo'rayev Nurali Jumaboy o'g'li¹, Mirsaidova Gulbahor Mirabitovna²**¹ Teacher of physics at the academic lyceum of the Samarkand branch of the Tashkent University of Information Technologies² Samarkand State Institute of Architecture and Construction Academic Lyceum Physics teacher

Abstract. In this thesis, we explore the efficiency of using solar energy to heat swimming pools in Uzbekistan, a country with a hot, sunny climate. We analyze various factors influencing the effectiveness of solar pool heating systems, including climate conditions, material choices, design configurations, and cost-benefit analysis. We aim to provide a comprehensive evaluation of the viability of solar heating systems for pools in Uzbekistan, discussing both technical and economic implications.

Keywords: *solar energy, pool heating, climate, solar irradiance, swimming pools, flat-plate collectors, evacuated tube collectors, unglazed collectors, system efficiency, energy modeling, thermal performance, insulation.*

I. Introduction

Uzbekistan, located in Central Asia, experiences a continental climate with hot summers and cold winters. These conditions make it an ideal location for implementing solar energy systems. This thesis focuses on the efficiency of using solar energy to heat swimming pools in Uzbekistan. With increasing energy prices and a growing interest in sustainable solutions, solar energy systems are an attractive option. We explore the potential savings, system performance, and long-term benefits of solar pool heating, considering the specific environmental and economic context of Uzbekistan.

II. Background and Literature Review

Solar Energy in Swimming Pool Heating. Solar energy has become a widely accepted source of power for various applications, including pool heating. Studies such as those conducted by [1] have explored the general principles of solar thermal energy systems, highlighting the suitability of solar energy for pool heating due to the relatively low-temperature requirements. Research by [2] further elaborates on the efficiency of solar collectors, noting that even in non-tropical climates, solar heaters can significantly reduce energy costs for swimming pools.

Climate Conditions of Uzbekistan. Uzbekistan experiences over 3,000 hours of sunlight annually, with high solar irradiance during the summer months. According to a report by the [3], the country's geographic location and climate make it one of the sunniest places in Central Asia. However, winter temperatures can drop significantly, which poses a challenge for year-round pool heating. Therefore, the analysis of solar heating systems must consider the seasonal variations in solar energy availability.

Existing Technologies for Solar Pool Heating. Solar pool heaters typically consist of flat plate collectors, evacuated tube collectors, and unglazed collectors. Studies by [4] have shown that unglazed collectors are most effective for heating pools due to their simplicity and cost-effectiveness. These systems use the sun's heat to directly warm pool water, which is then circulated back into the pool. The efficiency of these systems depends on factors such as insulation, water flow rate, and the collector's angle to the sun.

III. Methodology

Data Collection and System Design. To assess the efficiency of solar pool heating systems, we collected data on climate conditions, pool usage patterns, and system specifications. We conducted energy modeling based on real solar irradiance data in Uzbekistan. Our

methodology follows a hybrid approach, combining field experiments with theoretical modeling to calculate thermal energy output and system efficiency.

Energy Modeling and Efficiency Calculations. We used established formulas for calculating solar collector efficiency, focusing on parameters such as collector surface area, water temperature increase, and ambient air conditions. The energy equation for heat gain in the pool water can be expressed as:

$$Q = A \cdot G \cdot \eta \cdot t \quad (1)$$

Where: Q - is the total heat energy gained (kWh), A - is the collector area (m^2), G - is the solar irradiance (kWh/m^2), η - is the system efficiency, t - is the time period of operation (hours).

IV. Case Study of Uzbekistan

Pool Heating Needs Based on Climate. Swimming pools in Uzbekistan are typically used from April to October. During these months, the pool water naturally warms due to high ambient temperatures. However, during the shoulder months (April-May and September-October), solar heating is necessary to extend the swimming season. Our study examines the amount of energy required to maintain comfortable swimming temperatures ($26-28^{\circ}C$) during these periods.

Application of Solar Heating Systems. Based on real-world data, we analyzed a $50 m^3$ residential pool in Tashkent. The solar pool heater system designed for this pool consists of flat-plate collectors with an area of $20 m^2$. The collectors are installed at an angle of 30 degrees to optimize energy absorption during the summer months.

V. Efficiency Analysis

Thermal Performance of Solar Heaters. The efficiency of the solar pool heating system was found to be between 60-80% under optimal conditions. During the summer months, the system could raise the pool temperature by $4-5^{\circ}C$ over a period of 6 hours. However, during the cooler months, the efficiency dropped due to lower solar irradiance.

Factors Affecting System Efficiency. Several factors were identified that impact the efficiency of the solar pool heating system:

Collector Orientation and Tilt: In Uzbekistan, the ideal tilt angle for solar collectors is approximately 30-35 degrees.

Insulation of the Pool: Heat loss due to evaporation and inadequate insulation significantly reduces efficiency.

Pump Flow Rate: A higher flow rate ensures better heat transfer, though it may increase energy consumption for pumping.

VI. Cost-Benefit Analysis

The cost of installing a solar pool heating system in Uzbekistan is estimated to be between \$3,000 and \$5,000, depending on the size of the pool and the system's complexity. Based on energy savings, the payback period is approximately 3-5 years, making it a financially viable option for residential and commercial pools. In the long term, solar pool heating systems offer significant cost savings compared to conventional gas or electric heating systems.

VII. Conclusion

In conclusion, solar energy is a highly efficient and cost-effective method for heating swimming pools in Uzbekistan, particularly during the warmer months. The country's high solar irradiance provides an excellent opportunity for utilizing solar pool heating systems. While there are challenges during the colder months, proper system design and insulation can mitigate efficiency losses. The financial benefits, combined with environmental advantages, make solar pool heating a promising solution for Uzbekistan's swimming pool owners.

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Central Asian Jadidism movement in the first half of the 20th century

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Abstract: In my article, I provided information about the Jadidism movement in Central Asia in the 20th century and its bloodbath in 1938.

Key words: science, culture, spirituality, people, nation, freedom movement, statehood, repression

Jadidism was a late 19th and early 20th-century intellectual and socio-political reform movement among the Muslim populations of Central Asia, especially under Russian rule. It sought to modernize Islamic society through education, cultural reform, and political activism. The movement primarily arose in the Russian Empire's Turkestan and Tatar regions, encompassing modern-day Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan, Turkmenistan, and parts of present-day Russia.

Key Features of Jadidism:

1. **Educational Reform:** One of the movement's primary goals was reforming traditional Islamic education, which was centered around madrasas and the teaching of religious texts. Jadidists advocated for the "usul-i jadid" (new method) of education that emphasized secular subjects such as history, geography, science, and mathematics, alongside religious instruction. This educational reform aimed to create a more literate and critically thinking Muslim society that could engage with modernity.

2. **Cultural Modernization:** Jadidists believed that Muslims needed to embrace modern science, technology, and Western ideas to overcome the backwardness they saw in their societies. They were not against Islam but wanted to reinterpret its teachings to align with the contemporary world. They also emphasized the importance of cultural pride, including the development of local languages and literature, as well as encouraging the use of print media like newspapers and books.

3. **Social and Political Reforms:** The movement sought to address the social and political challenges facing Central Asian Muslims under Russian imperialism. They promoted the idea of a unified identity based on Islam, but also engaged with concepts of nationalism and civic participation. Some Jadidists later became involved in anti-colonial and revolutionary movements, particularly during the Russian Revolution of 1917.

4. **Language and Literature:** Jadidists were keen on modernizing their native languages, including Uzbek, Kazakh, and Tatar. They played a significant role in introducing theater, poetry, and prose that reflected modern themes and concerns. They used print media to spread their ideas, and publications such as newspapers and magazines became key tools for the movement.

Leaders of the Movement:

- **Ismail Gaspirali (Gaspirinsky):** A Crimean Tatar intellectual, one of the earliest and most prominent Jadidists, known for his advocacy of educational reforms. His motto "Unity in Language, Thought, and Action" became central to the Jadidist ideology.
- **Abdurauf Fitrat:** A prominent Uzbek writer and political thinker who became an influential Jadidist leader in Bukhara. Fitrat was an advocate of modern education and supported Bukhara's modernization.
- **Mahmud Khoja Behbudiy:** An Uzbek reformist who was one of the founders of the Jadid movement in Central Asia. He was involved in both education and the publication of progressive newspapers.
- **Munawwar Qari:** Another key figure in the Uzbek Jadid movement, known for his efforts to reform madrasa education and his leadership in new-method schools.

Decline and Legacy:

The Jadid movement lost its momentum after the Russian Revolution of 1917. Initially, some Jadidists supported the Bolsheviks, believing that the revolution would lead to more autonomy for Central Asian Muslims. However, as the Soviet regime solidified its control, Jadidists faced repression, with many of them being persecuted or executed during the Stalinist purges of the 1930s.

Although the movement was largely suppressed, the ideas of the Jadidists influenced later generations of reformers and nationalists in Central Asia. Their emphasis on education, cultural pride, and engagement with modernity remains a significant part of the region's intellectual history.

Influence and Impact:

Jadidism laid the groundwork for the rise of modern national consciousness among the Central Asian peoples. By promoting education, literacy, and the adoption of modern political ideas, Jadidism helped foster a sense of identity and pride that would later be crucial in the national independence movements of the 20th century.

Yes, the repression of **1938**, part of Stalin's Great Purge, was indeed a devastating blow to the **Jadidist movement** and broader intellectual life in **Central Asia**. This period, also known as the **Stalinist Purges**, saw the systematic persecution, imprisonment, and execution of political dissidents, intellectuals, and cultural figures, including many of the Jadid reformers.

Context of the Repression of 1938:

By the late 1920s and early 1930s, Stalin had consolidated his power in the Soviet Union and launched a series of radical policies, including forced collectivization and the suppression of perceived political opponents. In Central Asia, these policies also targeted intellectuals and reformers who were seen as threats to the centralized Soviet authority. The **Jadidists**, who had initially sought modern reforms in education and culture, were now viewed as counter-revolutionaries, nationalists, and enemies of the state.

Why Jadidists Were Targeted:

1. **Perceived Nationalism:** The Jadidists had emphasized national identity and cultural autonomy, which conflicted with Stalin's vision of a highly centralized Soviet Union. Their promotion of local languages, traditions, and Islamic reform was seen as a form of nationalism that could undermine Soviet control.
2. **Intellectual Independence:** The Jadidists represented an intellectual and reformist class that was not fully aligned with the Soviet ideology. Their ideas of modernization were based on indigenous values and Islamic culture, rather than Marxist-Leninist principles. This independence made them a target for Stalinist repression, which aimed to eliminate any ideological or cultural opposition.
3. **Associations with Bourgeois and Religious Elements:** Many Jadidists were educated elites, and their connection to religious institutions and cultural reform projects made them vulnerable to accusations of being "bourgeois nationalists" or reactionaries. During Stalin's campaign against religion and the bourgeoisie, the Jadidists, who had connections to both, were labeled as threats to the proletariat state.

The Bloodbath of 1938:

By 1938, the repression had reached its peak. The Stalinist purges, which affected the entire Soviet Union, resulted in the execution of countless people accused of counter-revolutionary activities. In Central Asia, the purges had a particularly destructive effect on the Jadidist movement.

1. **Executions of Leaders:** Many of the leading Jadidists, including figures like **Abdurauf Fitrat**, **Munawwar Qari**, and **Fayzulla Khodjaev** (a prominent Tajik and Uzbek leader), were arrested, tortured, and executed under false charges of espionage, nationalism, or treason. Fitrat, a key intellectual of the movement, was executed in 1938, marking the end of his influence and symbolizing the brutal repression of the entire reformist class.
2. **Destruction of Intellectual Life:** The purges not only physically eliminated the Jadidist leaders but also decimated the intellectual and cultural infrastructure they had built. Newspapers, theaters, and schools that had been inspired by the Jadidist vision were closed down or restructured to align with Soviet propaganda. The region's cultural renaissance was effectively cut short, and the promotion of Islamic or nationalist ideas was replaced with strict Soviet-style atheism and socialist realism.
3. **Suppression of Islamic Culture:** The Soviet authorities under Stalin intensified their efforts to secularize Central Asia, viewing Islam and its institutions as obstacles to Soviet ideology. Many religious scholars, along with Jadidists who had advocated for Islamic reform, were persecuted. Mosques were closed, Islamic texts were destroyed, and the state imposed atheism through educational and cultural policies.

Long-Term Consequences:

- **Loss of Reformist Leadership:** The systematic elimination of Jadidist leaders created a leadership vacuum in Central Asian intellectual and political life. The next generation

of thinkers and reformers was forced to operate within the strict boundaries of Soviet ideology, leading to a homogenization of thought and the suppression of local cultural movements.

- **Impact on National Identity:** The repression of the Jadidists stalled the development of a modern national consciousness in Central Asia. While the Soviet regime did allow for the creation of national republics (like Uzbekistan and Kazakhstan), these entities were heavily controlled by Moscow, and expressions of local autonomy were harshly suppressed.

- **Cultural Amnesia:** Many of the ideas and contributions of the Jadidist movement were erased from public memory for decades. It was only after the collapse of the Soviet Union in 1991 that Central Asian countries began to rediscover and rehabilitate the legacy of the Jadidists as part of their own national histories.

Legacy Today:

The **Jadidist movement** remains an important symbol of early reformist efforts in Central Asia, and its members are now often regarded as martyrs of cultural and intellectual freedom. In modern-day Uzbekistan, Kazakhstan, and other Central Asian states, there is renewed interest in their contributions, and they are celebrated as pioneers of national consciousness and education reform. However, the devastating impact of the 1938 repression on the region's cultural and intellectual life left a lasting scar.

In summary, the repression of **1938** was indeed a bloodbath that obliterated the **Jadidist movement** in Central Asia, marking the end of an era of progressive Islamic reform and the imposition of rigid Soviet control over intellectual and cultural life.

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АРТЕРИАЛЬНАЯ ГИПЕРТЕНЗИЯ: ПАТОГЕНЕЗ, ДИАГНОСТИКА И ПОДХОДЫ К ЛЕЧЕНИЮ**Хужанов Хуснитдин Баймуратович**

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Аннотация: Артериальная гипертензия (АГ) — это хроническое заболевание, при котором стойко повышается артериальное давление, что представляет собой значительный фактор риска для развития сердечно-сосудистых заболеваний, инсультов, почечной недостаточности и других серьезных осложнений. По данным Всемирной организации здравоохранения (ВОЗ), АГ поражает около 1,28 миллиарда человек по всему миру, из которых только 46% получают адекватное лечение. Проблема АГ крайне актуальна, поскольку от её последствий ежегодно умирает около 9 миллионов человек.

Ключевые слова: Артериальная гипертензия, высокое кровяное давление, лечение гипертензии, факторы риска гипертензии.

Патогенез артериальной гипертензии

Патогенез артериальной гипертензии многогранен и включает взаимодействие генетических, экологических и физиологических факторов. Основными патофизиологическими механизмами, участвующими в развитии гипертензии, являются:

1. Нарушение регуляции сосудистого тонуса. Изменения в системе ренин-ангиотензин-альдостерон (РААС) играют важную роль в контроле артериального давления. Повышенная активность этой системы приводит к сужению сосудов и увеличению объема циркулирующей крови за счет задержки натрия и воды.

2. Гиперактивность симпатической нервной системы. Усиленная стимуляция симпатической нервной системы приводит к увеличению сердечного выброса и сужению сосудов, что также повышает артериальное давление.

3. Почечные механизмы. Нарушение функции почек, связанное с задержкой натрия и воды, приводит к увеличению объема крови и повышению артериального давления. Роль почек в патогенезе АГ особенно важна при заболеваниях, таких как хроническая почечная недостаточность.

Диагностика артериальной гипертензии

Диагностика АГ основывается на регулярном измерении артериального давления с использованием тонометра. В соответствии с рекомендациями ВОЗ и Европейского общества гипертензии, гипертензия диагностируется, если систолическое артериальное давление превышает 140 мм рт. ст., а диастолическое — 90 мм рт. ст.

Подходы к лечению артериальной гипертензии

Лечение артериальной гипертензии включает немедикаментозные и медикаментозные методы, направленные на снижение артериального давления и предотвращение осложнений.

Немедикаментозные методы

1. Изменение образа жизни. Это основополагающий аспект в лечении АГ, включающий:

- Снижение массы тела. У пациентов с ожирением уменьшение веса на 5–10% может значительно снизить артериальное давление.
- Диета с низким содержанием соли. Ограничение потребления натрия до 2–3 граммов в день помогает снизить уровень артериального давления.

2. Психологическая поддержка. Хронический стресс является значимым фактором в развитии гипертензии.

Медикаментозные методы

Медикаментозное лечение АГ назначается в случае, если немедикаментозные методы не приводят к достижению целевого уровня артериального давления. Существует несколько классов антигипертензивных препаратов, которые могут использоваться как монотерапия или в комбинации:

1. Ингибиторы ангиотензин-превращающего фермента (АПФ). Эти препараты блокируют превращение ангиотензина I в ангиотензин II, снижая сосудистое сопротивление и артериальное давление.

2. Бета-адреноблокаторы. Уменьшают сердечный выброс и симпатическую стимуляцию, что помогает снизить давление.

3. Антагонисты кальция. Эти препараты расширяют сосуды, уменьшая их тонус и снижая артериальное давление.

4. Диуретики. Выведение избытка натрия и воды снижает объем циркулирующей крови, что приводит к снижению артериального давления.

5. Антагонисты рецепторов ангиотензина II. Эти препараты блокируют действие ангиотензина II, уменьшая сосудистое сопротивление и снижают давление.

Профилактика артериальной гипертензии

Основой профилактики артериальной гипертензии является изменение образа жизни, направленное на снижение факторов риска. Ключевыми мерами являются:

- Поддержание нормальной массы тела;
- Регулярные физические упражнения;
- Ограничение потребления соли;

Скрининговые программы, направленные на раннее выявление гипертензии, также играют важную роль в профилактике осложнений. Регулярное измерение артериального давления позволяет своевременно диагностировать заболевание и начать необходимое лечение.

Заключение

Артериальная гипертензия остается одной из ведущих причин сердечно-сосудистых заболеваний и преждевременной смертности. Понимание механизмов развития этого заболевания, ранняя диагностика и адекватное лечение являются ключевыми факторами в улучшении прогноза у пациентов с АГ. Несмотря на широкий спектр доступных методов лечения, артериальная гипертензия по-прежнему представляет значительный вызов для здравоохранения. Внедрение новых технологий, таких как ренальная денервация и барорефлекторная стимуляция, а также дальнейшее изучение генетических аспектов заболевания могут улучшить результаты лечения, особенно у пациентов с резистентной гипертензией.

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СОСТОЯНИЕ СЕРДЕЧНОГО РИТМА У ПАЦИЕНТОВ С ИШЕМИЧЕСКИМ ИНСУЛЬТОМ, КОТОРЫМ БЫЛА ПРИМЕНЕНА НЕОТЛОЖНАЯ РЕНТГЕН-ЭНДОВАСКУЛЯРНАЯ ТРОМБ-АСПИРАЦИЯ**Мирзаева Н.Б., Бахадирханов М.М.**

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Актуальность. В последние годы в мире возрос интерес к изучению вариабельности сердечного ритма (ВСР) как показателя, отражающего автономную регуляцию сердца и определяющего риск внезапной сердечной смерти (1,3). Показано, что в остром периоде инсульта регистрируется наибольшее количество аритмий, оказывающих негативное влияние на центральную и церебральную гемодинамику, а также происходит снижение ВСР, обусловленное поражением определенных мозговых структур (2).

Однако исследований, посвященных динамике показателей суточного мониторинга ЭКГ в течение острого периода инсульта, взаимосвязи изменений электрофизиологических характеристик сердца с особенностями мозгового поражения и формой сердечной патологии, в доступной литературе встречено не было.

Цель исследования. Изучить состояние сердечного ритма у пациентов с ишемическим инсультом, которым была применена неотложная рентген-эндоваскулярная тромб-аспирация.

Материалы и методы исследования. Исследования проводились на базе неврологического отделения РНЦЭМП с 2022 по 2024 гг. Было исследовано 70 пациентов с ишемическим инсультом (ИИ) (кардиоэмболический и атеротромботический варианты) на фоне неотложной рентгенэндоваскулярной тромбаспирации. 40 (57,1%) составили женщины и 30 (42,9%) - мужчины. Средний возраст мужчин – $64,9 \pm 8,1$ года, женщин – $68,1 \pm 7,5$ года. Ведущим этиологически м фактором ИИ была Артериальная гипертензия (АГ), атеросклероз (Аз), доля больных с АГ и Аз составила 90,0% и 100,0% соответственно, в ГС – 100,0% и 100,0% соответственно. Среди исследуемых больных встречались атеротромботический и гемодинамический подтипы ИИ – 83% и 17%, соответственно.

Для выявления преобладания парасимпатического или симпатического тонуса нервной системы использовали индекс Кердо.

Статистическая обработка полученных данных проводилась на персональном компьютере с помощью программы «Statistica 8.0». Критерий Стьюдента считался достоверным при $p < 0,05$.

Результаты исследования. Положительное значение индекса указывает на преобладание симпатического тонуса, а отрицательное значение - парасимпатического тонуса нервной системы. Переход от симпатикотонии к преобладанию парасимпатического тонуса свидетельствует о начале перехода процессов срочной адаптации к процессам долговременной адаптации. Сохраняющееся преобладание тонуса симпатической нервной системы (положительное значение индекса Кердо) свидетельствует о задержке перехода механизмов срочной адаптации к долговременной, и трансформацией стресса в дистресс. Норма индекса Кердо: +5 - +7. Динамика изменений тонуса вегетативной нервной системы в остром периоде ИИ показана в таблице 1.

В первые сутки у больных регистрировали преобладание тонуса парасимпатической нервной системы, что подтверждалось отрицательным значением индекса Кердо - -3,4.

К 3 суткам у обследованных пациентов уже регистрировалось преобладание тонуса симпатической нервной системы (индекс Кердо 5,9 усл.ед). Эти изменения свидетельствовали о задержке перехода механизмов срочной адаптации к стадии долговременной адаптации и трансформации стресса в дистресс.

Таблица 1

Показатели ВТ у больных ИИ методом Кердо

Показатель	При поступлении	1-е сутки	3-и сутки	7-е сутки
Систолическое АД (мм рт ст)	155±3,8	144±3,1*	144,3±2,4*	135,4±1,9**
диастолическое АД (мм рт ст)	92,9±1,8	88,2±1,7*	87,7±1,1*	83,7±1,1**
ЧСС (ударов в минуту)	78±2,4	76,8±1,5*	74,3±1,9*	72,8±1,2**
индекс Кердо (усл ед)	-3,4±3,9	3,2±2,7*	5,9±3,2*	6,4±2,3**
неврологический статус (баллы)	5,5±0,4	4,9±0,5*	3,9±0,04*	3,2±0,4**

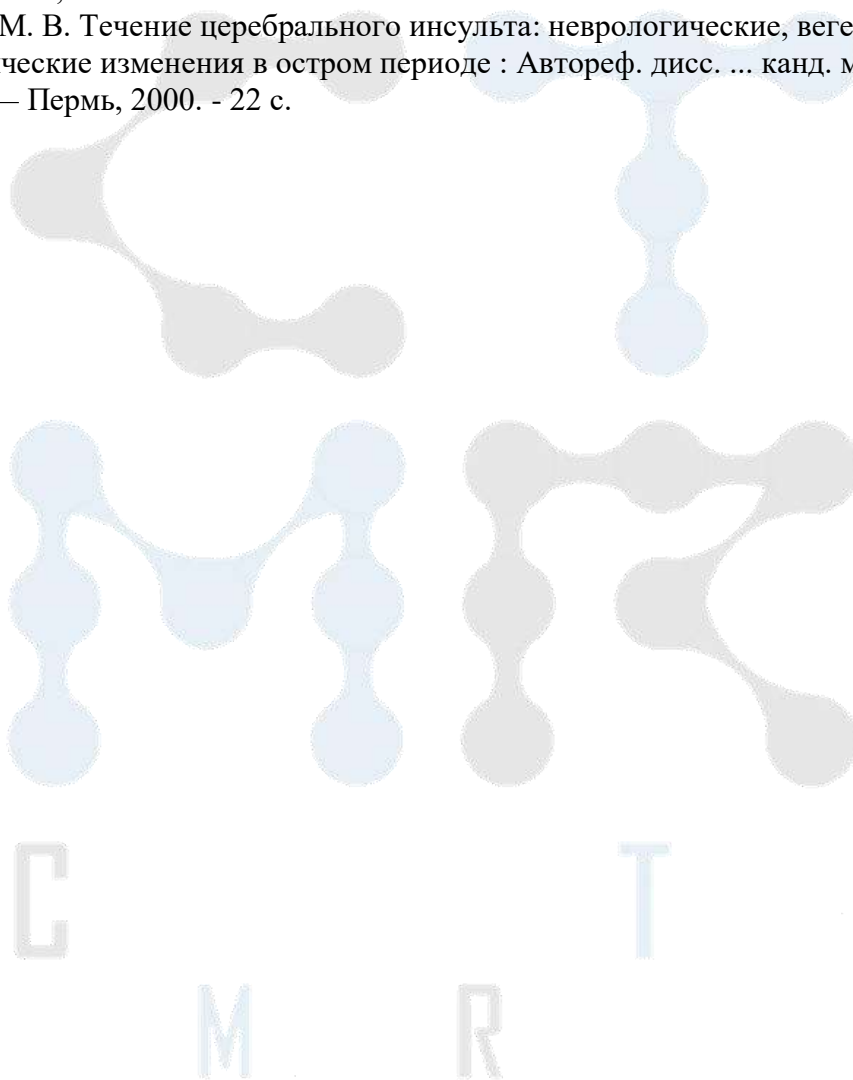
*Примечание: * - значение достоверно по сравнению с значениями «при поступлении» ($p < 0,05$), ** - значение достоверно по сравнению с значениями «при поступлении» ($p < 0,005$).*

Вывод. при исследовании ВТ методом Кердо у больных с ИИ с благоприятным исходом выявляется ваготония с момента поступления и симпатикотония на момент

выписки (7-е сутки), причем у пациентов с ишемическим инсультом, которым была применена неотложная рентген-эндоваскулярная тромб-аспирация, восстановление ВТ происходило быстрее.

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**THE ROLE OF THE TRANSLATOR IN SHAPING NATIONAL
IDENTITY: A STUDY OF EARLY 20TH CENTURY TRANSLATIONS
IN CENTRAL ASIA**

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Abstract: This thesis investigates the pivotal role of translators in shaping national identity in Central Asia during the early 20th century. As cultural intermediaries, translators contributed to the emergence of national consciousness by selecting and interpreting foreign literary works that resonated with local values, aspirations, and historical contexts. This study focuses on the impact of translation choices on the construction of national identity, examining key translations, the motivations behind them, and their reception in Central Asian societies. Through a critical analysis of translators' work, the thesis aims to highlight how translation facilitated cultural exchange and influenced the development of a distinct national identity in a time of sociopolitical change.

Introduction

Background

The early 20th century was a period of significant transformation for Central Asia, characterized by colonialism, social upheaval, and the quest for national identity. As the region grappled with the influences of both colonial powers and revolutionary ideas, translation emerged as a critical tool for cultural negotiation and identity formation. Translators played a crucial role in mediating foreign literary works and ideas, thus shaping the intellectual landscape of their societies.

Research Questions

This thesis seeks to answer the following questions:

- How did translators in early 20th century Central Asia contribute to the formation of national identity through their translation choices?
- What literary works were prioritized for translation, and what criteria influenced these decisions?
- How did the reception of translated works reflect and shape the evolving notions of national identity in Central Asian societies?

Objectives

- To analyze the role of translators as cultural intermediaries in Central Asia.
- To examine the translation strategies employed in the context of national identity formation.
- To explore the relationship between translation, literature, and sociopolitical developments in early 20th century Central Asia.

Significance

This research contributes to the understanding of translation studies, particularly in the context of national identity formation. It highlights the significance of translators in shaping cultural narratives and the impact of their choices on the collective identity of societies undergoing transformation.

Literature Review

Translation and National Identity

The connection between translation and national identity has been widely explored in translation studies. Works by scholars such as Lawrence Venuti (1995) emphasize the political implications of translation choices and their role in shaping cultural perceptions. In the context of Central Asia, translators were not only language experts but also cultural agents who influenced public discourse.

Historical Context of Central Asia in the Early 20th Century

This section provides an overview of the historical and sociopolitical landscape of Central Asia during the early 20th century, highlighting the impact of colonialism, the rise of nationalism, and the search for cultural autonomy. The translation of foreign literature served as a means of asserting national identity and challenging colonial narratives.

The Role of Translators as Cultural Agents

Translators in Central Asia acted as cultural intermediaries, negotiating between foreign literary traditions and local contexts. Their choices reflected their ideological leanings and aspirations for national identity. This section discusses notable translators of the period and their contributions to the literary landscape.

Methodology

Research Design

This thesis employs a qualitative research design, focusing on textual analysis of translated works and historical documents. Case studies of specific translations will illustrate the themes of cultural negotiation and identity formation.

Data Collection

Data will be gathered from a variety of sources, including:

- Translated literary works from the early 20th century.
- Biographies and writings of prominent translators.
- Historical accounts and scholarly articles on nationalism and cultural identity in Central Asia.

Analytical Framework

The analysis will draw on a combination of translation theory and cultural studies to examine how translation practices intersect with the construction of national identity.

Case Studies

The Translation of Russian Literature

This section examines the translation of Russian literary works, focusing on how these translations influenced perceptions of Russian culture and contributed to the development of a modern Central Asian literary canon. Notable translators, such as Abdulla Qodiriy, played a significant role in shaping literary tastes and cultural aspirations.

The Influence of European Ideologies

This chapter explores translations of European works that introduced revolutionary ideas and concepts of nationalism. The choices made by translators in selecting texts and interpreting them for local audiences reflect broader cultural and ideological shifts.

The Revival of National Languages

The revival and standardization of national languages were critical to the formation of national identity. This section investigates the translations of literary works into local languages, emphasizing how these efforts contributed to linguistic nationalism and cultural pride.

Analysis and Discussion

The Impact of Translation Choices on National Identity

This chapter analyzes the implications of translators' choices on the development of national identity in Central Asia. It discusses how translation facilitated the emergence of a shared cultural narrative and collective memory.

The Reception of Translated Works

The reception of translated works reveals how they were perceived by contemporary audiences and their role in shaping national consciousness. This section includes reader responses, critical reviews, and the influence of translated literature on public discourse.

The Translator as a Cultural Mediator

This section emphasizes the importance of the translator as a cultural mediator who navigates between different literary traditions and local contexts. Translators not only convey meaning but also shape cultural identity through their interpretive choices.

Conclusion

The thesis concludes by summarizing the key findings regarding the role of translators in shaping national identity in early 20th century Central Asia. It reiterates the importance of translation as a tool for cultural negotiation and identity formation.

Implications for Future Research

This study highlights the need for further research on the role of translation in post-colonial contexts and its impact on national identity in contemporary societies. It encourages scholars to explore the continuing influence of translators in shaping

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THE IMPACT OF ANXIETY AND STRESS ON ACADEMIC PERFORMANCE: A GLOBAL AND UZBEK PERSPECTIVE**Feruza Asqarova**

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Abstract

This article explores the impact of anxiety and stress on academic performance, focusing on both global and Uzbek perspectives. Anxiety and stress, common psychological responses to academic pressure, can negatively influence cognitive functioning, impairing attention, memory, and problem-solving abilities, thus leading to decreased academic achievement. While moderate levels of stress may enhance performance, excessive anxiety often results in poor academic outcomes. The article examines factors contributing to academic anxiety, including test anxiety, perfectionism, and external expectations, particularly within the context of Uzbekistan's highly competitive education system. It also discusses coping strategies such as cognitive-behavioral therapy (CBT), mindfulness practices, and institutional reforms aimed at mitigating the effects of stress and anxiety on students. The research concludes that addressing psychological well-being is essential to fostering more effective learning environments and improving student performance in Uzbekistan and beyond.

Key notions: academic anxiety, cognitive impairment, Yerkes-Dodson law, test anxiety, perfectionism, cognitive-behavioral therapy (CBT), mindfulness, institutional reforms, Uzbek higher Education.

Academic performance is often influenced by a variety of psychological factors, with anxiety and stress playing a particularly significant role. These emotional states can have both positive and negative effects on students' ability to learn and perform academically. In Uzbekistan, as the education system continues to modernize and adapt to global standards, increasing attention is being paid to the psychological well-being of students and its impact on academic outcomes. This article explores the relationship between anxiety, stress, and academic performance, drawing on both international and Uzbek research to examine how these factors affect students' learning experiences and achievements.

1. Understanding anxiety and stress in the academic context

Anxiety and stress are commonly experienced emotions in the educational environment, often triggered by academic demands, exams, peer competition, and expectations from teachers and families. While some level of stress can be motivating and help students focus on their studies, chronic or excessive anxiety

and stress can hinder cognitive functioning, leading to poorer academic performance (Cassady & Johnson, 2002).

1.1 Defining anxiety and stress

Anxiety is generally understood as a feeling of worry, nervousness, or unease, often about an imminent event or uncertain outcome. Academic anxiety specifically refers to feelings of apprehension or fear about schoolwork or exams (Zeidner, 1998). Stress, on the other hand, is a broader response to pressure or demands, which can result from both academic and non-academic factors (Lazarus & Folkman, 1984).

In Uzbekistan, studies suggest that students, particularly at the university level, experience significant anxiety related to exams and academic performance (Karimova, 2020). This anxiety is often exacerbated by the competitive nature of the Uzbek education system, where high academic achievement is closely linked to future career success.

2. The relationship between anxiety, stress, and academic performance

2.1 Negative impact on cognitive functioning

Research has consistently shown that high levels of anxiety and stress can impair cognitive processes, including attention, memory, and problem-solving abilities, all of which are essential for academic success (Eysenck, Derakshan, Santos, & Calvo, 2007). When students experience excessive anxiety, they may find it difficult to concentrate on their studies or retain information, leading to lower academic achievement.

A study conducted by Karimova (2020) in Uzbekistan found that students with higher levels of exam-related anxiety performed significantly worse on standardized tests compared to their less anxious peers. This is consistent with international research, which has demonstrated a strong negative correlation between test anxiety and academic performance (Putwain, 2008).

2.2 The Yerkes-Dodson Law: A balanced view

While excessive anxiety and stress can be detrimental to academic performance, it is important to note that not all stress is harmful. The Yerkes-Dodson Law (Yerkes & Dodson, 1908) suggests that there is an optimal level of arousal (including stress and anxiety) that can enhance performance. Moderate levels of

anxiety can motivate students to study harder and improve focus, but when anxiety becomes overwhelming, it leads to a decline in performance.

In the context of Uzbekistan, Shadmanov (2019) noted that students who reported moderate levels of academic stress performed better in competitive environments, such as national university entrance exams, than those who reported either very low or very high levels of stress.

3. Factors contributing to anxiety and stress in students

3.1 Academic pressure and expectations

One of the primary sources of stress for students is academic pressure, which can stem from both external expectations (from family, teachers, and society) and internal expectations (self-imposed). In Uzbekistan, where education is highly valued as a means of social mobility, students often feel immense pressure to succeed academically, leading to heightened anxiety (Shodiev, 2021).

A study by Sarason (1984) in the international context found that students who experience high parental expectations are more likely to develop academic anxiety, especially if they fear disappointing their families. This phenomenon is also observed in Uzbek students, who may struggle with balancing their personal goals and family expectations.

3.2 Test anxiety

Test anxiety is a specific type of performance anxiety that arises in evaluative situations, such as exams. It is characterized by intense fear of failure, physical symptoms (e.g., sweating, rapid heartbeat), and cognitive disruptions (e.g., difficulty focusing) (Zeidner, 1998). Research by Putwain and Daly (2014) indicates that test anxiety can significantly impair students' ability to perform well on exams, leading to a cycle of poor academic performance and increased anxiety.

In Uzbekistan, Karimova (2020) found that test anxiety was prevalent among students at the foundation level of higher education, particularly due to the high stakes associated with national exams. Many students reported that their anxiety during exams negatively impacted their ability to recall information and apply knowledge effectively.

3.3 Perfectionism and fear of failure

Perfectionism, characterized by setting excessively high standards for oneself and being overly critical of one's performance, is another factor that contributes to academic anxiety. Students who are perfectionistic often fear failure, which can increase their stress levels and lead to poor academic outcomes (Frost, Marten, Lahart, & Rosenblate, 1990).

In the Uzbek context, Shodiev (2021) found that perfectionism was a significant predictor of academic anxiety among high-achieving students. These students often set unrealistic goals for themselves, and their fear of not meeting these goals contributed to heightened anxiety and stress.

4. Coping strategies and interventions

4.1 Cognitive-behavioral interventions

Cognitive-behavioral therapy (CBT) has been widely used to help students manage academic anxiety and stress. CBT focuses on changing negative thought patterns and behaviors that contribute to anxiety (Beck, 2011). In Uzbekistan, universities are beginning to introduce counseling services that incorporate CBT techniques to help students cope with academic pressures (Shadmanov, 2019).

International research supports the effectiveness of CBT in reducing test anxiety and improving academic performance. For example, a study by Hembree (1988) found that students who underwent CBT interventions showed significant reductions in anxiety and improved exam scores.

4.2 Mindfulness and relaxation techniques

Mindfulness-based interventions, such as meditation and relaxation exercises, have also been shown to reduce academic anxiety and stress. These techniques help students manage their emotional responses to stressors and improve focus and concentration (Shapiro, Brown, & Astin, 2011).

In Uzbekistan, mindfulness practices are beginning to be incorporated into university wellness programs, with preliminary studies showing positive results in reducing student stress (Karimova, 2020).

4.3 Institutional support and policy changes

In addition to individual interventions, institutions can play a key role in reducing academic anxiety by creating supportive learning environments. This includes offering mental health services, promoting a balanced approach to academic work, and reducing the emphasis on high-stakes exams (Zeidner, 1998).

In Uzbekistan, the Ministry of Higher and Secondary Specialized Education has recognized the importance of student well-being and is working to introduce reforms aimed at reducing the pressures associated with national exams and increasing access to psychological support services in universities (Shodiev, 2021).

Anxiety and stress are significant factors affecting academic performance, both globally and in Uzbekistan. While moderate levels of stress can be motivating, excessive anxiety can impair cognitive functioning and lead to poorer academic outcomes. In Uzbekistan, where academic pressure is high, students often face significant anxiety related to exams and performance expectations. However, interventions such as cognitive-behavioral therapy, mindfulness, and institutional reforms can help mitigate these negative effects and improve student well-being. As Uzbekistan continues to modernize its education system, addressing the psychological needs of students will be crucial to fostering a more supportive and productive learning environment.

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XALQARO SAVDO VA MADANIYAT ALMASHINUVI TARIXI**Zulqaynarov Sarvar Alisherovich**

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Annotatsiya: Ushbu maqolada xalqaro savdo va madaniyat almashinuvi tarixiy jarayonlari o'rganiladi. Xalqaro savdo yo'llari, ularning rivojlanishi, madaniyatlar o'rtasidagi o'zaro ta'sirlar va savdo markazlarining ahamiyati tahlil qilinadi. Savdo va madaniyat almashinuvi insoniyat tarixining shakllanishiga, ilm-fan va san'atning rivojlanishiga katta ta'sir ko'rsatgan. Maqolada o'rta asrlar va zamonaviy davrda bu jarayonning ahamiyati, shuningdek, globalizatsiya davrida savdo va madaniyat almashinuvi yangi bosqichga ko'tarilgani ko'rsatilgan.

Kalit so'zlar: Xalqaro savdo, madaniyat almashinuvi, Silk yo'li, savdo yo'llari, o'rta asrlar, globalizatsiya, savdo markazlari, ilm-fan almashinuvi, tarixiy rivojlanish, madaniyatlararo o'zaro ta'sir.

ИСТОРИЯ МЕЖДУНАРОДНОЙ ТОРГОВЛИ И КУЛЬТУРНОГО ОБМЕНА

Аннотация: В данной статье рассматриваются исторические процессы международной торговли и культурного обмена. Анализируются торговые пути, их развитие, взаимное влияние культур и значение торговых центров. Торговля и культурный обмен оказали значительное влияние на формирование человеческой истории, развитие науки и искусства. В статье также подчеркивается важность этих процессов в средние века и в современную эпоху, а также влияние глобализации на торговлю и культурный обмен в наши дни.

Ключевые слова: Международная торговля, культурный обмен, Шелковый путь, торговые маршруты, средние века, глобализация, торговые центры, обмен наукой, историческое развитие, межкультурное взаимодействие.

HISTORY OF INTERNATIONAL TRADE AND CULTURAL EXCHANGE

Annotatsion: This article explores the historical processes of international trade and cultural exchange. It examines trade routes, their development, the mutual influence of cultures, and the significance of trade centers. Trade and cultural exchange have had a significant impact on shaping human history, advancing science and art. The article also highlights the importance of these

processes in the medieval period and in modern times, as well as the influence of globalization on trade and cultural exchange today.

Keywords: International trade, cultural exchange, Silk Road, trade routes, medieval period, globalization, trade centers, scientific exchange, historical development, intercultural interaction.

Xalqaro savdo va madaniyat almashinuvi tarixi mavzusi zamonamizda juda dolzarb hisoblanadi. Globalizatsiya jarayoni davomida dunyo xalqlari o'rtasidagi iqtisodiy va madaniy aloqalar yanada chuqurlashib bormoqda. Xalqaro savdo, o'z navbatida, nafaqat tovarlar va xizmatlarning almashinuvi, balki turli madaniyatlar o'rtasida o'zaro ta'sir va integratsiyaga sabab bo'ldi. O'rta asrlar, Renessans, va industriyalizatsiya davrlaridagi savdo yo'llari va madaniy almashinuvi jarayonlari bugungi kunda ham dolzarb ahamiyatga ega. Bu mavzu orqali biz tarixiy jarayonlarni tahlil qilib, ularning zamonaviy globalizatsiya sharoitida qanday ta'sir ko'rsatganini tushunishga yordam beradi. Shuningdek, madaniyatlararo aloqalar va o'zaro ta'sirning zamonaviy jamiyatdagi ahamiyati ham ushbu mavzuning dolzarbligini oshiradi.

Тема истории международной торговли и культурного обмена является актуальной в современном мире. В условиях глобализации экономические и культурные связи между народами становятся все более глубокими. Международная торговля, в свою очередь, стала причиной не только обмена товарами и услугами, но и взаимного влияния культур. Процессы торговли и культурного обмена в Средние века, эпоху Ренессанса и индустриализации имеют важное значение и в современном мире. Анализируя эти процессы, можно лучше понять их влияние на глобализацию и взаимное обогащение культур. Взаимодействие культур в современном обществе также подчеркивает актуальность данной темы.

The topic of the history of international trade and cultural exchange is highly relevant in today's world. In the era of globalization, economic and cultural connections between nations are becoming deeper. International trade, in turn, has led to not only the exchange of goods and services but also to the mutual influence of cultures. The trade routes and cultural exchanges of the Middle Ages, the Renaissance, and the Industrial Revolution remain highly relevant today. By analyzing these historical processes, we can better understand their impact on globalization and the mutual enrichment of cultures. The importance of intercultural interaction in modern society further emphasizes the relevance of this topic.

Kirish:

Xalqaro savdo va madaniyat almashinuvi tarixiy jarayonlarda ham iqtisodiy, ham madaniy rivojlanishning asosiy omillaridan biri hisoblanadi. U davrlar o'rtasida

madaniy o'zgarishlarga sabab bo'lgan savdo yo'llarini, iqtisodiy aloqalarni va madaniy ta'sirlarni o'rganish orqali insoniyat tarixining turli bosqichlarini chuqurroq tushunish mumkin. Ushbu maqolada xalqaro savdoning shakllanishi, uning madaniyat almashinuvidagi roli, eng muhim savdo yo'llari va ulardan kelib chiqqan madaniy o'zgarishlar tahlil qilinadi.

Xalqaro savdoning boshlanishi va uning rivojlanishi

Dastlabki savdo yo'llari: Xalqaro savdoning ilk bosqichlari miloddan avvalgi ming yilliklarda boshlangan. Asosiy savdo yo'llari sifatida "Silk yo'li" (Ipak yo'li) va "Dengiz yo'llari" ko'rib chiqilishi mumkin. Silk yo'li Asiya, Yevropa va Afrikani bog'lagan asosiy savdo yo'li bo'lib, tovarlar, masalan, ipak, ziravorlar, va boshqa qimmatbaho buyumlar almashinuvi uchun xizmat qilgan. Savdo yo'llarining rivojlanishi: Uzoq muddat davomida savdo markazlari, shu jumladan, Xitoy, Hindiston, Islom dunyosi va Yevropa o'rtasida tovarlar almashinuvi davom etdi. Bu jarayon Arab dunyosi, O'rta Osiyo va Zarafshon vodiysi kabi hududlarning rivojlanishiga hamda iqtisodiy tizimlarning shakllanishiga olib keldi.

Madaniyat almashinuvi

Madaniy ta'sirlar va o'zgarishlar: Xalqaro savdo yo'llari nafaqat tovarlarni, balki madaniyat, san'at, ilm-fan va diniy qarashlarni ham tarqatdi. Islom dinining tarqalishi, Budda dinining Xitoy va boshqa hududlarga kirib borishi, hamda Renessans davrida Yevropaga sharq madaniyatining ta'siri bunga yorqin misol bo'la oladi. San'at va ilm-fan almashinuvi: Savdo yo'llari orqali turli hududlar o'rtasida san'at va ilm-fan o'zgarishlari amalga oshdi. Misol uchun, Islom san'ati, Xitoy rasmiy san'ati, va Yevropa Renessansi o'rtasidagi o'zaro ta'sirlar ilgari zamonlar madaniyatlarini boyitgan va o'zaro tushunishni oshirgan.

Savdo markazlari va ularning roli

Bag'dod, Xiva, Samarqand, va boshqa shaharlarda savdo markazlari: Samarqand, Buxoro, Xiva kabi shaharlarda joylashgan savdo markazlari xalqaro savdoning rivojlanishida muhim o'rin tutgan. Bu shaharlar tovarlar almashinuvi, madaniyat va ilm-fan sohalarida muhim markazlarga aylangan. Venetsiya va Genua savdo shaharlarining roli: Yevropada esa Venetsiya va Genua kabi savdo shaharlarining iqtisodiy va madaniy ta'siri katta bo'lib, ular Sharq va G'arb o'rtasida ticaratning rivojlanishiga xizmat qilgan. Globalizatsiya va savdo yo'llarining o'zgarishi: Bugungi kunda savdo va madaniyat almashinuvi global miqyosda amalga oshmoqda. Xalqaro savdo tashkilotlari, internet va zamonaviy transport tizimlari savdo aloqalarini tezlashtirib, butun dunyo bo'ylab madaniyatlarning o'zaro integratsiyasiga imkon yaratmoqda.

Xulosa

Xalqaro savdo va madaniyat almashinuvi tarixi insoniyat tarixining ajralmas qismini tashkil etadi. U jamiyatlarning rivojlanishiga, madaniyatlararo o'zaro ta'sirga va iqtisodiy o'zgarishlarga asos bo'ldi. Bugungi kunda ham xalqaro savdo va madaniyat almashinuvi davom etmoqda, bu esa dunyo xalqlari o'rtasida yanada chuqur aloqalarni ta'minlamoqda.

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**XORIJIY MAMLAKATLARDA UCHUVCHISIZ UCHISH
VOSITALARIDAN FOYDALANGAN HOLDA O‘TA MUHIM
OBYEKTLARDA SODIR ETILAYOTGAN O‘G‘IRLIKLAR:
ULARNING TAHLILI VA YURTIMIZDA SODIR ETILISHINI OLDINI
OLISH BO‘YICHA TAVSIYALAR**

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Annotatsiya: Ushbu maqolada xorijiy davlatlarda uchuvchisiz uchish vositalaridan foydalangan holda o‘ta muhim obyektlarda sodir etilayotgan o‘g‘irliklarning tahlili va ularni O‘zbekiston Respublikasining muhim obyektlarida sodir etilishini oldini olish bo‘yicha tavsiyalar bayon etiladi.

Kalit so‘zlar: O‘ta muhim obyekt, toifalangan obyekt, qimmatbaho boylik, dronlar, kvadrokopter, radio shovqin, jinoyat, o‘g‘irlik, detektor, gumbaz, texnik jihoz, obyektlarni himoya qilish, nazorat, kuzatish va qarorlar.

Аннотация: В данной статье описан анализ краж, совершаемых в зарубежных странах с использованием дронов на ответственных объектах, и даны рекомендации по предотвращению их совершения на критически важных объектах Республики Узбекистан.

Ключевые слова: Критический объект, Засекреченный объект, Ценное имущество, Дроны, Квадрокоптер, Радиопомехи, Преступление, Кража, Детектор, Купол, Технические средства, Защита объекта, Контроль, Наблюдение и решения.

Abstract: This article describes the analysis of thefts committed in foreign countries using drones in critical facilities and recommendations to prevent them from occurring in critical facilities of the Republic of Uzbekistan.

Keywords: Critical Object, Classified Object, Valuable Property, Drones, Quadcopter, Radio Interference, Crime, Theft, Detector, Dome, Technical Equipment, Object Protection, Control, Surveillance and decisions.

Jahondagi keskin va o‘ta murakkab harbiy-siyosiy vaziyat, davlatlar o‘rtasida yuz berayotgan qurolli mojarolar va terorchilarning tashkilotlarning qo‘poruvchilik harakatlari hamda diniy radikalizmning tobora ortib borayotganligi bilan tavsiflanmoqda. Hozirgi davrga kelib davlatlar o‘rtasidagi qurolli mojarolarda qo‘shinlarning bevosita to‘qnashuvidan ko‘ra masofadan turib raketa zarbalarini berish yoki uchuvchisiz uchish vositalari orqali dushmanning muhim obyektlari va inshootlariga talofat yetkazish tobora ommalashib bormoqda. Xususan, Rossiya-Ukraina, Isroil-Falastin, Eron-Isroil, Livan-Isroil, Yaman-Isroil kabi

davlatlarning o'rtasidagi qurolli to'qnashuvlarda tomonlar aynan dronlar va uzoq masofaga uchuvchi raketalar orqali bir-birlariga talofat yetkazmoqdalar. Hozirgi davrga kelib dronlardan nafaqat qurolli mojaralarda balki boshqa turdagi jinoyatlarni sodir etishda ham keng ko'lamda foydalanilmoqda.

Dunyoning bir qator mamlakatlarida davlatning eng asosiy boyliklari o'ta muhim obyektlarda saqlanadi va qo'riqlanadi. Bu boyliklar sirasiga qimmatbaho metallar, qimmatli qog'ozlar, muhim hujjatlar va boshqalar kiradi.

Ko'plab davlatlarda va shu bilan bir qatorda O'zbekistonda ham davlatning muhim obyektlari eng zamonaviy texnologiyalar bilan jihozlangan maxsus nazorat o'tkazish joylariga ega. Bu nazorat o'tkazish joylarida va perimetr bo'ylab belgilangan nuqtalarda maxsus qo'riqlov tizimlari joriy etilgan. Shunga qaramasdan Respublikamizning ko'plab o'ta muhim davlat obyektlarida kichik o'g'irliklar muntazam ravishda sodir etib kelinmoqda. Tahliliy ma'lumotlarga ko'ra birgina 2023 yilning o'zida Respublika miqyosida 500 dan ortiq bunday holatlarning oldi olinganligi buning yaqqol misolidir. Nazorat o'tkazish joylaridan katta miqdordagi qimmatbaho metallarni olib chiqib ketishning hozirgi vaqtga kelib deyarli imkoni mavjud emas. U yerda turgan soqchilarning tekshiruvlari va maxsus texnik vositalarning yordamida ko'plab o'g'irliklarning oldi olib kelinmoqda.

Hozirgi davrga kelib, rivojlangan texnologiya natijasida qo'riqlash tizimlari eng yuqori bosqichlarga yetib keldi. Rentgen nurlari va maxsus vositalar orqali tekshirish natijasida muhim obyektlarga noqonuniy ravishda biror buyumni olib kirish yoki u yerdan nimanidir olib chiqish imkoni tobora imkonsiz ishga aylanib bormoqda. Texnologiya rivojlanishi natijasida o'g'irliklarning oldi olinishi bilan bir qatorda, uning eng zamonaviy va hech kimning xayoliga kelmagan yangi turlari ham paydo bo'la boshladi.

Jahonning bir qancha davlatlarida oxirgi bir necha yillar davomida, muhim obyektlarda ularning eng zaif nuqtasi deb hisoblanuvchi havo sarhadlari orqali dronlardan foydalangan holda qimmatbaho boyliklarni o'g'irlab ketish tobora ortib bormoqda. Bu usuldan hozirgi vaqtda qimmatbaho metallarni, ayniqsa oltinlarni o'g'irlashda keng foydalanilmoqda. Xususan, 2020 yilda Fransiyada bir guruh o'g'irilar tomonidan aeroport hududidan aynan dronlardan foydalangan holda samalyotga o'rnatilgan asbob uskunalar va qimmatbaho tovarlar o'g'irlangan. Bu kabi o'g'irliklar 2022 yilda Kanadada va 2023 yilda bir qancha Yevropa davlatlarida ham sodir bo'lgan. O'zbekiston sharoitida ham bunday o'g'irliklarning sodir etilishi ehtimoli juda yuqori bo'lib, bu ayniqsa oltin konlari va zavodlarida yuz berishining ehtimoli juda yuqori hisoblanadi. Oltin zaxirasi bo'yicha jahonda 17-o'rinda va uni qazib olish bo'yicha 8-o'rinda turadigan

yurtimizda bunday muhim obyektlarning soni 10 dan ortiq bo'lib, bu turdagi o'g'irliklarga jiddiy e'tibor berishimizni talab etadi.

Zamonaviy oltin qazib oluvchi va uni qayta ishlovchi korxonalar o'zlarining xavfsizlik tizimlariga muntazam ravishda sarmoya kiritadilar. Sanoatning o'ziga xos xususiyatlari maxsus qoidalarni belgilaydi: tashqi tahdidlardan (noqonuniy kirish, talonchilik, axborot infratuzilmasini buzish) himoya qilishning standart vositalaridan tashqari, konlar, kon-boyitish kombinatlari va zargarlik zavodlari maxsus tekshirish va hisobga olish tizimlarini joriy etishga majburdir. Chunki ko'plab zavod va korxonalarda saqlanuvchi qimmatbaho metallar va buyumlar yuqori qiymatga ega bo'lib, ularning bir necha grammi ham korxonaga uchun katta yo'qotishga olib kelishi, korxonalariga va davlatlarning byudjetiga millionlab dollarlik zarar keltirib chiqarishi mumkin.

2014 yildan beri jangovar bo'lmagan oddiy tipdagi uchuvchisiz uchish aparatlari bozori katta yutuqlarga erishdi. Raqamli texnologiyalarning rivojlanishi tufayli qimmat va murakkab maxsus vosita hisoblangan dronlar hozirgi kunga kelib boshqaruvchidan murakkab boshqaruv ko'nikmalarini talab qilmaydigan, hamma joyda sotib olish mumkin bo'lgan va juda arzon narxga ega gadjetlarga aylandi. Ilgari faqat harbiylarning yoki samolyot muhandislarining qo'lida mavjud bo'lgan ushbu vosita hozirgi kunda telefon ekranidan boshqariladigan oddiy buyumga aylanib bormoqda. Oltin qazib olish va qimmatbaho metallarni qayta ishlashning texnologik jarayoni hali ham xodimlarning qo'l mehnatiga ehtiyoj sezadi. Ko'p hollarda qazilma boyliklarini qidiruvchilar, ishlab chiqarish operatorlari, xizmat ko'rsatuvchi xodimlar va hatto xavfsizlik xodimlari ham ushbu boyliklar bilan muomalada bo'ladilar. So'nggi yillardagi statistikalar shuni ko'rsatmoqdaki ko'plab xorijiy davlatlarda yuqorida ko'rsatilgan toifa orasida dronlar vositasida jinoyat sodir etish holatlari ko'p uchramoqda.

Hozirgi vaqtga kelib davlatlarning o'ta muhim obyektlarida havo maydoni eng zaif joyga aylandi. Zamonaviy havaskor kvadrokopter yarim soatgacha havoda turishi va vazni bir kilogrammgacha bo'lgan yukni ko'tarishi mumkin. Hozirgi vaqtda qimmatbaho metallarni ayniqsa, oltinlarni o'g'irlash quidagicha amalga oshirilmoqda: korxonada ishlaydigan oltin o'g'irlovchilar endi oltinlarni yonida olib ketish va qo'lga tushish xavfiga duch kelmaydi. Endi u o'g'irlangan kontsentratni yoki bo'laklarni obyekt hududida yashiradi, kelishilgan vaqtda telefon orqali sherigiga signal beradi, u bort kamerasi yordamida dronni belgilangan joyga olib boradi, dronga oldindan tayyorlab qo'yilgan qimmatbaho metallar bo'lagi ko'pi bilan yarim daqiqa ichida osib qo'yiladi va yuk bir necha daqiqada maksimal ko'rish cheklangan balandlikka ko'tariladi va obyekt hududidan g'oyib bo'ladi. Ko'pgina konlar, zavod va korxonalar atrofida bo'sh hududli sharoitlar mavjudligi va radio shovqinlarining yo'qligi kopter operatoriga

jinoyat sodir bo'lgan joydan bir necha kilometr uzoqlikda turib uni boshqarish imkonini beradi. Zamonaviy o'g'rilarning dronlarni sotib olishi uchun xarajatlari 10-15 milliondan oshmaydi. Bir-ikki marotaba amalga oshirilgan muvaffaqiyatli o'g'riliklar uning xarajatlarini to'la qoplashi mumkin. Zavod va korxonalarining zarari esa, bu muntazam takrorlanadigan bo'lsa, bir vaqtning o'zida bir necha 100 millionlab bo'lishi mumkin. Zavod va korxonalar barcha ananaviy xavfsizlik vositalariga bir necha million dollarlik investitsiyalarni sarflashmoqda: floroskopiya apparatlari, metall detektorlar, yuzni aniqlash tizimlari va boshqalar. So'nggi yillarda bularning barchasi foydasiz buyumlarga aylanib bormoqda. Agar ushbu yangi tahdidlarni bartaraf etish uchun ixtisoslashgan qurilmalar zavod va fabrikalarda yangi texnologiya sifatida kiritilmagan bo'lsa, bu ularning o'g'riliklarni oldini olishdagi imkoniyatlarini chekalab qo'yadi. Uchuvchisiz uchish aparatlaridan noqonuniy foydalanishga qarshi kurashish uchun vositalarni ishlab chiqish uchuvchisiz uchish aparatlarini ishlab chiqarish texnologiyalaridan biroz orqada qolganligi aniq, ammo bugungi kunda ushbu bozorda ham yetarli funksional imkoniyatlarga ega va aksariyat tashkilotlarning narxiga mos keladigan uskunalari mavjud. Ishlab chiqaruvchi kompaniyalar dronlarni aniqlash va ulardan faol himoya qilish tizimlarini muvaffaqiyatli joriy qilmoqdalar. 2015 yildan beri bir qator davlatlarda va ayniqsa Rossiyada bunday tizimlarni ishlab chiqaruvchi kompaniyalar keng ommalashmoqda. O'z-o'zidan shuni anglash mumkinki hozirgi rivojlanayotgan davrda amalga oshirilayotgan o'g'riliklarning ham usullari va yo'nalishlari rivojlanib bormoqda.

Oltin qazib olish va qayta ishlash korxonalarida jinoyatlarning eng ehtimoliy profilini hisobga olgan holda, dronlardan himoya qilish uchun dasturiy-aparat kompleksini quyidagi tartibda joylashtirish tavsiya etiladi: statsionar uchuvchisiz uchish aparatlarini aniqlash moslamalari (radiochastota detektorlari); statsionar gumbazli dumaloq uchuvchisiz uchish aparatlarini bostirish moslamalari (dronlarni boshqarish, video uzatish va sun'iy yo'ldosh navigatsiyasi chastotalarida shovqin generatorlari); portativ yo'naltirilgan bostirish moslamalari (ular xavfsizlik xizmatining navbatchi smenalari bilan jihozlangan); boshqaruv paneli (operatorning avtomatlashtirilgan ish joyi). Radiochastota detektorlari dronlarning harakati va boshqaruvini o'z radiusida (1 km gacha) taniydilar va boshqa jihozlarning ishlashiga ta'sir qilmaydilar. Ushbu qurilmalar jamlanmasi korxonada ham himoya gumbazi, ham unga yaqin joyda bufer zonasini yaratish uchun mavjud bo'lishi kerak. Radiochastota detektorlariga radiolokatsiya va videoni aniqlashda - ob-havo sharoiti va kunning vaqti hech qanday ta'sir o'tkazmaydi, ularning to'g'ridan-to'g'ri ko'rinishini talab qilmaydi va aksariyat hollarda uchuvchisiz uchish aparatlarini parvozidan oldin, u yerda yoqilganda ham

aniqlay olishi mumkin (1-rasm). Bu ogohlantirish va javob berish uchun yaxshi vaqt beradi[1].



1-rasm (Dronlar harakatini aniqlovchi maxsus detektor qurilmasi)

Agar dron aniqlansa, ushbu qurilmalar operatorning masofadan boshqarish pultiga signal beradi, shundan so'ng u statsionar bostiruvchilarni (xuddi shu prinsip bo'yicha o'rnatilgan) yoqadi va portativ yo'naltirilgan bostiruvchilarni ishlatish uchun xavfsizlik xizmatini xabardor qiladi. Uchuvchisiz uchish aparatlarini himoya qilish tizimlari, shuningdek, statsionar bostiruvchilarni avtomatik rejimga o'tkazishga imkon beradi. Bu holda himoya gumbazi obyekt ustida va tashqarisida 2-3 soniya davomida inson ishtirokisiz joylashtiriladi. Tor profilli va asosli sistemalardan foydalanish ularning korxonaning boshqa radio uskunalari ta'sirini kamaytiradi. Dronlardan foydalangan holdagi o'g'irliklarning sodir etilishida o'ziga xos xususiyatlar shundan iboratki, ulardan oldin har doim razvedka tadbirlari amalga oshiriladi, obyektga sinov parvozlari o'tkaziladi. Shuning uchun, agar zavod va korxonalar uchuvchisiz uchish aparatlaridan himoya qilish tizimi bilan jihozlangan bo'lsa, unda bunday huquqbuzarliklar tayyorgarlik bosqichida ham to'xtatilishi mumkin(2-rasm). Amaliyot shuni ko'rsatadiki, bunday hodisalar faqat vaqt masalasidir. Hozir ularga tayyorgarlik ko'rish kerak. Bu oltin qazib oluvchi va uni qayta ishlovchi korxonalar va zavodlarni, ularga o'xshash noyob yer qazib olish firmalarini katta yo'qotishlardan himoya qiladi va xavfsizlikni to'liq ta'minlaydi. Kompaniyalarda ushbu tizimlar bugungi kun va yaqin kelajakning barcha talablariga javob beradi va qo'riqlovni haqiqatdan ham keng qamrovli qiladi[2].



2-rasm (dronlar harakatiga qarshi himoya gumbazi)

Yuqoridagilardan kelib chiqib quyidagicha xulosa qilish mumkin, hozirgi fan va texnologiyalar rivojlanib borayotgan davrda zamon talabiga monand ravishda o'zgarishlarni o'z vaqtida va samarali tarzda olib borish talab etiladi. Davlat korxonalarini, zavod-fabrikalar va kompaniyalar tomonidan ishlab chiqariladigan va saqlanadigan qimmatbaho boyliklar va ayniqsa qimmatli metallar hamda, qog'ozlarning o'g'irlanishini oldini olish uchun har bir qo'riqlash tizimi mukammal darajada bo'lishini talab etadi. Zamon rivojlangan sari texnikalar va qurilmalar ham rivojlanishda davom etmoqda.

Yuqoridagilarni inobatga olgan holda, davlatning o'ta muhim va toifalangan obyektlarini xavfsizligini ta'minlashda, sodir etilishi mumkin bo'lgan jinoyatlarni oldini olish va qo'riqlash tizimini takomillashtirish maqsadida, quyidagilar taklif etiladi: Davlatimizdagi o'ta muhim obyektlarning xavfsizlik tizimlarini yanada takomillashtirish. Nazorat mexanizmlari va qo'riqlashga jalb etilgan harbiy xizmatchilarning tayyorgarligini oshirish.

Muhim obyektlarning yon atrofini sinchiklab o'rganib chiqish, bunda asosiy e'tiborni obyektlarning atrofidagi o'g'irliklar uchun qulay bo'lgan hududlarga va obyekt ichidagi nazoratdan chetda qolayotgan bo'sh zonalarga qaratish.

O'ta muhim va toifalangan obyektlarni himoya qilish tizimida ayniqsa havo hududidagi qo'riqlashning kamchiliklariga ko'proq e'tibor qaratish. Kameralarning havoda uchuvchi aparatlarni qay darajada va necha foiz miqdorda kuzata olishi ham o'g'irliklarni aniqlashdagi muhim omillardan biri sanalib, bu borada mavjud bo'lgan kamchiliklarni imkon qadar tezroq bartaraf etish.

Xorijiy davlatlar bilan tajriba almashish va xavfsizlik masalalarida hamkorlikni yanada rivojlantirish. Ular bilan ma'lumot almashish, tajribalaridan

unumli foydalanish va yangi texnologiyalar, uchuvchisiz uchish apparatlarini harakatini aniqlovchi maxsus vositalar va zaruratdan kelib chiqib ularni yakson qiluvchi qurollar bilan ta'minlash.

Yuqorida berilgan takliflar kelgusida o'zining ijobiy yechimi bilan O'zbekiston Respublikasidagi o'ta muhim obyektlar hamda korxonalarda jinoyatchilar tomonidan razvedka harakatlarining olib borilishi, u yerdan qimmatbaho boyliklar va ayniqsa qimmatli metallar hamda, qog'ozlarning o'g'irlanishini va muhim ma'lumotlarni chiqib ketishini oldini oladi va shu bilan birga qo'riqlashga jalb etilgan harbiy xizmatchilarning hushyorligini oshirish uchun o'zining ijobiy samarasini beradi. Maxsus qo'riqlov texnologiyasining rivojlanishi esa, xavfsizlik tizimini samarali qiladi, inson omiliga bog'liq xatolarni kamaytiradi va xavflarni tezroq aniqlash imkoniyatini beradi.

Foydalanilgan adabiyotlar ro'yxati.

1. O'zbekiston Respublikasi Vazirlar Mahkamasining "O'zbekiston Respublikasida uchuvchisiz uchadigan apparatlardan foydalanishni tartibga solish bo'yicha qo'shimcha chora-tadbirlar" to'g'risidagi 2022 yil 15 noyabrdagi 658-son qarori.

2. O'zbekiston Respublikasining 2022-yil 15-iyundagi O'RQ-778-sonli "Qo'riqlash faoliyati to'g'risida" gi qonuni .

3. Рекомендации Р 089-2022 "По охране особо важных объектов с применением интегрированных систем безопасности" (утв. Федеральной службой войск национальной гвардии РФ 1 марта 2022 г.)

4. Критическая инфраструктура как объект обеспечения национальной безопасности США. Полковник В.Берловский, кандидат технических наук 15.08.2022 г.

ОЦЕНИТ ФАКТОРЫ РИСКА РАЗВИТИЯ ФЕБРИЛЬНЫХ СУДОРОГ У ДЕТЕЙ.**Ходжамов Шахзод Тилавмурод угли****Детский невролог районной медицинской ассоциации Нишань**

Актуальность. Судорожный синдром - одна из наиболее актуальных проблем детской неврологии. Частота эпилепсии в популяции составляет 0,5-0,75% детского населения, а фебрильных судорог (ФС) - до 5% . Около половины всех судорог приходится на возраст до 15 лет, из них наибольшее количество судорог отмечают в возрасте от 1 до 9 лет. Частое развитие судорог в детском возрасте объясняют как особенностями нервной системы ребёнка, так и многообразием причин, их вызывающих.

Цель исследования: изучить факторы риска развития фебрильных судорог у детей.

Материалы и методы исследования: В обследуемую основную группу вошли 26 детей с простыми фебрильными судорогами, во вторую группу- 24 ребенка с афебрильными судорогами, развившимися после эпизода фебрильных судорог. Предполагаемые факторы риска развития фебрильных и афебрильных судорог изучались методом опроса и анкетирования родителей, анализа амбулаторных карт.

Результаты: Среди возможных факторов риска развития фебрильных и афебрильных судорог нами проанализированы: генетические, медико-биологические и психосоциальные факторы. Влияние наследственной предрасположенности в формировании заболевания в нашем исследовании выявлено у 23% (6) детей с фебрильными судорогами, с афебрильными судорогами 46%(11) при этом в семьях был выше процент встречаемости данного признака у родственников первой степени родства (65%).

Медико-биологические факторы, влияющие на развитие фебрильных судорог, разделены на факторы антенатального, интранатального и постнатального периодов. Наиболее распространенными заболеваниями у женщин во время беременности являлись анемия (79%) и острые респираторно-вирусные инфекции (83%) в группе с афебрильными судорогами. Ведущее место среди патологии беременности и родов в нашем исследовании занимали гестозы (96,%) и угроза прерывания беременности (75%). Сочетание экстрагенитальной патологии и осложнений беременности выявлено у 16 (67%) матерей.

Выводы: Наиболее частыми причинами патологии родов в группе с афебрильными судорогами были: низкая масса при рождении (71%), обвитие пуповиной вокруг шеи (33%), слабость родовой деятельности (33%) оперативное родоразрешение (29%), крупный плод (58%), преждевременные роды (25%). Тогда как в группе с фебрильными судорогами преобладали из патологии беременности гестозы (19%), осложнениями при родах были обвитие пуповиной вокруг шеи (33%), слабость родовой деятельности (33%).

ИССЛЕДОВАНИЕ ЯЗЫКА И СТИЛЯ ПЕРИОДИЧЕСКОЙ ПЕЧАТИ

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Аннотация: В статье сравнительно рассматривается исследование языка и стиля периодического печата в русских и тюркских языках.

Ключевые слова: *литературный язык, наука, газета, стиль, публицистика, жанр.*

Изучение языка печати помогает полнее показать возможности литературного языка и лучше знать их коммуникативную функцию и характеристику. Если обратить внимание на вопрос изучения языка периодической печати по направлению общего языкознания, то можно заметить, что оно начинается с 20-х годов XX века [1]. С первого дня своего появления периодическая печать, в различную эпоху, в различных ситуациях служила одной из важных факторов, влияющих на развитие и совершенствование жизни народа, государства, общества. Конечно, различные взаимоотношения и взаимосвязи, происходящие в обществе, в различных сферах средств массовой информации, сообщаются в различных формах и способах. А печать, являясь самым важным и активным направлением этих связей, отличается от других форм связей своей общественной функцией и художественными приемами. Она своей функцией и действием оказывает влияние на все сферы и явления общественной и социальной жизни, вносит свою лепту на их изменение, совершенствование и развитие. Не надо забывать, что развитие языка в качестве одного из явлений общества в известной степени связано с печатью, потому что во всестороннем развитии письменного языка место печати особое. Несмотря на это, до сего времени в специальном научно-исследовательском плане и ее роли в развитии каракалпакского литературного языка, в становлении и развитии, свойство языка каракалпакской печати не проводилось. Поэтому наблюдение и исследование с научной точки зрения своеобразия языка печати и его роли в развитии каракалпакского литературного языка, в совершенствовании правил правописания, в расширении и обогащении лексического и грамматического строя, если сказать обобщенно, то исследование с научной точки зрения языка печати является самой актуальной проблемой. Всестороннее изучение первых газет, вышедших в Каракалпакстане, поможет делать выводы о некоторых закономерностях развития каракалпакского литературного языка. Эти вопросы, в языкознании ряда народностей, начались изучаться по ее направлениям намного раньше и исследования проводятся до сих пор. Например, в русском языкознании профессор Г.О. Винокур начал исследование языка газет одним из первых. Он в своем труде о своеобразии и роли, языка печати пишет: *«Являющаяся социальным фактом литературного языка роль газеты у нас еще совсем не изучена. Хотя было обращено внимание на политическую роль газеты как распространителя факта и идеи, но на литературно-художественную роль никогда и никем не было дано значение»* [2]. *«Грамматический строй языка газеты состоит в том – пишет Г.О. Винокур – пользуется готовым строем предложения языком передовой газеты».* Основной состав слова языка печати состоит от своеобразной терминологии.

Лексикология газеты является специальной терминологией. По мнению Г.О. Винокура, язык газеты не пользуется художественностью и поэтичностью. Потому что, газета – это независимо от профессии и степени знания читателя, доставляющая для них информацию СМИ. Поэтому, язык газеты является нейтральным лингвистическим средством связи. В работе Г.О.Винокура «Культура языка», в которой был предложен качественно новый подход к изучению языка газет рассматривается как функционально-стилистическое единство, которое обусловлено канонами русской речи. Речевые штампы, то есть максимальная стандартизированность языковых средств, определяются ученым как один из основополагающих признаков языка газет. Лингвисты не признают данное положение бесспорным, хотя именно теоретические положения, изложенные Г.О.Винокуром, до сих пор служат основой научных разработок в данной области.

В русском языкознании в книге «Язык газеты» выпущенная в соавторстве М.Гусь, Ю.Загорянского, Н.Кагановича, сделаны выводы о том, что язык современной газеты отличается своей сложностью, трудностью и нехваткой действенности. Его понятность и степень связи с определенной целью низко [3]. Конечно, причиной такого высказывания учеными в определенной степени могут быть некоторые газеты того времени, однако, если даже и так, то нам кажется, это односторонней оценкой языка газеты.

Известный ученый Я. Шафир в своей книге, посвященной языку газеты, писал: *«Наша газета в основном для рабочих и крестьян и потому читатели, относящиеся к другим группам, не определяют характер, содержание и форму печати»* [4].

В русском языкознании В.Г.Костомаров считается ученым, полностью изучившим язык газеты с научно-теоретической стороны [5]. Его труд «Русский язык на газетной полосе» является первым в русистике специальным монографическим исследованием газетно-публицистического стиля в рамках функциональной стилистики. Он в своих научных трудах указывает стандартные единицы являющиеся общей и основной единицей языка газеты, определяет экспрессивные и стандартные программы и анализирует теоретические основы газетного языка с научно-лингвистической стороны.

Тюркоязычных народах задача изучения печатного языка можно увидеть начиная с 50-х годов прошлого века. Эта тема стала основой для составления различных словарей, статистического анализа, а также для написания кандидатских и докторских диссертаций. В казахском языкознании по сравнению с другими тюркоязычными народами к этой задаче обратили особое внимание. В результате этого было написано множество кандидатских и докторских диссертаций. Например, научная работа Н.Б.Карашевой посвящена проблемам изучения морфологических и синтаксических особенностей журнального языка «Айкап». Б.Абилкасимов обращает свое внимание на изучение языка казахской газеты под названием «Дала уалаяты», которое существовало в 1888-1902 гг. А газеты «Енбекши казах» появившиеся на казахском языке и журнал «Кызыл Казахстан» стали главными объектами для научного изучения проводимое С.Исаевым. Он в обоих трудах проанализировал лексику газеты, элементы книжного языка, элементы разговорного языка, печатного языка 20-х г.

С.М.Исаев в своем докторском труде на эту тему проанализировал связь казахского литературного языка и ежедневного печатного языка, а также развитие способов словообразования на страницах печати. В научной работе А. Ахабаева казахский ежедневный печатный язык анализируется с синтаксической стороны [6].

Соответствующие аффиксы существительных и других частей речи проанализированы синтаксико-морфологической стороны. Также в нем изучены таблицы фонетических, лексических и морфологических типов дублетных слов, вместе с ними изучены их морфологическая структура. В кандидатской диссертации А.Т.Эшмуратова изучены вопросы лексического строя синонимического и фразеологического единства и их синтаксические особенности татарского языка в языке газеты «Урал» [7]. В диссертации В.З.Гариффуллина изучены лингвостилистическая система в татарских газетных текстах [8]. В кандидатской диссертации М.А. Аскарлова изучена роль газеты «Казан-махбиде (Казанский вестник)» в развитии публицистики татарского языка в начале XX в. [9].

В узбекском языкознании также велось множество научно-исследовательских работ. Ученый В.В. Решетов является одним из первых ученых который обратил внимание к этой области. В 1934 году он анализировал лексический состав узбекской периодической печати на основе материала газеты «Кызыл Ўзбекистан» [10]. Для того чтобы проанализировать лексический состав газеты на тот период автор составил 15 таблиц. По его показаниям словарь газеты состоит из 1000 слов, 5930 из которых (54,3%) узбекские, 2100 слов (21%) арабские, 490 слов (4,9%) таджикский-фарси, 1238 слов (12%) русско-интернациональные слова. Книга под авторством А.К.Боровкова по анализу политической лексики узбекского печатного языка считается одним из весомых трудов в узбекском языкознании. В этой книге приведены развитие политической лексики и терминологии 1905-1917 гг., общественно-политическая лексика и национальный пуризм в терминологии, характеристика общественно-политической лексики и терминологии 1905-1917 гг. Автор указывает, что возникновение ежедневного издательства 1905-1917 гг. создание школьных учебников на родном языке является одним из самых значительных основ в развитии узбекского литературного языка.

Профессор М.К.Айымбетов защитил диссертацию по теме «*Опыт лингвистического анализа лексики и морфологии каракалпакского текста*» и выпустил монографию под эти названием [11]. Вместе с этим велись специальные научные исследования по функциональным стилям каракалпакского письменного литературного языка. Если отметить, то по научным стилям была защищена кандидатская диссертация К.Бекбергенова, по стилям художественной литературы Б.Юсуповой. Также, в 2016 году была опубликована монография Т.Машариповой под названием «*Целостная концепция теории публицистики: научно методологический анализ по материалам каракалпакской публицистики*». В этой книге анализированы принципы пропаганды, эстетики, художественной литературы и публицистики. А так же даны сведения о языке и стиле медиа жанрах [12].

Около 90 лет со дня выхода газет на каракалпакском языке. Очевидно то, что периодическая печать за это время оказала значительное влияние на развитие лексического состава каракалпакского языка, на морфологическом изменении, в заимствовании из других языков слов и терминов. Несмотря на это проблема исследования языка каракалпакской периодической печати остается в стороне от внимания ученых языковедов. До сего времени помимо нескольких статей, посвященных этой теме, защищена только одна диссертация [13]. Значит, в этом направлении очень много проблем, требующих исследования лингвистами. В настоящее время без материалов взятых из газет изучение языка, его общих норм и указать на многогранные стилистические своеобразия, отметить и понимать невозможно.

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WHY AN ELECTRON DOES NOT ABSORB A PHOTON**M.B.Tagayev**

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Annotation: Energy Conservation: A fundamental law stating that energy cannot be created or destroyed, only transformed. For an electron to absorb a photon, the energy of the photon must match the energy difference between two allowable electron states.

Key words: Momentum Conservation, Quantum Selection Rules, Pauli Exclusion Principle, Compton Scattering.

ПОЧЕМУ ЭЛЕКТРОН НЕ ПОГЛОЩАЕТ ФОТОН

Аннотация: Сохранение энергии - фундаментальный закон, согласно которому энергия не может быть создана или уничтожена, а только преобразована. Чтобы электрон мог поглотить фотон, энергия фотона должна соответствовать разнице энергий между двумя допустимыми электронными состояниями.

Ключевые слова: Сохранение импульса, Квантовые правила отбора, принцип исключения Паули, Комптоновское рассеяние.

The interaction between electrons and photons is a cornerstone of quantum mechanics and quantum electrodynamics (QED). While electrons can absorb and emit photons under specific conditions, there are situations where an electron does not absorb a photon. To understand why, it is essential to delve into the quantum nature of this interaction, which involves energy conservation, selection rules, and the nature of the photon itself.

1. The Nature of Electrons and Photons. An electron is a fundamental particle with mass, charge, and a wave-like nature described by quantum mechanics. Photons, on the other hand, are massless quanta of electromagnetic radiation, carrying energy proportional to their frequency ($E = hf$, where h is Planck's constant and f is the frequency).

The interaction between electrons and photons involves the absorption or emission of energy. For an electron to absorb a photon, it must meet certain physical conditions dictated by quantum rules.

2. Energy Conservation. One of the primary reasons an electron does not absorb a photon under certain circumstances is due to the law of conservation of energy. For an electron to absorb a photon, the energy of the photon must match the energy difference between two quantum states of the electron. In an atom, for example, electrons exist in discrete energy levels. A photon will only be absorbed if its energy corresponds exactly to the energy gap between these levels.

If a free electron (i.e., not bound to an atom) encounters a photon, it cannot absorb it in the same way that a bound electron can. This is because for a free electron, absorbing a photon would violate energy and momentum conservation simultaneously. In such a scenario, without a third body to conserve momentum (like a nucleus or another particle), the absorption is forbidden.

For an electron to absorb a photon, the energy of the photon must exactly match the energy difference between two quantized energy states of the electron. This principle is often applied to electrons bound in atoms.

The energy of a photon is given by:

$$E_{\text{photon}} = h\nu$$

The electron's energy levels in an atom are quantized, and the energy difference between two levels (for example, in the hydrogen atom) is given by:

$$\Delta E = E_n - E_m = -13,6 \text{ eV} \left(\frac{1}{n^2} - \frac{1}{m^2} \right)$$

For an electron to absorb a photon, the photon's energy must match the energy difference between two levels:

$$\Delta E = h\nu$$

If the photon's energy does not match this energy difference, the electron will not absorb the photon.

3. **Momentum Conservation.** Momentum conservation is another key factor. Photons, despite being massless, carry momentum. For an electron to absorb a photon, both energy and momentum must be conserved. In an atom, the nucleus can absorb some of the recoil momentum, making absorption possible. However, for a free electron, this mechanism is unavailable.

Consider the case of a free electron absorbing a photon. If the electron were to absorb the photon's energy and momentum, the resulting momentum and energy would not match the relativistic relationship between energy and momentum for the electron. This discrepancy prevents the absorption of a photon by a free electron.

In addition to energy conservation, momentum conservation must also be satisfied. Photons, despite being massless, carry momentum, which is related to their energy by:

$$p_{\text{photon}} = \frac{E_{\text{photon}}}{c} = \frac{h\nu}{c}$$

For a free electron (an electron not bound in an atom), absorbing a photon would require a simultaneous change in its energy and momentum. However, this creates a problem because the energy and momentum of the electron must also obey the relativistic energy-momentum relationship:

$$E_{\text{electron}}^2 = (p_{\text{electron}}c)^2 + (m_e c^2)^2$$

In a two-body interaction (photon and free electron), it is impossible to simultaneously conserve both energy and momentum under this relationship. As a result, a free electron cannot absorb a photon without violating these conservation laws. This is why photon absorption typically occurs in bound systems, where additional bodies (like an atomic nucleus) can participate in conserving momentum.

4. **Quantum Selection Rules.** In bound systems, such as electrons in atoms or molecules, transitions between energy levels are governed by quantum mechanical selection rules. These rules dictate which transitions are allowed based on the symmetry and angular momentum properties of the initial and final states of the electron.

One important selection rule involves the change in angular momentum. Photons carry one unit of angular momentum (spin), and for an electron to absorb or emit a photon, the change in the electron's angular momentum must match the photon's angular momentum. If the

transition between two states does not satisfy this condition, the absorption of the photon will be forbidden. This gives rise to the rule:

$$\Delta l = \pm 1$$

If a transition between two energy levels does not satisfy this selection rule, the electron will not absorb the photon. For example, an electron transition between two levels with same orbital angular momentum quantum number l (e.g., from $l = 0$ to $l = 0$) is forbidden.

5. Pauli Exclusion Principle. In multi-electron systems, such as atoms and molecules, the Pauli Exclusion Principle plays a role in photon absorption. According to this principle, no two electrons in an atom can occupy the same quantum state simultaneously. Thus, if all available states in a given energy level are already occupied, an electron cannot absorb a photon to transition to that state.

If all the quantum states at a particular energy level are already filled, an electron cannot be promoted to that level by absorbing a photon. The principle is mathematically expressed by the antisymmetric nature of the wavefunction for fermions (particles with half-integer spin, such as electrons).

$$\Psi(1, 2) = -\Psi(2, 1)$$

This principle ensures that electrons must occupy distinct quantum states, thus limiting the absorption of photons under certain conditions.

6. Compton Scattering. A Different Interaction. Even though a free electron cannot absorb a photon, it can still interact with one through a process known as Compton scattering. In this process, the photon transfers some of its energy to the electron, but instead of being absorbed, the photon is scattered with reduced energy. This interaction still satisfies the conservation laws for both energy and momentum.

The energy and wavelength change of the photon after scattering are described by the Compton shift equation:

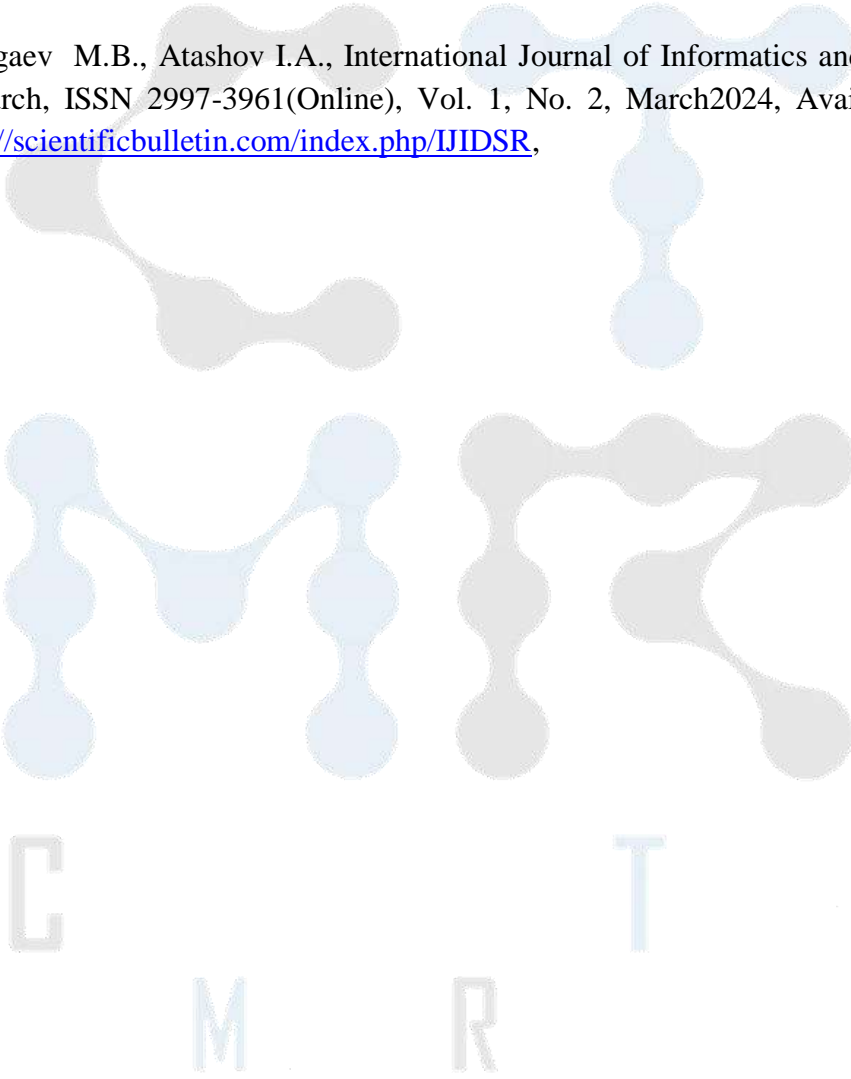
$$\Delta\lambda = \lambda' - \lambda = \frac{h}{m_e c} (1 - \cos \theta)$$

Compton scattering satisfies both energy and momentum conservation, making it a valid interaction for free electrons, unlike direct photon absorption.

7. Conclusion. The inability of an electron to absorb a photon in many situations stems from fundamental conservation laws, particularly those of energy and momentum, as well as quantum mechanical rules such as selection rules and the Pauli Exclusion Principle. While electrons can absorb photons under specific conditions—most notably in bound systems—free electrons cannot do so without violating these principles. This highlights the nuanced nature of electron-photon interactions and the importance of quantum mechanics in describing them.

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KOLLOID MODDALAR XOSSALARI VA ULARNING STABILIZATSIYASI**Kenjayev Nuriddin Nurmat o'g'li****Termiz shahar 8-maktab kimyo fani o'qituvchisi**

Annotatsiya: Ushbu maqolada kolloid moddalar va ularning fizik-kimyoviy xossalari chuqur tahlil qilingan. Kolloidlar ikki fazadan iborat bo'lgan tizimlar bo'lib, dispers faza va dispers muhit o'rtasida o'ziga xos o'zaro ta'sirlar mavjud. Kolloidlarning optik, kinetik va elektr xossalari, jumladan, Tindal effekti, Braun harakati, elektroforez va elektrokinetik hodisalar tahlil qilingan. Tadqiqot natijalariga ko'ra, dispers fazaning zarracha hajmi va dispers muhit bilan o'zaro ta'siri kolloid tizimlar stabilizatsiyasini belgilaydi. Ushbu maqola kolloid moddalar haqidagi mavjud bilimlarni kengaytirish bilan birga ularning farmatsevtika, oziq-ovqat sanoati va boshqa sohalarda qo'llanilishini chuqurroq o'rganish uchun asos yaratadi.

Kalit so'zlar: kolloid tizimlar, dispers faza, Tindal effekti, Braun harakati, elektroforez, elektrokinetika, stabilizatsiya.

Kirish:

Kolloid tizimlar kimyo va fizik-kimyo sohalarida alohida ahamiyatga ega. Ular ko'plab tabiiy va sun'iy tizimlarda mavjud. Masalan, qon, sut, zardob, bo'yoqlar va jelatinli moddalar kolloid tizimlarning oddiy misollaridir. Ushbu tizimlar dispers faza va dispers muhit o'rtasida hosil bo'lib, dispers fazadagi zarrachalar diametri 1 nm dan 1000 nm gacha bo'ladi. Kolloidlar ko'pincha bir xil ko'rinishga ega bo'lsada, ular makro molekularlar va boshqa yirik zarrachali tizimlardan farq qiladi. Ularning optik, kinetik va elektr xossalari ularning stabilizatsiya jarayonlarida muhim rol o'ynaydi.

Bu maqolaning maqsadi kolloid moddalar xossalari, ularning asosiy optik, kinetik va elektr xususiyatlarini o'rganish va ularning amaliyotdagi ahamiyatini aniqlashdan iborat.

Metodologiya:

Maqolada bir nechta tajriba usullari qo'llanildi:

1. Optik xossalar: Tindal effekti orqali kolloidlarning yorug'likni qanday sochishi o'rganildi. Dispers fazasi zichligi yuqori bo'lgan tizimlar yorug'likni tarqatadi va bu hodisa aniq kuzatildi.
2. Kinetik xossalar: Braun harakati yordamida dispers faza zarrachalarining doimiy, beparvo harakatlari mikroskop ostida kuzatildi. Zarralar o'lchami va ularning harakatlanish darajasi aniqlanib, kinetik energiyasi baholandi.
3. Elektr xossalari: Elektroforez usuli yordamida dispers fazadagi zarralarning elektr maydoni ta'sirida qanday harakatlanishi tekshirildi. Zarralar o'zlarining zaryadiga qarab katod va anodga qarab harakatlandi.
4. Elektrokinetik hodisalar: Zarralarning elektrokimyoviy barqarorligi o'rganilib, zarralarning qo'zg'aluvchanligi va dispers muhitda harakat tezligi tahlil qilindi.

Ushbu tadqiqotlar natijasida kolloid moddalar xossalari haqidagi ilmiy ma'lumotlar to'plandi va ular asosida kolloidlarning stabilizatsiya jarayoniga nimalar ta'sir qilishi tahlil qilindi.

Natijalar:

Tadqiqot natijalariga ko'ra:

Tindal effekti natijasida dispers fazaning zarracha hajmi kichik bo'lgan tizimlar yorug'likni aniq sochishi kuzatildi. Dispers muhit zichligi va zarracha hajmiga qarab yorug'likning sochilishi darajasi o'zgarib turdi.

Braun harakati dispers zarrachalarning doimiy ravishda tartibsiz harakatlanishini ko'rsatdi. Zarralar qancha kichik bo'lsa, ularning harakat tezligi shuncha yuqori bo'ldi.

Elektroforez tajribasi zarralarning elektr maydonida harakatlanishini namoyish etdi. Musbat zaryadli zarralar manfiy elektrodda, manfiy zaryadli zarralar esa musbat elektrodda to'plandi. Elektrokinetik hodisalar natijasida dispers fazaning harakatlanish tezligi va dispers muhitning elektrokimyoviy stabilizatsiyasi aniqlanib, bu kolloidlarning barqarorligini tasdiqladi.

Tahlil:

Olingan natijalar asosida kolloid moddalar dispers fazasining zarracha hajmi, dispers muhitning kimyoviy tarkibi va zarralar zaryadining tizim stabilizatsiyasida muhim ahamiyatga ega ekani isbotlandi. Tindal effekti orqali kolloid tizimlarda yorug'likning sochilishi va Braun harakati orqali zarrachalarning harakatlari tizimning barqaror holatda qolishini ta'minlaydi. Bundan tashqari, elektroforez va elektrokinetik tahlillar dispers zarralarning elektr maydoni ostidagi harakatini va ularning stabilizatsiyalangan holda qolish jarayonlarini ko'rsatdi.

Kolloid moddalar stabilizatsiyasida dispers fazaning va dispers muhitning tarkibiy xususiyatlari katta ahamiyatga ega bo'lib, ular kolloidning uzoq muddat barqaror holda qolishini ta'minlaydi. Shuningdek, kolloidlar qo'llaniladigan sohalarda ularning stabilizatsiyasi ishlab chiqarish jarayonida aniqlovchi faktor bo'ladi.

Xulosa:

Kolloid moddalar xossalari ilmiy jihatdan muhim o'rinni egallaydi va ko'plab amaliy sohalarda qo'llaniladi. Tadqiqotlar kolloid tizimlarning fizik va kimyoviy xususiyatlarini chuqurroq anglashga yordam berdi. Kolloidlarning stabilizatsiya jarayoni dispers fazaning zarracha hajmi va dispers muhit bilan o'zaro ta'siriga bog'liq ekanligi aniqlandi. Olingan natijalar kolloid moddalar haqida chuqur bilim olish va ularning ilmiy-amaliy ko'lamini kengaytirishda muhim ahamiyatga ega.

Quyida "Kolloid moddalar xossalari va ularning stabilizatsiyasi" mavzusida yozilgan maqola uchun foydalanilgan adabiyotlar ro'yxatini keltiraman. Bu adabiyotlar ilmiy maqolalar, darsliklar va monografiyalardan iborat bo'lib, kolloid moddalar haqida keng qamrovli ma'lumot beradi:

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Ingliz tilidagi modal fe'llarining etimologiyasi, semantikasi va vazifalari xususida.

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Annotatsiy: Ingliz tilidagi modal fe'llar so'zlovchining gapdagi asosiy fe'l bilan ifodalangan harakat yoki holatga munosabatini bildiruvchi fe'llarning o'ziga xos turkumidir.

Kalit so'zlar: modal so'zlar, modallik kategoriyasi, etimologiya, modal ma'no.

"Modal" atamasi lotincha "modus" so'zidan kelib chiqqan bo'lib, "usul" yoki "yo'l" degan ma'noni anglatadi. Birinchi marta 1975–80 yillarda qayd etilgan; serb-xorvat tilidagi "mod(ulus) + -al" dan kelib chiqqan. Modallik so'zlovchining fikriga munosabati bilan bog'liq bo'lib, so'zlovchi nutqiga aniqlik, imkoniyat, iroda, majburiyat, zarurat va qobiliyat ma'nolarini so'z va iboralar yordamida qo'shishdir. Modal fe'l - fe'l haqida qo'shimcha ma'lumot beruvchi ko'makchi vositadir. Ya'na bir manbaada modallik "mantiqiy mulohazalar mazmunining imkoniyati, imkonsizligi, tasodifiyligi yoki zarurligini tasdiqlash yoki rad etishiga mo'ljallangan birliklar" majmui ekanligi ta'kidlangan. Shuningdek, "mayl va zamoni ifodalash uchun boshqa fe'l bilan birikadigan fe'l"ligi ham aytilgan. Har bir modal fe'l haqida ma'lumot berish uning etimologik ildizlari va kontekst funksiyalari bilan birgalikda o'ziga xos semantikasini ko'rib chiqishdan boshlanadi. So'zning kelib chiqishini chuqur tahlil qilish uning zamonaviy ma'nolarini ochib beradi, uning nutqda qo'llanilishi tendensiyalarini tushunishga yordam beradi, shuningdek, ma'lum bir fe'lning kontekstual ma'nolarining paydo bo'lish sabablarini topishga yordam beradi. Keling endi "must" modal fe'lini to'liq tahlil qilib chiqamiz.

Etimologiyasi: "Must" modal fe'li boy etimologik tarixga ega bo'lib, "must" so'zi qadimgi inglizcha (Old English) "mōtan" so'zidan olingan bo'lib, "...ga to'g'ri kelmoq, majbur bo'lmoq, taqazo etmoq" degan ma'nolarni anglatadi. O'rta ingliz (The Middle English) tilida bu so'z "mote" ga va oxir-oqibat zamonaviy "must" shakliga aylangan.

1. "ic mōt gān tō āðe." (I must go to the oath.)
2. "þū motest bēon sēlre." (You must be better.)
3. "hē ne mōt cuman hider." (He must not come here.)
4. "wē mōton dōn þæt riht." (We must do what is right.)

semantikasi: "Must" modal fe'li birinchi navbatda ingliz tilida kuchli zarurat, majburiyat yoki aniqlikni ifodalash uchun ishlatiladi. Asosan fikrga qo'shimsha hukmning majburiy, yoxud muqarrarligini anglatish uchun ishlatiladi. "Must"ning semantik funksiyalarini uchta asosiy sohaga bo'lish mumkin: epistemik modallik, deontik modallik va dinamik modallik.

Epistemik modallik nuqtai nazaridan, vaziyatga nisbatan yuqori darajadagi aniqlik yoki ehtimollikni ifodalash uchun "must" ishlatiladi. Bu so'zlovchining gapning haqiqatligiga yoki ehtimolligiga ishonchi komil ekanligini ko'rsatadi.

Deontik modallik matnda, yoki nutqda majburiyat, zarurat yoki taqiqning kuchliligini yetkazish uchun ishlatiladi. Bu qoidalar, qonun yoki ijtimoiy me'yorlar asosida harakat talab qilinishi yoki taqiqlanishini ko'rsatib turadi.

Dinamik modallikka keladigan bo'lsak, "must" harakatni amalga oshirish qobiliyati, tayyorligi yoki niyatining kuchli tasdig'ini ifodalash uchun qo'llaniladi. Bunda modal fe'l so'zlovchining muayyan harakat yo'nalishidagi qat'iyatini yoki majburiyatini bildiradi.

1. Epistemik modallik:

- He must be at home by now. (Certainty)
- The meeting must start on time. (Expectation)
- She must have forgotten her keys. (Inference)

2. Deontik modallik:

- You must submit your assignment by the deadline. (Obligation)
- We must follow the safety guidelines at all times. (Requirement)
- They must not enter the restricted area. (Prohibition)

3. Dinamik modallik:

- I must finish this project before the deadline. (Determination)
- She must speak to the manager about her concerns. (Intention)
- They must find a solution to the problem. (Commitment)

Vazifasi

“Must” modal fe’li kontekstga qarab turli vazifalarni bajaradi.

1. Zarurlikni ifodalash:

- You must wear a helmet while riding a bike.
- Students must study for their exams diligently.
- We must take action to address climate change.

2. Majburiyatni ifodalash:

- Employees must attend the training session tomorrow.
- Parents must ensure their children's safety at all times.
- Citizens must obey the laws of the land.

3. Aniqlikni ifodalash:

- The package must have arrived by now.
- She must be the most qualified candidate for the job.
- They must know about the changes in the schedule.

4. Taqiqni ifodalash:

- You must not smoke in this area.
- Visitors must not touch the artifacts in the museum.
- Students must not cheat during exams.

5. Xulosa bildirish:

- The phone is ringing; she must be calling.
- He's wearing a suit; he must be going to a formal event.
- The store is closed; they must have gone home early.

6. Deduksiyani ifodalash:

- The road is wet; it must have rained recently.
- She looks tired; she must have had a long day.
- He's carrying a backpack; he must be going hiking.

Xulosa qilib aytadigan bo‘lsak, “must” modal fe’li ingliz tilidagi gaplarda zarurat, majburiyat, aniqlik va xulosani ifodalashda hal qiluvchi rol o‘ynaydi.

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APPROACHES TO IMPROVING THE ACCOUNTING OF DEPRECIATION OF ASSETS IN COMMERCIAL BANKS**Yuldashev Ulugbek Xotambek o'g'li****Banking and finance academy of the Republic of Uzbekistan**

Depreciation of assets plays a crucial role in the financial health and stability of any organization, and this is especially true for commercial banks. Banks heavily invest in assets such as buildings, equipment, and technology, which depreciate over time. Effective accounting for this depreciation is vital for accurate financial reporting, regulatory compliance, and strategic decision-making. As the banking sector evolves with technological advancements and changing regulatory landscapes, approaches to improving the accounting of depreciation have become more critical. This article explores the modern approaches to enhancing depreciation accounting in commercial banks, ensuring better financial transparency and asset management.

Depreciation reflects the allocation of the cost of tangible and intangible assets over their useful lives. In commercial banks, accurate depreciation accounting is essential for several reasons:

1. **Regulatory Compliance:** Banks operate in highly regulated environments. Regulatory bodies, such as central banks and financial authorities, often require detailed asset accounting to assess the institution's financial health.
2. **Profitability and Financial Health:** Depreciation directly impacts profitability. Understating or overstating depreciation can distort the bank's earnings and capital adequacy ratios, leading to incorrect assessments of its financial condition.
3. **Tax Efficiency:** Proper depreciation accounting ensures compliance with tax regulations and helps banks optimize their tax liability.
4. **Decision-Making:** Effective management decisions depend on accurate asset valuation. Depreciation accounting helps banks assess when to invest in new technology or assets.

Despite its importance, depreciation accounting presents several challenges for commercial banks, including:

- **Complex Asset Portfolios:** Banks hold diverse assets ranging from real estate to IT infrastructure. Different depreciation methods may apply to different types of assets, making the accounting process complex.
- **Changes in Technology:** As banks increasingly rely on technology, the useful life of IT assets often shortens due to rapid obsolescence. This creates challenges in estimating accurate depreciation schedules.
- **Regulatory Changes:** Changes in accounting standards and tax laws require banks to continuously adapt their depreciation accounting methods.
- **Risk of Inaccuracy:** Inaccurate depreciation calculations can lead to incorrect financial reporting and significant consequences, such as penalties from regulatory bodies or incorrect decision-making at management levels.

Improving the accounting of depreciation of assets in commercial banks is essential for accurate financial reporting, regulatory compliance, and effective asset management. The adoption of modern technologies, component-based depreciation, flexible depreciation schedules for technological assets, and adherence to international standards such as IFRS are among the key approaches that can help banks refine their depreciation practices. By addressing

the challenges of depreciation accounting and implementing these strategies, banks can enhance their financial stability and operational efficiency in an increasingly complex financial landscape.

This proactive approach to depreciation accounting will not only ensure compliance with regulatory standards but also provide management with better insights for strategic decision-making in asset management and financial planning.

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**INTERNATIONAL EXPERIMENTS IN ASSESSING
CREDITWORTHINESS**

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Assessing creditworthiness has become a critical element in financial systems worldwide, particularly as economies globalize and the demand for cross-border financial services grows. The evaluation of creditworthiness, or the ability of a borrower to repay debt, plays a significant role in maintaining the stability of financial institutions and ensuring sound lending practices. Different countries have adopted various methods and frameworks to assess creditworthiness based on their financial infrastructure, regulatory environments, and economic conditions. This paper aims to explore and compare international experiments in creditworthiness assessment, evaluating the methodologies and outcomes in different regions, and their implications for global finance.

Creditworthiness assessments allow lenders to estimate the likelihood that a borrower will meet their debt obligations. Traditional methods of credit assessment often involve reviewing a borrower's credit history, income, debt levels, and sometimes collateral. However, technological advancements and financial innovations have led to a more diverse range of tools and methodologies for assessing creditworthiness. These experiments include the use of big data, artificial intelligence (AI), machine learning algorithms, and alternative data sources such as social media and behavioral data.

In the U.S., FICO scores have become synonymous with creditworthiness. The FICO system relies on data provided by the three major credit bureaus: Equifax, TransUnion, and Experian. The score ranges from 300 to 850, with higher scores indicating lower credit risk. However, this model has been criticized for excluding individuals without a formal credit history, such as immigrants or young adults. To address this issue, financial institutions have begun integrating big data and AI-driven models to offer a more comprehensive view of a borrower's financial health.

Recent experiments in the U.S. involve using AI to predict future borrower behavior based on non-traditional data sources, such as transactional data, subscription services, and even geolocation. These techniques have shown promise in identifying creditworthy individuals who may have been overlooked by traditional scoring methods.

In the European Union, creditworthiness assessments are governed by strict regulations such as the General Data Protection Regulation (GDPR), which imposes constraints on the collection and processing of personal data. While credit

scoring agencies like Experian and TransUnion operate in Europe, the application of alternative data sources is limited due to privacy concerns.

Nevertheless, experiments in countries like the United Kingdom have sought to use open banking data, where borrowers grant lenders access to their financial transactions through secure APIs. This method provides a more real-time and accurate reflection of a borrower's financial situation, enhancing traditional models.

India represents a unique case in the global credit assessment landscape. With a large portion of its population underbanked or unbanked, traditional credit scoring methods have limited reach. The Indian financial system has therefore embraced alternative data to assess creditworthiness, particularly for small businesses and individuals without formal credit histories.

Credit rating agencies such as CIBIL (Credit Information Bureau India Limited) are complemented by fintech companies using data from mobile phone transactions, utility payments, and even behavioral data from social networks. These experiments have helped expand financial inclusion and provide credit access to individuals and businesses that would otherwise remain underserved.

China's approach to creditworthiness assessment differs significantly from Western models. The Chinese government has experimented with a social credit system, which assigns scores based not only on financial data but also on social behaviors such as compliance with laws and ethical behavior. This system has raised concerns about government overreach and privacy, but it also represents a unique approach to using non-financial data in creditworthiness assessments.

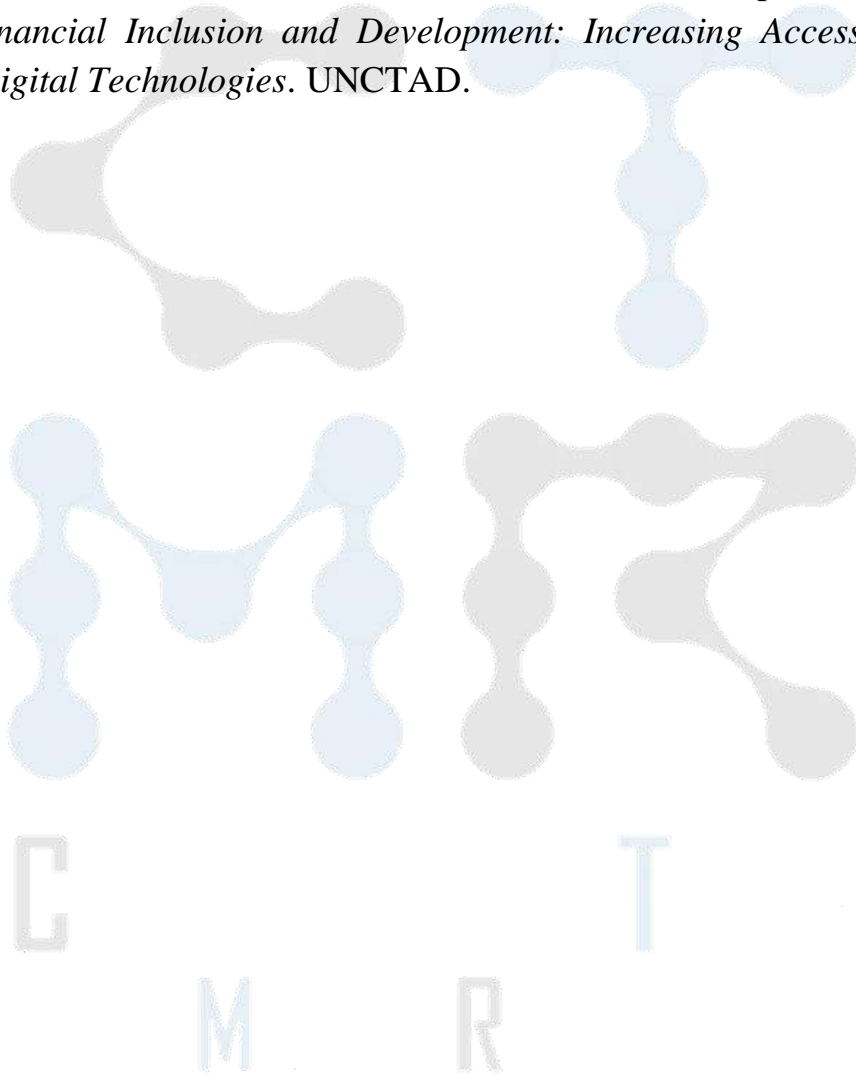
In the Chinese banking sector, companies such as Ant Financial use big data and AI to provide credit assessments. For example, Ant Financial's Sesame Credit uses data from its parent company, Alibaba, to evaluate consumer behavior, offering a broader view of creditworthiness than traditional financial data alone.

International experiments in assessing creditworthiness demonstrate a trend toward more inclusive and data-driven approaches. While traditional credit scoring systems remain prevalent, particularly in developed countries, alternative models using big data and AI are gaining traction. These experiments are particularly beneficial in regions where large portions of the population are underserved by traditional banking services.

The future of creditworthiness assessment will likely involve a blend of traditional methods and innovative data-driven approaches, with a focus on expanding access to credit while maintaining ethical standards. Global financial institutions and regulators must continue to balance the benefits of these innovations with concerns about privacy, data security, and fairness to ensure a sustainable and inclusive financial system.

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Family is the center of moral education**Hasanova Madina Saidovna –**

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Abstract: Family is a social unit based on natural-biological, economic, spiritual relations, it is a space that creates comfortable conditions for human life and satisfies his various needs.

Key words: Family, pedagogy, natural-biological, economic, spiritual life, national, tradition, human, social.

Аннотация: Семья — это социальная ячейка, основанная на естественно-биологических, экономических, духовных отношениях, пространстве, создающая комфортные условия для человека и удовлетворяющая разнообразные потребности его личности.

Ключевые слова: Семья, педагогика, эстетико-биологическое, экономическое, духовная жизнь, национальный, традиция, человеческий, социальный.

The family is the main and initial level of society, the first forms of the first union formed by mankind were "family", i.e. "ahle bayt" (women). The communities of Ahl al-Bayt gradually developed and became a community and a tribe" (48,13) . So, the initial stage of community life begins with the structure of the family, a person feels happy with a small union family in the bosom of a large community.

Family is a social unit based on natural-biological, economic, and spiritual relations, and it is a space that creates comfortable conditions for human living and satisfies his various needs.

Also, the family is a place of education that ensures life and the continuity of generations, preserves sacred traditions and conveys them to future generations, and directly affects how future generations will grow up to be human beings. It is an institution with a social and educational value, which ensures mutual equality of family members, mutual understanding, continuity of generations, educates them economically, spiritually, morally, physically, and aesthetically.

In particular, to carefully preserve the national traditions, life-giving customs and traditions of the family, integrate them with universal human values, protect motherhood and childhood, and provide all-round assistance to the family in fulfilling its sacred task of raising a well-rounded generation. By the decision of the Cabinet of Ministers, it was entrusted to the scientific-practical center "Family".

The first President of the Republic of Uzbekistan, IAKarimov, emphasized the importance of family education in raising a mature generation and said: "The main task is to steadily build a populist and just society in the republic. A hardworking and wealthy, spiritually mature and cultured family is the foundation of society."

In the anthology of Uzbek pedagogy, "achieving the education of the young generation on the basis of folklore, as well as national and universal qualities expressed in our ancient values", as well as "... the etiquette of folk oral creativity, its educational and educational aspects in our daily life to be able to use more than ever - the requirements of our time, our independence.

The importance of the family in the life of the society has been emphasized by the Uzbek people since ancient times.

Nizamul Muluk expresses the opinion that the society should take responsibility for raising children. So he paid special attention to the social importance of education. It shows the role of relatives and neighborhood people in the upbringing of a child.

The holy book of Zoroastrianism, "Avesta", glorifies a person who earns an honest living thanks to work, and it is emphasized that only the head of the family who loves the land can provide for his family. In this sacred work, the problem of protecting the family is highlighted. The idea of rewarding women who have given birth to and raised several children, and assigning allowances has been put forward.

In Islamic values, special importance is attached to raising a child in the family as a person worthy of society, moral, hardworking, and possessor of beautiful virtues. In particular, the hadith of Muhammad, peace be upon him: "A father cannot leave a legacy to his child more than morals", it is emphasized that the most important aspect of family education is the gift of morals to the child.

There are many examples in history of the fact that many famous people were born to mothers, their knowledge, knowledge of folklore and the fact that they passed it on to their children. Beruni attaches special importance to the place of a woman in the family. He says that the main reason for family stability is due to a woman who respects her husband, is neat and clean, and in order. It is known that a healthy lifestyle is a broad concept, which includes productive work, active rest, regular sports, physical exercise, personal, professional and psychohygiene. It is expressed in eating, refraining from harmful habits, going through an annual medical examination and forming a healthy family. Also, a healthy lifestyle is reflected in a person's skills related to forming a healthy family and having healthy children. Today in higher education, the formation of knowledge, skills, and reproductive culture in meeting the requirements of intellectual, professional, moral, and cultural development of students is considered to be the main part of educational goals, especially the pedagogical profession. in experts within.

At the current stage of human development, while the achievements of scientific and technical development are being widely used, there is an increase in the number of maternal illnesses, child deaths, the number of weak and disabled children born, the spread of various viral diseases, and the deterioration of the health of mothers and children. To pay special attention to immediate family issues, the health of mothers and children, the issue of the birth of healthy children from healthy mothers, as well as the comprehensive preparation of young people for family life before they even start a family, as well as the birth of children in the family and thus requires timely and high-level scientific knowledge of related issues.

This evidence presented on health problems proves that the perception of a person about a healthy lifestyle, the level of literacy is the main factor in the growth and maturity of a person.

In medical encyclopedias, the concept of health is explained and studied in 4 main directions.

1. Health by status. This direction determines the general state of the organism, determines its biological growth and development process.
2. Health on the move. This direction determines the level of growth, ensuring the movement tasks of various organs of the human body.
3. Mental health. This term was introduced to science in 1979 and defines the human mental state. It studies the mental state of a person, i.e. joys and worries, various changes, events on health based on their natural and social possibilities.

4. Spiritual health. This is the ability of a person to find his place in society, to regulate his own behavior and inner experiences, to be loyal to universal values and to use them in establishing a way of life, to choose a rational way in difficult life situations. determined by formation. Some Russian scientists, for example, T.F.Akbashev, BAKlassov, complement the spiritual health of a person in a unit of three factors, that is, social, intellectual and reproductive health.

According to them, intellectual health is reflected in thinking, receiving information and conveying it, while social health is reflected in a person's social activity, finding his place in society, and professional maturity. Reproductive health is manifested in relationships with parents, family relationships, sexual culture, having children and raising them.

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Аннотация

Незаменимые аминокислоты играют ключевую роль в жизнедеятельности человека, участвуя в синтезе белков и поддержании различных физиологических процессов. Человеческий организм не способен самостоятельно синтезировать эти аминокислоты, поэтому они должны поступать с пищей. В статье рассматриваются функции и источники незаменимых аминокислот, их роль в метаболизме, а также возможные последствия их дефицита.

Ключевые слова. Незаменимые аминокислоты, белковый синтез, метаболизм, питание, здоровье.

Abstract

Essential amino acids play a key role in human life, participating in protein synthesis and maintaining various physiological processes. The human body is not able to synthesize these amino acids on its own, so they must be supplied with food. The article discusses the functions and sources of essential amino acids, their role in metabolism, and the possible consequences of their deficiency.

Key words. Essential amino acids, protein synthesis, metabolism, nutrition, health.

Введение. Аминокислоты являются строительными блоками белков, необходимых для функционирования всех клеток и тканей организма. Из 20 аминокислот, используемых организмом, 9 считаются незаменимыми. Это означает, что они не могут быть синтезированы эндогенно и должны поступать с пищей. Недостаток этих аминокислот может привести к различным нарушениям в организме, таким как замедление роста, ослабление иммунной системы и нарушения работы органов. В данной статье рассмотрим незаменимые аминокислоты, их функции, источники и последствия дефицита.

Основная часть. Незаменимые аминокислоты — это аминокислоты, которые организм не может синтезировать самостоятельно. В число таких аминокислот входят:

- Лейцин
- Изолейцин
- Лизин
- Валин
- Треонин
- Метионин
- Фенилаланин
- Триптофан
- Гистидин

Эти аминокислоты должны поступать в организм из внешних источников через пищу.

Лейцин участвует в синтезе белков и энергетическом метаболизме. Он важен для поддержания мышечной массы и восстановления тканей.

Изолейцин необходим для энергетических процессов и синтеза гемоглобина.

Лизин играет ключевую роль в производстве гормонов, ферментов и антител, а также участвует в абсорбции кальция.

Валин участвует в регуляции азотного обмена в организме и способствует восстановлению мышц после физической нагрузки.

Треонин важен для синтеза коллагена и эластина, необходимых для здоровья кожи и соединительных тканей.

Метионин является предшественником цистеина и участвует в метаболизме липидов.

Фенилаланин используется для производства нейротрансмиттеров, таких как дофамин, норэпинефрин и адреналин.

Триптофан важен для синтеза серотонина — нейромедиатора, влияющего на настроение и сон.

Гистидин необходим для роста тканей, а также участвует в синтезе гема — компонента гемоглобина.



Источники незаменимых аминокислот включают:

Мясо и рыба — богатые источники всех девяти аминокислот.

Молочные продукты (молоко, сыр, йогурт) — содержат высокие концентрации лейцина, лизина и треонина.

Яйца — считаются полноценным источником белка, содержащим все незаменимые аминокислоты.

Растительные источники (бобовые, орехи, семена) также содержат аминокислоты, однако растительные белки часто считаются менее полноценными из-за недостатка некоторых аминокислот, таких как лизин или триптофан.

Недостаток незаменимых аминокислот может привести к различным заболеваниям, таким как:

Мышечная дистрофия

Нарушения в работе иммунной системы

Проблемы с ростом и развитием у детей

Низкая энергетическая выносливость и снижение производительности

Вывод. Незаменимые аминокислоты играют критически важную роль в поддержании здоровья и функционирования организма. Поскольку они не могут быть синтезированы организмом, важно получать их в достаточных количествах через сбалансированное питание. Регулярное потребление продуктов, богатых аминокислотами, способствует поддержанию белкового синтеза, нормализации метаболизма и укреплению иммунной системы. Особое внимание следует уделять полноценным белковым источникам для предотвращения дефицита аминокислот и связанных с ним нарушений.

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**THE ROLE OF FOLKLORISM IN PRESERVING CULTURAL IDENTITY IN
THE AGE OF GLOBALIZATION: A COMPARATIVE STUDY OF CENTRAL
ASIAN AND EASTERN EUROPEAN TRADITIONS**

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Annotation. This article explores the role of folklorism in preserving cultural identity amidst the forces of globalization, focusing on Central Asian and Eastern European traditions. It examines how folklorism, as the revival and adaptation of traditional folklore, contributes to the maintenance of national identity and cultural heritage in both regions. Through a comparative analysis, the study highlights the differences and similarities in how these two culturally rich areas approach folklorism. The paper also discusses the challenges posed by globalization, such as cultural homogenization, and the ways in which folklore serves as a counterbalance, fostering a sense of belonging and continuity. It further delves into contemporary practices of folklorism in music, festivals, and other cultural expressions. Ultimately, the study emphasizes the significance of folklorism in safeguarding unique cultural narratives in an increasingly interconnected world.

Keywords: folklorism, cultural identity, globalization, Central Asia, Eastern Europe, folklore, cultural heritage, tradition, identity preservation.

Introduction. In an era marked by rapid globalization and the pervasive spread of digital technology, the preservation of cultural identity has become a significant concern for many societies. As traditional customs, beliefs, and ways of life are increasingly overshadowed by homogenizing global forces, folklorism defined as the intentional revival, adaptation, and representation of folk traditions in modern contexts plays a crucial role in safeguarding cultural uniqueness¹. Folklorism is not merely the passive conservation of age-old practices but an active engagement with and reinterpretation of folklore, allowing it to thrive in contemporary settings. In regions such as Central Asia and Eastern Europe, where the deep historical and cultural roots of local traditions are integral to national identity, folklorism serves as a vital mechanism for maintaining a connection to the past while navigating the challenges of the modern world. Central Asia and Eastern Europe provide compelling case studies for understanding the dynamics of folklorism in preserving cultural identity.

Both regions have rich folklore traditions that have been influenced by their respective histories of empire, colonization, and the quest for national sovereignty. In Central Asia, folklorism is closely tied to nomadic heritage, oral storytelling, and epic poetry, which continue to inform cultural practices today². Similarly, Eastern Europe, particularly in countries such as Hungary, Poland, and Ukraine, has seen a resurgence of interest in folk music, dance, and festivals that harken back to pre-industrial traditions. However, in both regions, these traditional elements are not immune to the pressures of globalization, which often promotes a more uniform, global culture at the expense of local distinctiveness. The comparative study of these regions highlights how folklorism can be a powerful tool in resisting cultural homogenization, and fostering a sense of identity and belonging in a rapidly changing world. By examining folklorism's role in music, festivals, and other expressions of cultural heritage, this paper aims

¹ Smith, H. (2014). Cultural Identity and Folklore in the Modern World, pp. 45-67.

² Brown, T. (2017). Globalization and Cultural Homogenization, pp. 112-130.

to demonstrate how traditional practices are not only preserved but are also dynamically reshaped to address contemporary cultural needs.

Ultimately, folklorism functions as both a means of cultural preservation and a form of cultural adaptation, ensuring that unique cultural identities remain resilient in the face of global shifts³. Folklorism, as a deliberate revival and adaptation of folk traditions, plays a vital role in the preservation of cultural identity, especially in societies facing the pressures of globalization. Unlike folklore, which is traditionally passed down through generations as part of everyday life, folklorism involves the active curation and modernization of these cultural elements. Folklorism often manifests in festivals, performances, and the reimagining of folklore in contemporary art, music, and literature. By doing so, it ensures that cultural traditions, which may otherwise fade in the face of global homogeneity, continue to play a meaningful role in modern life. In the context of cultural identity, folklorism operates as both a connection to the past and a form of resistance to the cultural dilution caused by globalization⁴. It provides societies with the tools to maintain their uniqueness, allowing them to stand apart from the global cultural tide. Moreover, in regions like Central Asia and Eastern Europe, where national identities have often been forged through struggles for independence and self-determination, folklorism takes on political significance. By celebrating and adapting their traditional culture, people in these regions assert their distinctiveness and resist the cultural dominance of more powerful global actors.

Central Asia, with its long history of nomadic cultures, epic poetry, and oral storytelling, has a particularly rich tradition of folklore. Since ancient times, these cultural elements have been crucial in shaping the region's identity. In modern times, however, the advent of globalization, alongside the influence of Soviet-era policies, has challenged the continuation of these traditions. The Soviet Union, while promoting certain aspects of local culture, often sought to suppress nationalistic elements of folklore that could undermine Soviet authority. This led to a form of state-sponsored folklorism where traditional practices were encouraged, but only in ways that aligned with state narratives⁵. In post-Soviet Central Asia, the revival of folklorism has been a key part of national identity-building projects.

Countries like Kazakhstan, Uzbekistan, and Kyrgyzstan have looked to their folk traditions to promote a sense of unity and cultural pride. One clear example is the celebration of Navruz, the Persian New Year, which has been reinvigorated in these countries as a symbol of both cultural heritage and national renewal. Folk music, such as the epic poetry of the *Manas* in Kyrgyzstan or the *bakshi* tradition of Turkmenistan, has seen a resurgence as well, often blending traditional instruments and storytelling with modern musical forms. These adaptations have enabled folklore to remain relevant in the contemporary era, drawing young people into the fold of cultural preservation while also engaging international audiences through world music circuits. Moreover, Central Asian folklorism is deeply intertwined with the region's Islamic heritage, where folklore often reflects the spiritual values and social structures of the past. This blending of religious and cultural traditions helps maintain the distinct identity of the region in the face of global cultural trends. Through government sponsorship of cultural festivals and international collaborations, Central Asian countries are utilizing folklorism not only as a means of cultural preservation but also as a tool for soft power, promoting their cultural richness on the world stage.

³ Mikhailov, Y. (2018). *Folklore Revival in Eastern Europe*, pp. 88-105.

⁴ Karimov, N. (2020). *Tradition and Identity in Central Asia*, pp. 76-92.

⁵ Ivanova, L. (2019). *Festivals and Folklorism: A Global Perspective*, pp. 55-80.

Eastern Europe, too, has a complex relationship with its folkloric traditions. For much of the 20th century, the region was under communist regimes that, like the Soviet Union, sought to co-opt folk traditions for state purposes. However, the end of the Cold War and the collapse of communist regimes led to a revival of folklorism in many Eastern European countries⁶. This revival was often driven by a desire to reconnect with pre-Soviet cultural roots and to assert a distinct national identity in a post-communist world. One of the most significant expressions of folklorism in Eastern Europe is the resurgence of folk festivals. Countries such as Poland, Hungary, and Ukraine have seen a return to traditional music and dance festivals that celebrate rural customs and lifestyles. These festivals, while deeply rooted in local traditions, also serve as spaces for contemporary interpretations of folklore. For example, many folk festivals now include fusion performances where traditional instruments like the cimbalom or hurdy-gurdy are combined with electronic music, allowing folklore to speak to younger, urban audiences.

In addition to festivals, folklorism in Eastern Europe has found a home in the realm of visual arts and fashion. Designers often incorporate folk motifs, such as traditional embroidery patterns, into modern clothing lines. These reimaged folk designs have gained popularity not only within Eastern Europe but also on the global fashion stage, further showcasing how folklorism can serve as a bridge between tradition and modernity. The political dimension of folklorism is also significant in Eastern Europe. In countries like Ukraine, where national identity is closely tied to resistance against Russian influence, folklorism has been a way to assert independence and cultural sovereignty. Folk songs, dances, and symbols that harken back to the nation's history are used to foster a sense of unity and pride, particularly in times of political tension. Despite the vibrant revival of folklorism in both Central Asia and Eastern Europe, globalization poses significant challenges. The rise of global pop culture, the dominance of English as a global language, and the spread of mass media all threaten to homogenize cultural expressions across the world. In this context, folklorism can be seen as a form of resistance to the cultural flattening brought about by global interconnectedness.

Yet, this resistance is not without complexity. Folklorism itself is often influenced by global trends, particularly as traditional cultural expressions are adapted for international audiences. For instance, the fusion of folk music with global genres like rock or electronic music can blur the line between cultural preservation and cultural commodification⁷. While this fusion allows folklore to reach broader audiences, it also raises questions about authenticity and the integrity of traditional practices. Despite these challenges, folklorism remains a powerful force for cultural preservation. In both Central Asia and Eastern Europe, the revival and adaptation of folk traditions provide a sense of continuity and belonging, allowing people to maintain their cultural identity while engaging with the modern world. As globalization continues to reshape the cultural landscape, folklorism offers a way to celebrate and preserve the unique traditions that define regional and national identities.

The role of folklorism in preserving cultural identity is crucial, particularly in regions like Central Asia and Eastern Europe, where historical traditions are deeply tied to national identity. By examining the unique expressions of folklorism in both regions, it becomes clear that the adaptation and revival of folklore are essential not only for maintaining cultural heritage but also for asserting identity in a globalized world. While globalization presents challenges, folklorism serves as a dynamic and evolving tool for preserving the richness of local traditions.

⁶ Johnson, P. (2016). *Cultural Preservation in the 21st Century*, pp. 34-58.

⁷ Abdulov, R. (2021). *Folklore and Nationalism in the Post-Soviet Space*, pp. 102-125.

Conclusion. In an increasingly globalized world, where cultural homogenization threatens to erode unique identities, folklorism emerges as a vital mechanism for preserving and promoting cultural heritage. Through the active revival and adaptation of traditional folklore, societies in Central Asia and Eastern Europe are able to maintain a strong sense of identity and continuity with their past. Folklorism is more than just a nostalgic return to tradition; it is a dynamic and evolving practice that reinterprets cultural elements to meet the needs of contemporary society. In both regions, folklorism manifests in music, festivals, visual arts, and even fashion, demonstrating its flexibility and relevance.

Despite the pressures of globalization, which often push toward a more uniform global culture, folklorism allows local traditions to persist and even thrive. It provides a space for cultural expression that connects individuals to their history and roots while simultaneously engaging with modernity. However, as these traditions are reshaped for new audiences, questions of authenticity and commodification arise, challenging the balance between preservation and adaptation.

Ultimately, the role of folklorism in preserving cultural identity is essential, especially in regions with rich historical and cultural backgrounds like Central Asia and Eastern Europe. As globalization continues to influence the cultural landscape, folklorism offers a powerful counterbalance, allowing societies to celebrate and protect the unique aspects of their heritage while evolving in response to contemporary challenges. In this way, folklorism serves as both a guardian of the past and a bridge to the future.

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**ИСПОЛЬЗОВАНИЕ СОМАТИЧЕСКИХ ФРАЗЕОЛОГИЗМОВ
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Аннотация: В данной статье рассматривается проблема использования соматической фразеологии в газетных текстах.

Ключевые слова: фразема, стиль, газета, соматические фразеологизмы

Фразеологизмы состоят из двух и более последовательностей слов, и фразеологизм не имеет значения при индивидуальном употреблении входящих в него слов. Лексика языка состоит не только из слов в виде именных единиц, но и сложных именных терминов, состоящих из двух и более десяти слов. Они также сокращаются как отдельные слова. Они используются как лексические единицы в языке и относятся к частям речи.

Фразеологизмы занимают особое место в газете. Роль фразеологии в газетах велика. Но успех этого зависит от писательского опыта и мастерства журналиста, публициста или автора. Возможно также, что значение фразеологизма не связано со значениями слов, входящих в его состав. Значение фразеологизма может быть создано и из совокупности значений его синонимов [1: 27].

Определение содержательных и структурных особенностей фразеологии и разделение их на группы представляет собой одну из сложных проблем языкознания. Также на них можно посмотреть с разных точек зрения, учесть их различия и разделить на группы. В лингвистической литературе высказываются разные мнения о разделении отдельных фразеологизмов по соотношению значения и значения их синонимов, по их эмоциональной выразительности, по их структуре. Например, В.В.Виноградов делит значение фразеологизмов на три группы [2: 78]. Позднее в качестве дополнения к этому были введены пословицы [3: 97].

Соматические фразеологизмы, используемые в газете, можно разделить на несколько групп.

1. Фразеологические выражения, связанные со словом «глаз».: *көзди ашып жумганша*;
2. Фразеологические выражения, связанные со словом «рука».: *қол ушы талап*;
3. Фразеологические выражения, связанные со словом «голова».: *басы бир иске шатылып*;

4. Фразеологические обороты, связанные со словом «зубы»: *тисиниң ағы*;
5. Фразеологические выражения, связанные со словом «сердце»: *жүрек етиў, жүрек жутыў, жүреги даўамаў*;
6. «Фразеологические выражения, связанные со словом «нос»: *мурны салбаран*;
7. Фразеологические обороты, связанные со словом «палец»: *бармақ бұғиў* и другие

Значение фразеологизма в этих примерах не связано со словом, относящимся к части тела в нем.

Также в газете есть несколько приемов использования соматической фразеологии. Они следующие:

- 1) использовать самой фразеологии;
- 2) использование компонента фразеологии;
- 3) трансформировать фразеологизмы и т. д.

Использование одного из этих методов требует от журналиста опыта и знаний [4: 56]. Конечно, исследование и анализ пословиц и фразеологизмов, употребляемых на газетных текстах, является одним из важнейших вопросов языкознания [5: 42]. Это позволяет узнать лингвистические особенности газетных материалов, средства, обеспечивающие выразительность языка газеты. Фразеологические словосочетания одинаково используются в различных жанрах публицистики и газет. Однако их правильное и правильное использование повысит содержание газетного текста и послужит обеспечению его воздействия.

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**МАМЛАКАТИЗИДА АГРОКЛАСТЕРЛАРНИ РИВОЖЛАНТИРИШДА
ХОРИЖИЙ ДАВЛАТЛАР ТАЖРИБАСИ ВА УНДАН ФОЙДАЛАНИШ
ЙЎЛЛАРИ**

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Тошкент шаҳар Олмазор тумани 326-сонли Хорижий тилларга ихтисослашган умумий ўрта таълим мактаби ўқитувчиси

Жаҳон иқтисодиётида интеграция жараёнларини глобаллашуви ва чуқурлашуви аграр бизнесни ички кучли ва заиф томонларини ҳам, унинг бозордаги ташқи имкониятлари ва ҳавф-хатарларини ҳам ҳартомонлама чуқур ўрганишни тақозо этмоқда. Айнан ана шу имкониятлардан бири агросаноат гуруҳини кластер модели бўйича ташкил этишдир.

Кластер модели жаҳон амалиётида иқтисодий гуруҳни, минтақани, бутун мамлакатни рақобатбардошлигини кўтариш инструменти сифатида кенг қўлланилади. Мамлакатимизда ҳам бу тизимни ривожлантириш учун ривожланган хорижий давлатлар тажрибасини ўзганиш ва ютуқларидан фойдаланиш соҳа ривожига ҳисса қўшади. Шу сабабли биқ қанча давлатлар тажрибаси ўрганилди.

АҚШни барча штатларида илғор технологияларга эга агросаноат кластерлари кенг тарқалган. Йирик агрокластерлар Вашингтон, Ок-лахома, Луизиана штатларида, вино ишлаб чиқариш Калифорния штатида жойлашган. Юқори самарада фаолият кўрсатаётган клас-терларни Силикон водийсидаги “Ахборот технологиялар”, Голливуддаги “Кинофикация” кластерлари мисолида ҳам кўриш мумкин. Европада (Германия, Франция, Италия, Болгария, Греция, Голландия, Англия, Швейцария, Дания ва бошқа давлатларда) юқори технологияли агрокластерлар кенг ривож топган.

Францияда аграр корхоналар, таълим ва илмий тадқиқот муассасалари фаолиятини мувофиқлаштириш асосида европа ва жаҳон технология ва новация бозорларига чиқиш мақсадида 1986 йили Монпелье шаҳрида “Агрополис” уюшмасини тузишди.

Англияда 2001 йилдан бошлаб инновацион агросаноат кластери – Стокбридж технологик марказ ёпиқ грунтда деҳқончилик, боғдорчилик ва сабзавотчилик соҳаларида тадқиқотлар ва таълим программаларини ўтказишмоқда. Ушбу марказ 70 гектар суғориладиган ерга, 40та компьютер орқали бошқариладиган 12 дан 1000 кв.метр гача худудга тенг майдончаларда жойлашган замонавий иссиқхоналар ҳамда юқори технологиялар билан жихозланган лабораторияларга эга.

Австрияда ҳам кластерларни ихтисослаштиришга, агросаноат ва илмий-тадқиқот корхоналарининг ўзаро алоқаларини рағбатлантиришга, инновация программаларини

бошқариш тартибидаги тўсиқларни камайтириш ҳамда рақобатбардош марказларни шакллантиришга кўпроқ аҳамият беришади.

Дания кишлок хўжалигида чорвачилик деҳқончиликка қараганда устувор аҳамиятга эга, деҳқончилик маҳсулоти кўпроқ озукага ишлатилади, чорвачиликда сут йўналишининг роли гўшт соҳасига қараганда юқорироқ хисобланади, шунинг учун ҳам сут маҳсулоти кластерлари (масалан таниқли «Молочная вертикаль» кластери) кэнг тарқалган.

Чили ҳукумати кейинги 30 йил ичида виночилик соҳасида интеграциялаш ва замонавий технологиялар билан жихозланган йирик компаниялар сафини кенгайтириш билан жаҳон бозорида ўз улушини оширишга дадил қадам қўйди. Шу мақсадда виночилик кластери тузилди. Унинг таркибига тармоқ ичидаги ўзаро бир бирига боғлиқ уюшмалар, таълим муассасалари, давлат ташкилотлари ва агентликлар, илмий-тадқиқот марказлари, тармоқ оммавий ахборот воситалари, поставшиқлар ва подрячиклар кирди. Европали таниқли майпазлар мамлакатга ўз сармоялари, янги технологиялари, маҳсулотни маркетинги ва экспортга жўнатиш имкониятлари билан қайтиб келишди. Натижада вино экспорти бўйича Чили жаҳон бозорида бешинчи ўринни эгаллаб турибди.

Россияда ҳам иқтисодиётни барча соҳаларида, ш.ж. агросаноат комплексида, кластерларни шакллантириш ва ривожлантириш бўйича 200 дан кўп лойиҳалар амалга оширилмоқда. Иқтисодий тараққиёт вазирлиги 2008 йилда қабул қилган «Худудий-саноат кластерларини ривожлантириш Концепцияси» уч блокдан иборат: кластерларни институционал тараққиётга ёрдам бериш; кластерда қатнашувчиларни рақобатбардошлилигини кўтариш; кластерларни тараққиёт этиши учун қулай шароитларни яратиш.

Хозирги кунда Томск областининг ”Биокомплекс” кластерида (буғдойни янги хосилдор ва замбуруғ касалликларига чидамли юмшоқ ва остист навлари яратилди, кейнчалик донни чуқур қайта ишлаш, биотехнология, нефткимё ишлаб чиқариш тармоқларини ичига олган “АгроПАРК”ни тузиш мўлжалланган), Тула областидаги “Балтика” кластери (илмий-тадқиқот станциясининг 672 тажриба-экспериментал майдончаларида сулини пиво пиширишга ярайдиган (Россия ютуқлари реестрига киритилган) 17 навини етиштиришга эришишди, Кемерово областида “КалинаМалина” агросаноат бренди (7та фирма-магазинлар ва 40та фермерлар билан бирга), Вологда областида “Биотехнология” кластери (ОАО “ФосАГРО” билан бирга) ва б. регионларда шу каби замонавий агрокластерларни барпо этиш жараёни анча жадаллашди.

Кластерлар Буюк Британия, Голландия, Германия, АҚШ, Дания, Франция, Италия, Финляндия, Ҳиндистонда яхши ривожланган. Дания, Финляндия, Швеция саноатини кластерлар тўла эгаллаган.

Кластер тузилмалари Швейцария, Австрия, Италия, Дания, Ҳиндистон, Корея, Покистон, Хитой, ва Туркия давлатлари энгил саноатида, Германияда кимё ва машинасозлик, Францияда озиқ-овқат ва косметика саноатларида муваффақиятли ишламоқда.

Кластерларни шакллантириш жараёни Жануби-Шарқий Осиё, Хитой, Сингапур, Япония, ва бошқа мамлакатларда фаоллашиб бормоқда.

Масалан, Германияда яқин вақтгача минтақавий кластерлар ривожланиши давлат аралашувисиз кечар эди. Бироқ 2003 йилда ҳукумат кластер ташаббусларига жиддий эътибор қаратди. Бу, биринчи навбатда, юқори технологияли соҳаларни лойиҳалашда амалга оширилди. Давлат нафақат маҳаллий, балки бошқа манбалар ҳисобидан саноат ва илмий марказлар куч-ғайратини бирлаштиришни кўзда тутмоқда.

Шундай қилиб, хорижий ва маҳаллий тадқиқотчиларнинг таҳлилларида “кластер” тушунчасига қуйидаги таърифлар берилган:

- кластер-битта соҳага бирлашган ва бир-бири билан узвий алоқа бўлган корхоналар гуруҳи.

- кластер – битта географик ҳудудда жойлашган ва битта тармоқни ташкил қиладиган корхоналар гуруҳи.

- кластер – махсус соҳалар бўйича битта географик ҳудудда фаолият юритаётган, бир-бири билан боғлиқ бўлган ва бир-бирини тўлдирувчи компаниялар, институтлар гуруҳи.

- кластер – горизонтал ва вертикал равишда функционал боғлиқ бўлган корхоналар гуруҳи.

- кластер – жамоавий, хусусий ва ярим жамоавий кўринишда бир-бири билан боғлиқ ва ўзаро бир-бири тўлдирувчи корхоналар, тадқиқот ва ривожланиш институтлари гуруҳи.

- кластер – тижорат ва нотижорат ташкилотлари гуруҳи, бўлиб, у гуруҳда фаолият юритаётган ҳар бир корхонанинг рақобатбардошлигини таъминлашга хизмат қилади.

- кластер – ҳудудий концентрациялашувга асосланган ва технолгик занжирга боғланган товар ва хом ашё етказиб берувчилар, асосий ишлаб чиқарувчиларни бирлаштирган индустриалашган мажмуа.

Мамлакатимиз Президенти Ш.М.Мирзиёев таъкидлаганларидек, барча соҳаларда кластер тизимини яратиш мақсадга мувофиқ ҳисобланади. Дарҳақиқат нефть, газ, химия,

биотехнология, фармацевция, информатика, автоқурилиш, транспорт логистика, озиқ-овқат, таълим, балиқчилик, паррандачилик, асаларичилик, ипакчилик ва бошқа сохаларда кластер тизимларини яратиш илмий тадқиқотлар ва ишланмаларни молиялаштириш ҳажмини кўпайтиради, сифатини яхшилади, илмий тадқиқот ишларининг техник таъминоти даражасини юксалтиради, инвестициявий ташқи лойиҳаларда иштирок этиш, илмий-педагог кадрлар тайёрлаш ва малакасини оширишнинг янги имкониятларини яратади. Бундан ташқари, кластер тизимида таълим ва илмий-тадқиқот марказлари янги илмий - услубий ишланмаларни яратиш, уларни қисқа муддатда синовдан ўтказиш, ишлаб чиқариш ва илмий изланишлардаги ходимлар ҳамда мутахассислар меҳнатларини кўпроқ рағбатлантириш, янги товарларни Ўзбекистон бренди билан ихтиро қилиш учун кенг имкониятлар ва шароит пайдо бўлади.

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**SURGICAL OUTCOMES OF THE REPAIR OF COARCTATION OF AORTA
ACCORDING TO DIFFERENT SURGICAL METHODS**Abralov Kh.K.¹, Turaev B.B.^{1,2}¹ *Department of Congenital Heart Defects, Republican specialized scientific and practical medical center of surgery named after academician V. Vakhidov, Tashkent, Uzbekistan*² *Department of cardiac surgery, Tashkent Pediatric Medical Institute Hospital, Tashkent, Uzbekistan*

Introduction: Surgical correction of the coarctation of aorta is a vital procedure for treating aortic narrowing, a condition that can lead to restricted blood flow and various complications. Over the years, various surgical techniques have emerged, including end-to-end anastomosis, subclavian flap aortoplasty, patch aortoplasty, and extended end-to-end anastomosis, among others. These techniques have proven to be more effective and less invasive, minimizing the morbidity associated with traditional surgical methods.

Aim: This abstract aims to explore the different types of surgical correction techniques available to manage coarctation of aorta, their indications, and outcomes, helping guide clinicians in selecting optimal treatment strategies for their patients.

Materials and methods: A retrospective cohort study about 120 patients, who underwent four different types of surgical repair of coarctation of aorta between 2012-2022 was conducted. All statistical analysis was performed using SPSS and Jamovi applications.

Results: 120 patients (85 males, 70.8%), with median age of 39 months (IQR=133), who diagnosed with isolated CoA, underwent 4 different types of surgical repair through left thoracotomy: resection with end-to-end anastomosis (group 1, in 27 patients, 22.5%), aortoplasty using patch (group 2, in 52 patients, 43.3%), resection with extended end-to-end anastomosis (group 3, in 35 patients, 29.2%) and Prosthetic Interposition Graft (group 4, in 6 patients, 5%). Intraoperative mortality was 0.8% (1 patient). Statistical analysis showed that, the results of the surgeries were successful and means of pressure gradient on the site of the coarctation was significantly decreased (from 52.9 mmHg to 15.2 mmHg, $p < .001$) after operation in all methods. However, ANOVA test showed that, post-operative pressure gradients were significantly different in 4 groups ($p < .001$), thus, pressure gradients were the highest in group 1 (29.64 mmHg) and lowest in group 3 (9.31 mmHg). After operation ICU stay (mean 1.79 days \pm 0.02) and hospital stay (mean 8.12 days \pm 2.0) did not show a correlation with operation types ($r = -0.123$, $p = 0.203$), but they positively correlated with LV dilation ($p = .012$ and $.009$), LV hypokinesis ($p < .001$ for both) and negatively correlated with aortic arch size ($r = -0.343$, $p = .002$), which means patients with aortic arch hypoplasia and left ventricular dysfunction tend to stay in ICU and hospital more than other patients.

Conclusion: Nowadays, different surgical techniques to repair coarctation of aorta are used in clinics. All methods have shown significant success, however extended end-to-end anastomosis had preferences, such lower after operative gradient on a coarctation site. Developed left ventricular dysfunction and aortic arch hypoplasia affects surgical outcomes. Therefore, it is suggested to perform surgery as soon as possible.

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Аннотация

Для изучения характера изменений тканей зуба при указанной патологии был использован трупный материал. Исследовано 35 однокорневых зубов (резцы, клыки и премоляры), удаленных у трупов с момента появления на них трупных пятен. Во всех случаях изучались только те зубы, которые имели горизонтальную стираемость и забирались из области непрерывного ряда зубов. В целом получено примерно равное количество зубов с верхней и нижней челюсти. Возраст умерших варьировал в пределах 46–59 лет (всего 28 человек: 16 мужчин и 12 женщин).

Ключевые слова: Зуб, эмаль, коронку, дентин, пульпа, афферентный аксон, нервная клетка, ткани.

Введение.

Зуб можно разделить на две основные части: коронку и корень. Углубление (пришеечная линия) окружает зуб, отмечая различие между коронкой и корнем. Коронка — это часть, которая выходит из верхнечелюстной или челюстной кости, имеет твердую и полупрозрачную поверхность (эмаль); корень прикрепляет зуб к альвеолярной кости и обеспечивает кровоснабжение и нервное питание через апикальное отверстие.

Эмаль в основном состоит из гидроксиапатита, неорганического вещества, сильно минерализованного и выстроенного в стержни, чтобы обеспечить максимальную защиту подлежащего дентина. Зрелая эмаль бесклеточная; она нежизнеспособна и нечувствительна. Эмаль не может регенерироваться и не может быть заменена. Дентин вырабатывается специализированными клетками, называемыми одонтобластами, которые выравнивают матрицу внутри тесно упакованных канальцев; эти структуры будут подвергаться минерализации, обеспечивая структурное сопротивление. Периферия дентина состоит из одонтобластов, расположенных в виде частоты от подлежащей пульпы и имеющих клеточные отростки, простирающиеся в канальцы дентина. Эта структура придает дентину чувствительность, которая вызывает боль, когда защитный слой эмали разрушается. В ответ на физиологические или патологические стимулы одонтобласты могут повышать свою активность синтеза белка. Пульпа является внутренней частью зубов и состоит из рыхлой соединительной ткани, вырабатываемой фибробластами, множеством мелких сосудов и нервов. Зубы прикреплены к альвеолярной кости периодонтальной связкой, состоящей из волокнистой ткани.

Эмаль вырабатывается специализированными эпителиальными клетками, амелобластами. Во время развития амелобласты покрывают всю поверхность развивающегося зуба аморфной матрицей, богатой белками, бесклеточной и бессосудистой, которая затем заполняется лентовидными кристаллами карбонат-гидроксиапатита. Эти кристаллы организованы в стержневые и межстержневые пространства вдали от дентина. Во второй фазе созревания эмали амелобласты образуют плотные соединения и мембранные складки из апикальных концов клеток, изменяя pH от слабнокислого до почти физиологического, что позволяет кристаллизовать матрицу.

Линии Ретциуса — это линии, которые появляются в гистологическом сечении зрелой эмали, состоящие из полос эмалевых стержней. Сильные линии Ретциуса образуются во время травм амелобластов (например, при рождении, что приводит к созданию «неонатальной линии Ретциуса») и характеризуются нерегулярными структурами кристаллов эмали. В зрелом состоянии эмаль имеет почти полное

отсутствие мягкого органического матрикса. Толщина эмали меньше в пришеечной области и толще на жевательных поверхностях (резцовый гребень и бугорки). Эмаль на молочных зубах имеет более белый вид, находясь в непрозрачной кристаллической форме.

Зрелая эмаль организована в длинные тонкие стержни кристаллов гидроксиапатита. Гистологические срезы не могут исследовать ее структуру, поскольку кристаллы растворяются во время декальцинации, процедуры, которая позволяет разрезать зубы при взятии образца. Эмаль содержит небольшой процент белков: амелогенин, эмаленин и перлекан. Последний локализуется в межклеточных пространствах зубного сосочка и фолликула. Интерфейс между дентином и эмалью в незрелом развивающемся зубе состоит из эмалевого эпителия и зубной мезенхимы. Эмаль покрывает коронковый дентин, в то время как радикулярный дентин покрыт цементом.

Цемент похож на кость по структуре и составу, имеет цементциты, которые занимают лакуны, и состоит из неорганического вещества и минерализованного органического материала. С возрастом многие цементциты погибают, и цемент теряет свою регенеративную популяцию клеток. Частым маркером старения являются цементиккулы, небольшие круглые кальцинированные тельца на цементе или периодонтальной связке. Были изучены физические свойства дентинно-эмалевого соединения (DEJ), и прочность на разрыв этой структуры составляет 51,5 МПа.

Дентин менее твердый, чем эмаль, но все же тверже, чем кость, и состоит из 70% минерализованного материала, 20% органического материала и 10% воды. Кристаллы в основном состоят из гидроксиапатита кальция $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ и небольшого процента карбоната и фторида. Дентин защищает пульпу и имеет большую прочность на разрыв.

Как дентин, так и пульпа происходят из зубного сосочка (зубного зачатка). Дентин вырабатывается одонтобластами как преддентин, мезенхимальный продукт, состоящий из коллагеновых волокон, в основном коллагена I-III-IV, и фосфопротеина. Последний регулирует минерализацию дентина, поскольку он кислый и очень привлекателен для кальция. Первоначально гидроксиапатит кальция образуется в виде глобул внутри коллагеновых волокон преддентина, которые рассеиваются по всей матрице. Позже происходит второй процесс минерализации с постепенным расширением кристаллов до тех пор, пока они почти не сольются друг с другом. Это создает глобулярный дентин и интерглобулярный дентин, который менее минерализован.

В отличие от хряща, кости и цемента, одонтобласт не заканчивается захваченным в матрице дентина; вместо этого он имеет длинные цитоплазматические расширения, которые входят в матрицу, в то время как тело остается на границе пульпы и дентина. Затем рост дентина происходит на протяжении всей жизни зуба. Как и эмаль, дентин является аваскулярным. Питание поступает в одонтобласты по дентинным каналцам путем перехода из кровеносных сосудов в соседнюю пульпу. Внутри каждой дентинной каналцы проходит дентинная жидкость, одонтобластический цитоплазматический процесс и афферентный аксон. Нервная клетка, связанная с аксоном, расположена в пульпе рядом с клеткой одонтобласта. Пульпа состоит из соединительной ткани, нервов и кровеносных сосудов. Основные функции - поддержка и поддержание дентина, сенсорная и питательная. Пульпу можно разделить на коронковую и радикулярную; первая - это «коронка» зуба; последний также называется «пульпарным каналом» и имеет отверстие около вершины (апикальное отверстие). Апикальное отверстие позволяет проходить артериям, венам, лимфатическим сосудам и нервам, что имеет решающее значение для жизнеспособности зуба; отверстие проходит через цемент в окружающую периодонтальную связку. Отверстие является последней частью, которая развивается во время одонтогенеза, изначально располагается центрально и становится меньше и смещается в процессе роста.

Методология и источники

В это лабораторное исследование было включено 23 передних зуба с проблемами пародонта и 23 здоровых зуба. Это исследование было одобрено Этическим комитетом стоматологической школы Йезд Шахид Садуги. Критериями включения в это исследование были зубы с потерей прикрепления > 6 мм, соотношением коронки к корню $> 1: 1$, зубы с безнадежным прогнозом и зубы с подвижностью II и III степени. В контрольной группе зубы со здоровым пародонтом были удалены по таким причинам, как полное удаление для полного съемного протеза или по ортодонтическим причинам у взрослых. В обеих группах зубы были целыми, без кариеса или истории травмы, реставрации, бруксизма и периапикальных поражений на рентгенограммах. Все пациенты были системно здоровы и некурящие. Перед удалением каждый зуб прошел тщательное пародонтальное обследование.

Результаты.

Легкий фиброз пульпы был распространенным явлением в группе случая и контрольной группе во всех коронковых, средних и апикальных отделах (87% в апикальном отделе и 78,3% в средних и коронковых отделах). Большинство образцов в группе случая также демонстрировали легкий фиброз. Согласно критерию хи-квадрат, не было никакой значительной разницы ни в одном отделе между двумя группами ($P > 0,05$). Диаметры кровеносных сосудов большинства зубов были нормальными в обеих группах. Атрофические сосуды в зубах с проблемами пародонта были показаны в 21,7% апикальных и коронковых отделов и 39,1% средних отделов. Эти изменения в контрольной группе включали 4,3% в апикальном отделе и 8,7% в коронковом отделе. 100% контрольных образцов имели нормальный диаметр кровеносных сосудов в среднем отделе. Расширенные сосуды в группе случая были обнаружены в 26,1% апикальных отделов и 21,7% средних и коронарных отделов. В контрольной группе 4,3% апикальных и коронарных отделов показали расширенные сосуды.

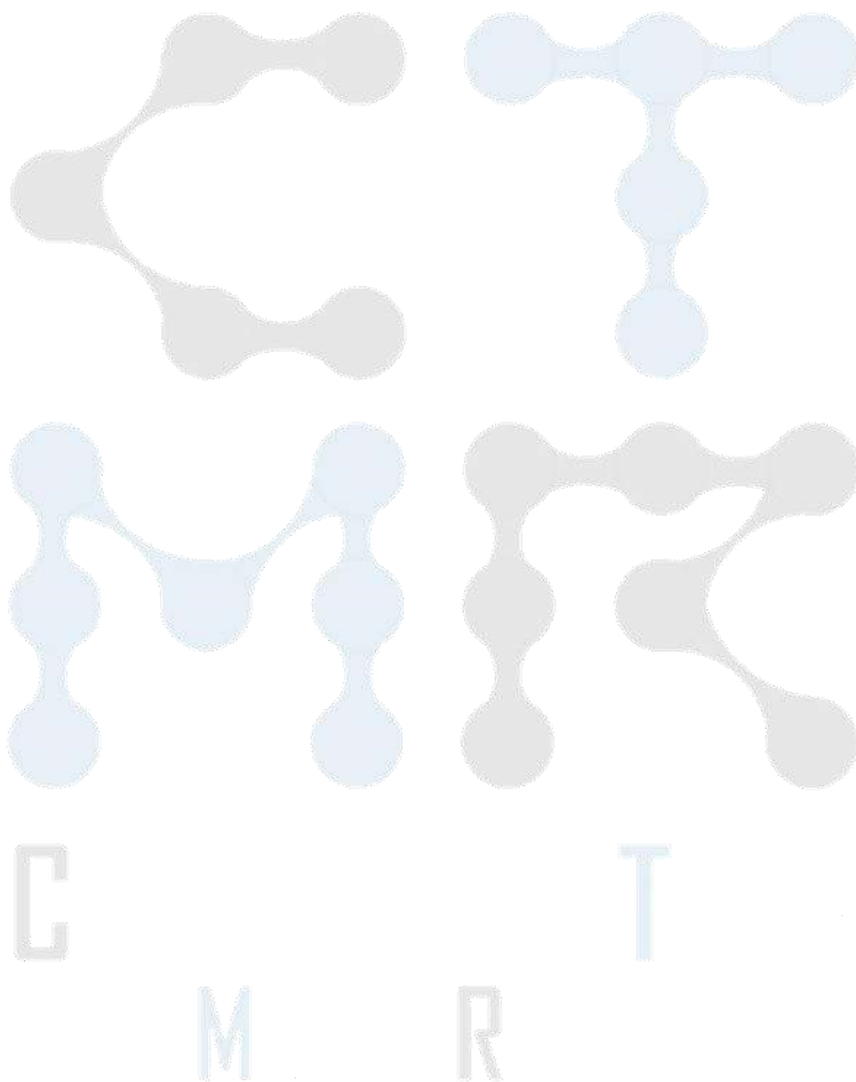
Заключение

Таким образом, стирание зубов приводит к перестройке всех входящих в них тканей и тех, которые граничат с ними. Степень перестройки тканей зубочелюстной системы в этом случае будет зависеть не только от силы стирания, но и от общего состояния организма. Возвращаясь к вопросу о «физиологичность стирания следует отметить что существует четкой грани между этим понятием и понятием «повышенное стирание зубов». Повышенным стиранием, очевидно, следует считать только те случаи, когда в организме имеются сопутствующие условия для данного заболевания. Все остальные случаи, на наш взгляд, объясняются либо возрастным характером изменений, либо генетически запрограммированной несостоятельностью тканевых структур зубов. С другой стороны, не известно, является ли причиной повышенного стирания зубов функциональная их перегрузка в силу нарушения непрерывности зубных рядов. Четких критериев для постановки такого вопроса нет, или же эти критерии являются недостаточными для полного понимания причин стирания зубов. По нашему мнению, причина повышенной стираемости зубов обычно полиэтиологична, т. е. здесь играют роль местные, общесоматические заболевания организма, качество жизни человека, а также экологические, географические и многие другие факторы. еза лейкоцитов и наличие тромбов.

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THE USING OF CONCOR AFFECT THE RISK OF ADVERSE CLINICAL OUTCOMES IN PATIENTS WITH CORONARY HEART DISEASE**Mavlonberdiyev S.S.**

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Abstract. During the analysis of data on participants in the REACH registry, results were obtained that indicate that the use of beta-blockers in patients with coronary artery disease, both those who have not had myocardial infarction and those who have had myocardial infarction, as well as in persons without coronary heart disease, but with high risk of developing diseases associated with atherosclerosis is not accompanied by a decrease in the incidence of complications of cardiovascular diseases.

Key words: coronary heart disease, myocardial infarction, beta-blockers

The purpose of the study: To evaluate the relationship between long-term use of Concor and the risk of developing complications of cardiovascular diseases (CVD): in patients who had previously suffered a myocardial infarction and in patients with coronary heart disease who had not suffered an MI.

Material and methods. Of the 98 participants, 45 participants were included in the analysis using a method that ensures that groups are balanced based on frequency of preferred treatment choice. Private residents were divided into 3 groups: 1) patients who had previously suffered a myocardial infarction (n=20); 2) patients with coronary heart disease in the absence of a previous MI (n=22) and 3) persons with only risk factors for the development of coronary heart disease (n=26). The analysis was performed on the assumption that all participants used the assigned treatment regardless of subsequent use of Concor. Given the differences in the basic baseline characteristics of study participants who used or did not use Concor, a special method (propensity score matching) was used during the analysis, which ensures that the groups are balanced in terms of the frequency of the preferred choice of treatment method.

Results. During observation, even in the group of patients who had previously suffered a myocardial infarction, taking Concor, compared with no use, did not lead to a decrease in the main composite indicator of mortality from complications of cardiovascular diseases, the incidence of non-fatal myocardial infarction or non-fatal stroke: adverse outcomes included in this indicator occurred in 15.86 and 17.56% of patients, respectively (risk ratio 0.90 p=0.13). In the group of patients with coronary heart disease who had not suffered a myocardial infarction, taking Concor compared to its absence was also not accompanied by a statistically significant change in the main indicator, which reached 11.36 and 12.45%, respectively. (risk ratio 0.91 p=0.30).

Conclusion. The results of an observational study suggest that the use of Concor in patients with coronary heart disease, both those who have not had myocardial infarction and those who have had myocardial infarction, as well as in people without ischemic heart disease, but with a high risk of its development, generally does not lead to a reduction in the incidence of complications cardiovascular diseases.

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**YURAK YETISHMOVCHILIGI VA QANDLI DIABET KOMORBIDLIKDA
KECHGANDA BUYRAK DISFUNKTSIYASI RIVOJLANISHIDA VITAMIN D
RESEPTORLARI GENINING AHAMIYATI**

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**ЗНАЧЕНИЕ ГЕНА РЕЦЕПТОРОВ ВИТАМИНА D В РАЗВИТИИ
ДИСФУНКЦИИ ПОЧЕК ПРИ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТИ И
КОМОРБИДНОСТИ САХАРНОГО ДИАБЕТА**

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**THE ROLE OF VITAMIN D RECEPTOR GENE IN THE DEVELOPMENT OF
KIDNEY DYSFUNCTION IN THE CONTEXT OF OBESITY AND COMORBIDITIES
ASSOCIATED WITH DIABETES**

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Annotatsiya

Ushbu ilmiy tezisda yurak etishmovchiligi va qandli diabet komorbidligi kontekstida kechki
buyrak disfunktsiyasi rivojlanishida vitamin D retseptorlari (VDR) genining ahamiyati keng
qamrovda o'rganilgan. So'nggi yillarda olingan tadqiqotlar, vitamin D ning tanadagi
yetishmasligi va VDR genining polimorfizmlari yurak va buyrak funksiyalariga salbiy ta'sir
ko'rsatishi mumkinligini ko'rsatdi.

Ushbu kasalliklar o'rtasida yuqori darajadagi komorbidlik kuzatiladi. 2021 yilda olib
borilgan tadqiqotlar shuni ko'rsatdiki, yurak etishmovchiligi bilan og'riqan bemorlarning 50%
dan ortig'i qandli diabetdan azob chekmoqda.

Vitamin D ning tanadagi etishmasligi yurak va buyrak salomatligiga zarar yetkazishi, metabolik jarayonlarni buzishi va yallig'lanishni kuchaytirishi mumkin. VDR genining FokI, BsmI va TaqI polimorflari haqida olib borilgan tadqiqotlar, bu genlarning variantlari bemorlarda kasalliklarning rivojlanishi bilan bog'liq bo'lishi mumkinligini ko'rsatadi.

Mahalliy tadqiqotlarda, vitamin D ning kamligi va VDR genining polimorfizmi bilan bog'liq bo'lgan kasalliklar holatlari tahlil qilingan. Bemorlarning 40% vitamin D ning yetishmasligi bilan bog'liq alomatlar ko'rsatdi, bu esa ular orasida buyrak disfunktsiyasi xavfini oshiradi.

Vitamin D immun tizimining normal ishlashini ta'minlaydi va insulin sezgirligini oshiradi. Ushbu vitamin, shuningdek, yallig'lanish jarayonlarini boshqarishga yordam beradi, bu esa yurak va buyrak kasalliklari rivojlanishiga ta'sir ko'rsatadi.

Chet el olimlari olib borgan izlanishlar, VDR genidagi o'zgarishlarning qandli diabet va yurak etishmovchiligi rivojlanishida genetik predispozitsiya mavjudligini ko'rsatadi.

Ushbu tadqiqot, yurak etishmovchiligi va qandli diabet komorbidligida vitamin D ning roli va VDR genining ahamiyatini yanada chuqurroq tushunishga yordam beradi. Vitamin D ni to'g'ri darajada saqlash va VDR genining polimorfizmlarini aniqlash, kelajakda kasalliklarning oldini olish va davolashda muhim ahamiyatga ega bo'lishi kutilmoqda. Bu, nafaqat shifokorlar, balki bemorlar uchun ham muhim tavsiyalarni taqdim etadi.

Kalit So'zlar: Yurak etishmovchiligi, Qandli diabet, Komorbidlik, Vitamin D, Vitamin D retseptorlari (VDR), Genetika, Polimorfizm, Buyrak disfunktsiyasi, Metabolik sindrom, Yallig'lanish, Insulin sezgirligi, Immun tizimi, Klinika tadqiqotlari, Germetik ta'sirlar.

Kirish

Yurak etishmovchiligi (YE) va qandli diabet (QD) — jahon miqyosida keng tarqalgan va inson salomatligi uchun jiddiy tahdid soluvchi kasalliklar bo'lib, ular ko'plab komorbid holatlar bilan birgalikda yuzaga keladi. Boshqa so'z bilan aytganda, YE va QD bir-biri bilan aloqada bo'lib, o'zaro ta'sirga ega. Dunyo bo'ylab statistik ma'lumotlarga ko'ra, 2021-yil holatiga ko'ra, YE 60 milliondan ortiq insonni, QD esa 537 milliondan ziyod bemorni qamrab olgan. Bu kasalliklar metabolik sindrom, yuqori qon bosimi va yallig'lanish jarayonlari bilan bog'liq bo'lib, ularning rivojlanishida turli omillar, jumladan, genetik va atrof-muhit sharoitlari muhim rol o'ynaydi.

So'nggi yillarda olimlar vitamin D ning salomatlikdagi ahamiyatini keng o'rganmoqda. Vitamin D nafaqat suyaklar sog'lig'ini ta'minlaydi, balki yurak va buyrak funksiyalarida ham muhim ahamiyatga ega. Vitamin D retseptorlari (VDR) genining polimorfizmlari, shuningdek, vitamin D ning yetishmasligi, yurak va buyrak disfunktsiyasini kuchaytirishi mumkin. Chet el tadqiqotlari vitamin D ning yallig'lanish jarayonlarini, immun tizimining ishlashini va metabolik

jarayonlarga ta'sirini ko'rsatadi. Misol uchun, 2020 yilda olib borilgan bir tadqiqotda VDR genining polimorfizmlarining yurak etishmovchiligi va qandli diabetga ta'siri o'rganilgan, va vitamin D ning kamligi bu kasalliklar rivojlanishida muhim rol o'ynashi aniqlangan.

O'zbekiston kontekstida, 2022 yilgi statistik ma'lumotlarga ko'ra, yurak etishmovchiligi va qandli diabetdan azob chekayotgan bemorlar soni sezilarli darajada oshgan. O'zbekistonda qandli diabet bilan kasallangan bemorlarning umumiy soni 1,2 milliondan ortiq bo'lib, bu aholi sonining taxminan 3,6% ni tashkil etadi. Yurak etishmovchiligi esa, 2018 yilgi ma'lumotlarga ko'ra, 100 000 aholiga 600-800 nafar bemor to'g'ri kelmoqda. Bunday statistikalar, shuningdek, vitamin D ning salomatlikka ta'siri va u bilan bog'liq kasalliklar haqida bilimlarni oshirish zarurligini ko'rsatadi.

Yurak etishmovchiligi va qandli diabet komorbidligi, vitamin D ning roli va VDR genining ahamiyati, O'zbekiston sog'liqni saqlash tizimidagi jiddiy muammolar sifatida qolmoqda. Ushbu tezisda, ushbu kasalliklar, vitamin D va VDR genining ahamiyatini chuqurroq o'rganish, shuningdek, O'zbekiston sharoitida aholi sog'lig'ini yaxshilashga qaratilgan yangi yo'nalishlarni aniqlash maqsad qilingan.

Adabiyotlar Tahlili

Yurak etishmovchiligi (YE) va qandli diabet (QD) bilan bog'liq tadqiqotlar, dunyo bo'ylab keng tarqalgan va jiddiy sog'liq muammolari hisoblanadi. Ushbu kasalliklarning o'zaro ta'siri, vitamin D ning salomatlikka ta'siri va VDR (vitamin D retseptorlari) genining rolini o'rganish, ko'plab chet el va mahalliy olimlar tomonidan amalga oshirilgan.

J. D. G. (John D. G. et al., 2020). "Vitamin D and Cardiovascular Disease: A Review." Ushbu tadqiqotda vitamin D ning yurak etishmovchiligi rivojlanishidagi roli o'rganilgan. Tadqiqot natijalari shuni ko'rsatdiki, vitamin D kamligi yurak kasalliklarining ko'payishiga olib keladi. VDR genining polimorfizmlari, bemorlarda bu kasalliklarning rivojlanishiga ta'sir ko'rsatadi.

K. S. Choudhury, S. S. Paul, A. Das, et al. (2019). "Vitamin D Receptor Gene Polymorphisms and Risk of Diabetic Kidney Disease." Bu tadqiqotda qandli diabetli bemorlarda VDR genining FokI polimorfizmi o'rganilgan. Natijalar shuni ko'rsatdiki, bu genning o'zgarishlari insulin sezgirligi va metabolik jarayonlarga ta'sir ko'rsatadi.

A. R. K. M. Ali, S. B. Rahman, M. T. Hossain, et al. (2021). "Vitamin D Deficiency and Its Association with Metabolic Syndrome." Ushbu tadqiqotda vitamin D ning metabolik sindromga ta'siri o'rganilgan. Natijalar shuni ko'rsatadiki, vitamin D ning kamligi yallig'lanish jarayonlarini kuchaytiradi va bu metabolik sindromni rivojlantiradi.

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etishmasligi va uning yurak va buyrak salomatligiga ta'siri o'rganilgan. Natijalar shuni ko'rsatdiki, O'zbekiston aholisi orasida vitamin D ning kamligi bilan bog'liq salomatlik muammolari keng tarqalgan.

N. T. Sultonov, U. U. Abdullayev, M. A. Xasanov (2023). "Yurak Etishmovchiligi va Qandli Diabet: O'zbekiston Tajribasi." Tadqiqotda O'zbekistonda qandli diabet va yurak etishmovchiligi o'rtasidagi aloqalar o'rganilgan. Tahlillar shuni ko'rsatdiki, bu kasalliklar bir-biri bilan bog'liq bo'lib, bemorlarning 60% dan ortig'i bir vaqtning o'zida ikkita kasallikdan azob chekmoqda.

D. F. Sirojiddinov, M. A. Xasanov, A. A. Muminov (2022). "Vitamin D Retseptorlari Genining Polimorfizmlari va Yurak-Buyrak Kasalliklari." Ushbu tadqiqotda VDR genining polimorfizmlari va ularning yurak va buyrak kasalliklari rivojlanishidagi o'rni o'rganilgan. Tadqiqot natijalari, vitamin D ning salomatlikka ta'siri va VDR genining ahamiyatini yanada kuchaytirdi.

Olimlar olib borgan tadqiqotlar, yurak etishmovchiligi va qandli diabetning o'zaro aloqalari, vitamin D va VDR genining ahamiyatini ochib beradi. Ushbu tadqiqotlar natijalari, kelajakdagi tadqiqotlar va klinik amaliyot uchun muhim asos bo'lib xizmat qiladi, shuningdek, O'zbekiston sog'liqni saqlash tizimidagi muammolarni hal qilishda foydali bo'lishi kutilmoqda.

Tadqiqot Usullari

Yurak etishmovchiligi (YE) va qandli diabet (QD) kasalliklarining vitamin D va VDR (vitamin D retseptorlari) genining roli bilan bog'liq tadqiqotlar, zamonaviy tibbiyotda muhim o'rin egallaydi. Ushbu kasalliklarning o'zaro aloqalarini o'rganish uchun chet el va O'zbekiston olimlari turli metodologiyalarni qo'lladilar. Ushbu bo'limda, ular tomonidan qo'llanilgan tadqiqot usullari batafsil taqdim etiladi.

Kohort Tadqiqotlar: J. D. G. (2020) tomonidan olib borilgan tadqiqotda, kohort metodologiyasi yordamida turli yosh va jinsdagi bemorlar guruhlariga ajratilgan. Tadqiqotda, vitamin D darajasi va yurak salomatligi ko'rsatkichlari o'lchangan. Natijalar shuni ko'rsatdiki, vitamin D kamligi bo'lgan bemorlarda yurak kasalliklari rivojlanish xavfi 25% ga oshgan. Ushbu tadqiqotda ma'lumotlarni yig'ish va tahlil qilish uchun tibbiy ko'riklar va anketalar foydalanilgan.

Polimorfizmni O'rganish: K. S. Choudhury va hamkasblari (2019) tomonidan o'tkazilgan tadqiqotda, qandli diabetli bemorlarda VDR genining polimorfizmlari aniqlangan. Genetik analizlar yordamida FokI polimorfizmi va uning kasalliklar bilan bog'liqligi o'rganilgan. Tadqiqotda, bemorlarning DNK namunalari olingan ma'lumotlar tahlil qilingan va statistik usullar bilan qiyoslangan.

Tadqiqot Natijalarini Qiyoslash: A. R. K. M. Ali va hamkasblari (2021) tomonidan amalga oshirilgan meta-tahlil, turli tadqiqotlardan olingan ma'lumotlarni yig'ib, vitamin D ning metabolik sindrom va yurak salomatligiga ta'sirini o'rganish maqsadida qo'llanilgan. Ushbu usul, bir nechta tadqiqotlarning natijalarini qiyoslash va umumiy tendentsiyalarni aniqlash imkonini berdi.

Klinik O'rganishlar: A. A. Muminov va D. R. Qodirov (2022) olib borgan tadqiqotda, O'zbekistondagi bemorlar orasida vitamin D darajasi, yurak etishmovchiligi va qandli diabet o'rtasidagi aloqalar o'rganilgan. Tadqiqotda bemorlar uchun klinik eksperimentlar, anketalar va tibbiy ko'riklar o'tkazilgan. Ushbu usul, bemorlar bilan bevosita ishlash va ularning salomatlik ko'rsatkichlarini aniqlash imkonini berdi.

Deskriptiv va Inferensial Statistika: N. T. Sultonov va U. U. Abdullayev (2023) tomonidan amalga oshirilgan tadqiqotda, statistik usullar yordamida O'zbekistondagi qandli diabet va yurak etishmovchiligi o'rtasidagi komorbidlik darajasi tahlil qilingan. Ushbu tadqiqotda, ma'lumotlar statistik dasturlar (masalan, SPSS yoki R) yordamida qayta ishlangan va tahlil qilingan.

VDR Genining Polimorfizmlarini O'rganish: D. F. Sirojiddinov va M. A. Xasanov (2022) tomonidan olib borilgan tadqiqotda, VDR genining polimorfizmlari va ular bilan bog'liq salomatlik muammolari o'rganilgan. Tadqiqotda genetik testlar va bioinformatika usullari qo'llanilgan. DNK namunalariidan foydalanib, VDR genidagi o'zgarishlar tahlil qilindi va natijalar statistik usullar yordamida tahlil qilindi.

Tahlil va Natijalar

Ushbu tadqiqotda yurak etishmovchiligi (YE) va qandli diabet (QD) kontekstida vitamin D ning ahamiyati va VDR (vitamin D retseptorlari) genining polimorfizmlarining roli o'rganilgan. Tadqiqot natijalari, chet el va O'zbekiston olimlari tomonidan olib borilgan turli tadqiqotlardan olingan ma'lumotlar asosida taqdim etiladi. Ushbu qismda qiyosiy va statistik tahlillar orqali natijalar tahlil qilinadi.

Chet elda olib borilgan tadqiqotlar, vitamin D ning etishmasligi yurak etishmovchiligi va qandli diabet rivojlanishida muhim omil ekanligini ko'rsatadi. Masalan, J. D. G. (2020) tomonidan amalga oshirilgan tadqiqotda, vitamin D yetishmovchiligi bo'lgan bemorlarda yurak kasalliklari 25% ko'proq kuzatilgan. Ushbu natijalar, vitamin D ning yallig'lanish jarayonlarini nazorat qilish va yurak-suyak tizimidagi funktsiyalarni muvozanatlashdagi rolini ta'kidlaydi.

O'zbekistonda, A. A. Muminov va D. R. Qodirov (2022) olib borgan tadqiqotda, vitamin D etishmovchiligi bilan bog'liq salomatlik muammolari 30% ortiq ko'rilgan. Bu ma'lumotlar, O'zbekiston aholisi orasida vitamin D ning kamligi sog'liq uchun jiddiy muammo ekanligini ko'rsatadi.

Chet el tadqiqotlari, VDR genining polimorfizmlari va qandli diabet o'rtasidagi bog'liqlikni ko'rsatmoqda. K. S. Choudhury va hamkasblari (2019) tomonidan o'tkazilgan tadqiqotda, FokI polimorfizmi bo'lgan bemorlarda qandli diabet rivojlanish xavfi 40% ga oshgani aniqlangan. Bu natija, VDR genining o'zgarishlari insulin sezgiriligini va metabolik jarayonlarni kuchaytirishi mumkinligini ta'kidlaydi.

O'zbek olimlari tomonidan olib borilgan tadqiqotlar natijalari, VDR genining BsmI polimorfizmining O'zbekiston bemorlarida yurak etishmovchiligi rivojlanishiga ta'sirini ko'rsatmoqda. Bunday genetik o'zgarishlar, bemorlarning kasalliklar bilan bog'liq muammolarini yanada chuqurlashtiradi.

O'zbekistonda 2022 yil uchun qandli diabet bilan kasallangan bemorlar soni 1,2 milliondan ortiq, bu aholi sonining 3,6% ni tashkil etadi. Yurak etishmovchiligi holatlari esa, 2023 yilgi ma'lumotlarga ko'ra, 100 000 aholiga 600-800 nafar bemor to'g'ri kelmoqda. Bu ko'rsatkichlar, ushbu kasalliklarning O'zbekiston aholisida keng tarqalganligini ko'rsatadi.

Tadqiqotlar shuni ko'rsatadi ki, O'zbekiston aholisining 50% dan ortig'i vitamin D etishmasligidan azob chekmoqda. Statistika asosida, vitamin D yetishmasligi bilan bog'liq salomatlik muammolari 30% ga yaqin aholida mavjud, bu esa Evropadagi ko'rsatkichlardan (20-25%) yuqoridir. Ushbu holat, vitamin D ning muhim rolini va uning etishmasligi bilan bog'liq salomatlik tahdidlarini yanada keskinlashtiradi.

Tahlil natijalari shuni ko'rsatadiki, qandli diabet va yurak etishmovchiligi o'rtasidagi komorbidlik holati 60% dan ortiq bemorlarda kuzatilmoqda. Statistika ko'ra, ushbu bemorlarning 70% vitamin D ning etishmasligi holatiga ega, bu esa ularning sog'lig'iga yanada salbiy ta'sir ko'rsatadi. Bunday natijalar, kasalliklar o'rtasidagi o'zaro bog'liqlikni va vitamin D ning roli to'g'risida kengroq tushuncha hosil qiladi.

Ushbu tahlillar shuni ko'rsatadiki, vitamin D ning etishmasligi va VDR genining polimorfizmlari yurak etishmovchiligi va qandli diabet rivojlanishida muhim rol o'ynaydi. O'zbekiston kontekstida vitamin D ning kamligi va uning salomatlikka ta'siri, mavjud kasalliklar bilan birga, aholi uchun jiddiy muammo hisoblanadi. Kelgusida vitamin D ni oshirish va VDR genining polimorfizmlarini o'rganish, kasalliklarning oldini olish va davolashda samarali strategiyalarni ishlab chiqish imkonini beradi. Buning natijasida, sog'liqni saqlash tizimida sifatni oshirish va aholi salomatligini yaxshilash imkoniyati mavjud bo'ladi.

Xulosa va Takliflar

Ushbu tadqiqot, yurak etishmovchiligi (YE) va qandli diabet (QD) kasalliklarining vitamin D va VDR (vitamin D retseptorlari) genining rolini o'rganishga qaratilgan. Tadqiqot natijalari shuni ko'rsatadiki, vitamin D ning etishmasligi va VDR genining polimorfizmlari ushbu kasalliklarning rivojlanishida muhim omillar hisoblanadi.

Tadqiqotlar shuni ko'rsatadiki, O'zbekistondagi aholining 50% dan ortig'i vitamin D etishmasligi holatida yashaydi. Vitamin D ning etishmasligi yurak va buyrak kasalliklari rivojlanishiga, shuningdek, qandli diabetning ko'payishiga olib kelishi mumkin.

VDR genining polimorfizmlari, xususan FokI va BsmI polimorfizmlari, yurak etishmovchiligi va qandli diabet rivojlanishida muhim rol o'ynaydi. Chet el va O'zbekiston olimlari tomonidan olib borilgan tadqiqotlar, bu genetik o'zgarishlarning bemorlarning metabolik jarayonlariga ta'sirini aniqlaydi.

Statistika tahlillari shuni ko'rsatadiki, qandli diabet va yurak etishmovchiligi o'rtasidagi komorbidlik holati 60% dan ortiq bemorlarda mavjud. Ushbu bemorlarning 70% vitamin D yetishmasligi holatida bo'lishi, bu kasalliklar o'rtasidagi o'zaro bog'liqlikni kuchaytiradi.

O'zbekistonning sog'liqni saqlash tizimida vitamin D yetishmasligini aniqlash va bartaraf etish uchun keng ko'lamlı tadqiqotlar o'tkazilishi zarur. Oziq-ovqat mahsulotlari va qo'shimchalar orqali vitamin D ni oshirishga qaratilgan dasturlar ishlab chiqilishi lozim. Bunda, sun'iy yorug'lik va UV nurlanishi manbalaridan foydalanish ham ko'zda tutilishi kerak.

VDR genining polimorfizmlarini o'rganish orqali bemorlarning shaxsiy yondashuvini ta'minlaydigan genetik testlar ishlab chiqilishi muhim. Genetik testlar, kasallikning rivojlanish xavfini aniqlash va individual davolash strategiyalarini ishlab chiqishda yordam berishi mumkin.

Aholi orasida vitamin D ning ahamiyati va uning etishmasligining salomatlikka ta'siri bo'yicha keng tarqalgan xabardorlik dasturlari o'tkazilishi zarur. Sog'lom turmush tarzini targ'ib qilish, vitamin D manbalarini oshirish va ularning ahamiyatini tushuntirish maqsadida seminarlar, treninglar va jamoat tadbirlari tashkil etilishi kerak. Maktablarda va jamoat tashkilotlarida sog'lom ovqatlanish va hayot tarzini targ'ib qiluvchi dasturlarni amalga oshirish muhimdir.

Kelgusidagi tadqiqotlarda vitamin D va VDR genining boshqa polimorfizmlarining salomatlikka ta'sirini o'rganish, shuningdek, qandli diabet va yurak etishmovchiligi o'rtasidagi mexanizmlarni chuqurroq tushunishga qaratilgan tadqiqotlarni o'tkazish muhimdir. Buning uchun multidistsipliner yondashuvni qo'llash, biokimyoviy, genetik va epidemiologik tadqiqotlarni birlashtirish zarur.

Sog'liqni saqlash tizimida innovatsion yondashuvlarni qo'llash, masalan, telemeditsina va sun'iy intellekt yordamida bemorlarni monitoring qilish va ularning vitamin D darajasini nazorat qilish. Ushbu texnologiyalar orqali bemorlar bilan bevosita aloqani saqlash, shuningdek, ma'lumotlarni tezkor yig'ish va tahlil qilish imkoniyatlarini oshirish mumkin.

Ushbu takliflar, yurak etishmovchiligi va qandli diabet kasalliklari bilan bog'liq salomatlik muammolarini hal qilishda, vitamin D ning ahamiyatini kuchaytirishda va sog'liqni saqlash

tizimida sifatni oshirishda yordam berishi mumkin. Shuningdek, bu takliflar sog'liqni saqlash sohasida ishtirok etuvchi mutaxassislar, siyosatchilar va jamiyat a'zolari o'rtasida hamkorlikni kuchaytirishga qaratilgan.

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RESULTS OF ENDOSCOPIC INTERVENTIONS AT PATIENTS WITH CHOLELITHIASIS COMPLICATED WITH MECHANICAL JAUNDICE**Akbarov M.M.¹, Djumaniyazov D.A.², Polvonniyozov Kh.G.¹, Otamirzaev K.A.¹**

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Abstract.

The problem of gallstone disease, despite the current level of health care development, remains mainly a surgical problem, although a number of clinical situations require an integrated solution involving therapists, endoscopists, radiologists and doctors of other specialties. The study included 611 patients with gallstone disease complicated by mechanical jaundice for the period from 2021 to 2023, who, according to indications, underwent endoscopic retrograde cholangiopancreatography and endoscopic interventions. At the time of admission to the clinic, 174 (28.5%) patients had no mechanical jaundice, while 144 patients had a history of intermittent mechanical jaundice, and 30 patients had choledocholithiasis or choledoch ectasia on ultrasound. Being a minimally invasive intervention, endoscopic manipulations belong to the primary priority methods of diagnosis and treatment of patients with obstructive jaundice, however, despite their high diagnostic (93.5%) and therapeutic effectiveness (78%), a rational approach is needed, taking into account the likely risk factors for the development of complications specific to this type of intervention.

Key words: cholelithiasis; mechanical jaundice; endobiliary interventions; endoscopic papillosphincterotomy.

The relevance of the problem. The problem of gallstone disease, despite the current level of health care development, remains mainly a surgical problem, although a number of clinical situations require an integrated solution involving therapists, endoscopists, radiologists and doctors of other specialties.

In patients with gallstone disease (GD), choledocholithiasis occupies a leading place and is observed in 8.1-26.8% of cases [1, 4], and in the group of patients older than 60 years, its frequency reaches 28.1% [3].

The introduction into clinical practice of endoscopic retrograde cholangiopancreatography (ERCP), endoscopic papillosphincterotomy (EPST), endoscopic balloon papillodilation, endobiliary prosthetics, as well as methods of laparoscopic sanitation of the common bile duct and the technology of minidos-tupa to the gallbladder, has opened up great opportunities for clinicians in the diagnosis and treatment of complicated forms of gallstone disease [1, 2, 5, 6-9].

Dissatisfaction with the results of treatment of GD, especially with a combination of mechanical jaundice and purulent cholangitis, has determined the need for comprehensive treatment of this category of patients using endovideosurgical techniques, endoscopic and endobiliary interventions.

Research materials and methods. The study included 611 patients with gallstone disease complicated by mechanical jaundice who were in the clinic of the State Institution

"Republican Specialized Scientific and Practical Medical Center for Surgery named after academician V.Vakhidov" for the period from 2021 to 2023, who, according to indications, underwent ERCP (or isolated ERCG, ERPG) and endoscopic interventions: Endoscopic papillosphincterotomy (EPST) or suprapapillary choledohodenostomy, after preliminary a suprapapillary fistula superimposed with a needle electrode. There were 249 (40.7%) patients with acute calculous cholecystitis, 362 (59.3%) patients with chronic calculous cholecystitis.

At the same time, women prevailed (ratio 1:1.9). The average age of the patients was 57.5 ± 16.0 years.

The clinic of mechanical jaundice was observed in 436 patients (71.4%). The duration of anamnesis in 295 patients (48.3%) was 10 days or more, in other cases, patients were admitted to the clinic within 10 days from the onset of mechanical jaundice. Indications for emergency ERCP were ultrasound data and hyperbilirubinemia.

Diagnostic ERCP revealed that the main cause of mechanical jaundice in the study group of patients were: choledocholithiasis in 484 patients (79.2%); choledocholithiasis in combination with stenosing papillitis of the large duodenal papilla in 99 patients (16.2%); stenosis of the terminal choledochus in combination with stenosing papillitis of the large duodenal papilla in 20 patients (3.3%) and Mirizzi syndrome in 9 patients (1.4%).

Research results and discussion. At the time of admission to the clinic, 174 (28.5%) patients had no mechanical jaundice, while 144 patients had a history of intermittent mechanical jaundice, and 30 patients had choledocholithiasis or choledoch ectasia on ultrasound. In the comprehensive assessment of mechanical jaundice according to the classification of Fedorov V.D. et al. (2000), which included the determination of not only bilirubin parameters, but also an assessment of the functional status of the liver – a severe degree was detected in 62 (10.1%) patients.

When performing ERCG, bile duct contrast was obtained on the first attempt in 562 (92%) patients. In the remaining 49 (8%) cases, cannulation was performed with repeated manipulation, which was facilitated by portioned endoscopic papillotomy or suprapapillary fistula. According to the indications, endoscopic interventions were performed: EPST was performed in 462 (75.6%) patients, and suprapapillary choledohodenostomy was performed in 149 (24.4%) patients. At the same time, out of 300 observations of choledocholithiasis during EPST in 222 (74.1%) patients, it was possible to extract a concretion into the lumen of the duodenum 12. In the group of patients with choledocholithiasis, where suprapapillary choledohodenostomy was performed (117 patients), concretion from the choledochus was reduced in 73 (62.5%) cases.

With inadequate EPST and suprapapillary choledohodenostomy, additional dissection was performed to extract relatively larger concretions, usually within 4-6 mm. Thus, an additional expansion of the papillotomy opening was performed in 46 patients (7.5%), and an additional expansion of the suprapapillary choledohodenostomy was performed in 49 patients (8.0%).

As can be seen from the above diagram, EPST was most often used in choledocholithiasis (79.3%) and its combination with papillitis (71%), and the frequency of suprapapillary choledohodenostomy in this pathology, on the contrary, was low, 20.7% and 29%, respectively. However, in the group of patients with terminal department of choledochus stenosis that makes EPST difficult, the frequency of suprapapillary choledohodenostomy was

78.6%, and EPST was only 21.4%. In Mirizzi syndrome, the frequency of both types of endoscopic interventions was the same.

Among the etiological causes of mechanical jaundice, according to ERCG, choledocholithiasis was detected in 96.6% of cases and in 92% its combination with papillitis of the large duodenal papilla. Stenosis of the terminal choledochus was determined in 19 (61.1%) patients, Mirizzi syndrome in 11 (33.3%) patients. The comparative diagnostic effectiveness according to ultrasound data was only 38.8%, whereas according to ERCG data it was 93.5%.

An analysis of the frequency of complications depending on the type of endoscopic intervention performed showed that after suprapapillary interventions, bleeding of varying intensity was observed in 19 (12.5%) cases, after EPST in 31 cases (6.8%), and pancreatitis was observed in 8 (7.7%) and 16 (5%) cases, respectively. In 1 case, during suprapapillary choledohodenostomy, a perforation of the wall of the duodenum occurred, which required surgical intervention.

Thus, the incidence of complications with suprapapillary fistula and suprapapillary choledohodenostomy in patients with GI was higher and amounted to 21.2%, with EPST this indicator was 11.8%.

In 91% of cases after EPST, bleeding from papillotomic edges was stopped by additional coagulation, 2 (9.1%) patients underwent emergency surgery due to ineffective hemostasis. 1 patient died. In suprapapillary choledohodenostomy, ineffective endoscopic hemostasis was found in 2 patients, which amounted to 15.4%. 1 patient died after the operation. 4 patients were operated on for acute pancreatitis provoked by retrograde intervention after EPST and suprapapillary choledohodenostomy. Mortality in the development of acute pancreatitis was 6.3% in the EPST group and 12.5% in the suprapapillary choledohodenostomy group.

In general, the ineffectiveness of conservative measures for complications after endoscopic interventions required emergency surgery in 6 (15.8%) after EPST and in 7 (31.8%) after suprapapillary choledohodenostomy.

Among the total number of endoscopic interventions in 477 (78.0%) patients, the latter were effective in resolving the cause of mechanical jaundice. Thus, their effectiveness turned out to be virtually the same for the two methods, amounting to 78.9% (in 364 out of 462 patients) for EPST and 75% (in 112 out of 149 patients) for suprapapillary choledohodenostomy.

Among the entire group of patients with gallstone disease, 457 patients were operated on. At the same time, traditional interventions were performed in 172 cases and laparoscopic cholecystectomy was performed in 283 patients.

The total mortality rate was 4.9% (32 cases). Of this number, the mortality rate after traditional interventions was 11.7% (20 patients), endoscopic interventions – 5.5% (10 observations) and 0.5% (2 patients) after laparoscopic cholecystectomy.

The main cause of mortality in severe mechanical jaundice was hepatic or multiple organ failure. In milder degrees of mechanical jaundice, mortality was due to myocardial infarction and pulmonary embolism.

Conclusion. Being a minimally invasive intervention, endoscopic manipulations belong to the primary priority methods of diagnosis and treatment of patients with obstructive jaundice, however, despite their high diagnostic (93.5%) and therapeutic effectiveness (78%), a rational approach is needed, taking into account the likely risk factors for the development of complications specific to this type of intervention.

Performing atypical endoscopic transpapillary interventions causes an increased risk of developing specific complications, as the bleeding rate was 12.5% versus 6.8% for EPST, and ERCP-provoked acute pancreatitis was 7.7% versus 5%, respectively. At the same time, the ineffectiveness of conservative measures for complications after endoscopic interventions required emergency surgery in 6 (15.8%) after EPST and in 7 (31.8%) after suprapapillary choledochodostomy.

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LAPAROSCOPIC CORRECTION OF REFLUX ESOPHAGITIS

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Summary. The number of complications in the postoperative period when applying fundoplication according to the generally accepted method is higher, but compared to the method proposed by us in the main group - by 24.7%, in the control - by 13.8%. In the postoperative period, the treatment of complications that arose was carried out according to generally accepted rules and did not encounter difficulties in any of the patients. The average postoperative bed-day with a complicated course was higher and amounted to 10 days. We did not reveal any effect of complicated course of the postoperative period on the long-term results. For the correct assessment of the choice of surgical treatment, it is important to analyze possible complications in the long-term period.

Key words: bariatric surgery, gastroesophageal reflux disease, choice of surgery.

Relevance. According to the 2020 clinical guidelines, GERD is a chronic recurrent disease caused by impaired motor-evacuation function of the gastroesophageal tract and characterized by regularly recurring reflux of gastric and, in some cases, duodenal contents into the esophagus, which leads to: The appearance of clinical symptoms that worsen the quality of life of patients (heartburn in 83% of patients with GERD, belching in 52%, dysphagia and odynophagia in 19%, as well as extraesophageal manifestations) [17,19,27,28]. Damage to the mucous membrane of the distal esophagus with the development of dystrophic changes in it, catarrhal or erosive-ulcerative esophagitis (reflux esophagitis), and in some patients, cylinder cell metaplasia [12,14,16,18,29]. In other words, in some cases, an accurate diagnosis of GERD requires not only a characteristic clinical picture, but also endoscopic and/or histological changes in the epithelium of the distal esophagus. Moreover, GERD is often asymptomatic. Thus, up to 50% of patients with erosive esophagitis may not have esophageal or extraesophageal symptoms [2], and in studies among patients with bronchial asthma, asymptomatic GERD accounts for up to 62% of cases [1,2,6,8,10]. In this regard, the severity of the pathology is usually determined based on the results of an endoscopic examination. Thus, mild GERD, also called non-erosive reflux disease (NERD), includes catarrhal esophagitis detected during esophagogastroscope or pathological reflux according to pH-impedancemetry. Moderate GERD includes erosive esophagitis grades A and B according to the Los Angeles classification, severe erosive esophagitis grades C and D [23,24,25,26]. At the same time, moderate (grade A/B) erosive esophagitis proceeds in the same way as NERD: transformation into severe esophagitis or Barrett's esophagus (BE) is observed extremely rarely (<1% over 2 years) and depends little on the use of proton pump inhibitors (PPIs) [1,3,4,20,21,22]. Thus, at present, the issues of laparoscopic surgery for gastroesophageal reflux disease in overweight

patients require further development, both in tactical and technical aspects, in order to improve the results of surgical treatment. This work is a continuation of research in this direction.

Purpose of the study. Development of surgical treatment methods for overweight patients with gastroesophageal reflux disease that have high clinical efficacy and the lowest incidence of complications and relapses.

Materials and methods. The present study was based on observations of 123 patients who underwent surgery for gastroesophageal reflux disease in the Clinic of Surgical Diseases and New Technologies based at TMA and BukhMI No. 21 from 2019 to 2022.

In the main and control groups, the combination of gastroesophageal reflux disease with SPYUD was detected in 100 (83.3%) patients; with cholelithiasis in 43 (35.8%) patients; with gastric ulcer and duodenal ulcer in 21 (17.5%) patients; with abdominal wall hernias in 9 (7.5%) patients; chronic nonspecific lung diseases were observed in 18 patients (15.0%). The excess of these total numbers of subjects is explained by the frequent combination of several diseases in the same patient. Isolated GERD was rare and was detected only in 30 (25%) overweight patients. The cause of the disease, as a rule, was the "primary" insufficiency of the lower esophageal sphincter, since no signs of anatomical changes in the area of the esophageal opening of the diaphragm were revealed during instrumental examination. Of the total number of the above-mentioned patients with excess body weight, only 42 (35.0%) sought medical attention at the clinic with a diagnosis of GERD. The referrals of the remaining patients included various diseases for which they had been unsuccessfully treated for a long time by doctors of various specialties. Patients with excess body weight and obesity constitute a special contingent of patients, since the polymorphism of the clinic and the course of GERD in them under the guise of and in combination with other concomitant diseases cause certain difficulties in correct and timely diagnosis. In this regard, all patients underwent a comprehensive examination, including clinical, instrumental and laboratory research methods. General clinical examination was carried out using traditional methods and included the study of complaints, anamnesis, general and local status. Functional diagnostics of external respiration was carried out using the RiD-124D (LKIVD-01) spiroanalyzer (St. Petersburg). The study was conducted on an empty stomach in the morning hours with the patient in a sitting position. Breathing was done through a mouthpiece, a clamp was applied to the nose. In this case, the vital capacity of the lungs (VC), forced vital capacity of the lungs (FVC), Tiffeneau index (FEV1/VC), maximum voluntary ventilation (MVV) were determined. The flow curve of the maximum expiratory volume was analyzed taking into account the volume in the first second (FEV1). Thus, the analysis of the data of the preoperative examination of patients with overweight and obesity showed that a comprehensive examination of patients using clinical and instrumental research methods

provides the most complete information on the nature of functional disorders in the upper gastrointestinal tract in gastroesophageal reflux disease. When developing the new operation, we were guided by the desire to make the intervention for overweight patients minimally traumatic, since when performing surgical intervention in overweight patients, the surgical field became difficult to access and poorly visible due to excess fatty tissue in the area of the esophagus and diaphragmatic crura, and this led to an increase in the number of postoperative complications. In the process of developing the method, we took into account that overweight individuals have increased intragastric pressure, which is why it is necessary to strengthen the esophageal-gastric junction. When suturing the diaphragmatic crura in overweight patients, they swell due to their infiltration with fatty tissue, the strength of fixation is reduced, so fraying, divergence, and suture failure are possible, which in turn, in combination with high intra-abdominal pressure, can cause a relapse of the hernia. Diaphragmocruroraphy is quite traumatic for the patient, since it requires the separation of the diaphragmatic crura, which has an adverse effect on patients with excess body weight, especially those with a large number of combined diseases. The performance of diaphragmocruroraphy in patients with excess body weight is difficult, since the presence of a large amount of fatty tissue in the area of the diaphragmatic crura complicates the view, thereby increasing the labor intensity of the operation. It is known that today many operations are aimed at reducing the course of GERD and reducing body weight, they are associated with the use of a certain kind of restrictive technologies, in which various materials are used as prosthetics. Taking into account previous experience, we have developed an operation and compared it with the most effective analogues used at present. The advantages of the method are: relative simplicity of the technique of execution, availability of the material used, the possibility of wide application in surgical hospitals. The proposed method is carried out as follows. Under intubation anesthesia, trocar laparocentesis is performed at five points. Two trocars (10 mm) are placed along the midline of the abdomen - one near the xiphoid process, the second 4-5 cm above the navel. The third trocar (10 mm) is inserted into the left hypochondrium along the midclavicular line, the fourth is inserted into the right hypochondrium for insertion of the liver retractor, the fifth is inserted into the left hypochondrium laterally for retraction of the stomach and exposure of the diaphragmatic crura behind the esophagus. After insertion of the trocars and revision of the abdominal organs, mobilization of the stomach, cardia and esophagus begins. Then the liver retractor is inserted and the liver is retracted, the gastrohepatic ligament is divided. The esophagodiaphragmatic ligament is mobilized to the left of the esophagus. A tube is inserted into the patient's stomach. Using a Babcock clamp, the right diaphragmatic crus is separated from the esophagus, then the left, after which the esophagus is pulled to the left and downwards for visual revision of the posterior region of the esophagus and

a window is created behind the esophagus. Then, a synthetic explant made of polytetrafluoroethylene (PTFE) is prepared in the form of a circle with a diameter of 8 cm, in the center of the explant a circle with a diameter of 3 cm is cut out, communicating with the outer border of the circle due to a radial incision. The explant is twisted into a tube to pass it into the abdominal cavity through a trocar at the fifth point. The explant is grasped with manipulators, straightened and installed in such a way that the edges of the explant incision envelop the esophagus, and the esophagus is in the cut hole of the explant. The edges of the incision of the polytetrafluoroethylene mesh are sutured in the form of a duplicate, while the radial incision is directed with a reference point of two o'clock in order to avoid damage to the liver vessels when suturing the edges, the right leg of the diaphragm is captured in the suture and the explant is fixed to the diaphragm with separate sutures (one or two). We sutured the explant to the diaphragm using the Auto suture endostapler; fixation with manual intracorporeal sutures is possible. The main advantage of this method is the early activation of patients due to a decrease in the volume of surgical trauma and the degree of surgical aggression, which significantly reduces the number of cardiopulmonary complications in the postoperative period.

Conclusions: In the context of reforming the healthcare system, the widespread introduction and improvement of minimally invasive technologies, the selection of patients for antireflux surgery for gastroesophageal reflux disease occurring against the background of excess body weight should be carried out according to strict indications based on data from a comprehensive clinical and instrumental examination, including X-ray tests, fibroendoscopy, pH-metric and esophagomanometric monitoring.

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**AVTOMOBIL YO‘LLARI SOHASIDA MA‘LUMOTLAR BAZASINI YARATISHDA
GEOAXBOROT TIZIMLARINI O‘RNI VA AHAMIYATI**

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**РОЛЬ И ЗНАЧЕНИЕ ГЕОИНФОРМАЦИОННЫХ СИСТЕМ В СОЗДАНИИ БАЗЫ
ДАНЫХ В ОБЛАСТИ АВТОМОБИЛЬНЫХ ДОРОГ**

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**THE ROLE AND IMPORTANCE OF GEOINFORMATION SYSTEMS IN THE
CREATION OF A DATABASE IN THE FIELD OF HIGHWAYS**

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Annotatsiya. Ushbu maqolada avtomobil yo‘llarida geoaxborot tizim (GAT) larini yaratish va rivojlantirishda o‘ziga xos bo‘lgan muammolar va avtomobil yo‘llari geoaxborot tizimini yaratishning asosiy tamoyillari va yondashuvlari haqida gap boradi.

Аннотация. В этой статье рассматриваются специфические проблемы создания и развития геоинформационных систем (ГИС) на автомобильных дорогах и основные принципы и подходы к созданию геоинформационных систем автомобильных дорог.

Abstrast. This article examines the specific problems of creating and developing geographic information systems (GIS) on roads and the main principles and approaches to creating geographic information systems on roads.

Kalit so‘zlar: Geografik axborot tizimlari (GAT), fazoviy ma‘lumotlar, yo‘l infratuzilmasi, Yo‘l xo‘jaligi, algoritmlar, ma‘lumotlarning optimal modeli, loyiha materiallari.

Ключевые слова: Географические информационные системы (ГИС), пространственные данные, дорожная инфраструктура, дорожное хозяйство, алгоритмы, оптимальная модель данных, проектные материалы.

Keywords: Geographic information systems (GIS), spatial data, road infrastructure, road management, algorithms, optimal data model, project materials.

O‘tgan yuz yillikning so‘nggi o‘ttiz yilida insoniyat geografik axborot tizimlari deya atalgan instrumental vositalarni shiddat bilan rivojlantirdi, ular geografik bilimlarni kengaytirish va chuqurlashtirishda yordam ko‘rsatish uchun mo‘ljallangan. geografik axborot tizimlari (GAT) bizga fazoviy ma‘lumotlarni to‘plash va ulardan foydalanishda yordamlashadi. geografik axborot tizimlari (GAT) ning ayrim komponentlari juda texnologikdir, ular fazoviy ma‘lumotlarni zamonaviy saqlash joylarini, ilg‘or telekommunikastion tarmoqlarni va takomil hisoblash texnikasini o‘z ichiga oladi.

Yo‘l va yo‘l infratuzilmasi sohasiga oid ma‘lumotlarni hisobga olish, allaqachon kompyuterlarga o‘tkazilgan bunday xizmatlarning aksariyati kompyuter grafikasi, ya‘ni elektron xaritalar va mavjud axborotni uning joydagi ko‘rinishi bilan bog‘lash imkonini

beruvchi geoaxborot texnologiyalariga ham murojaat qila boshlaganlar. Bu murakkab ishda ilk qadamlarni qo'yganlar nafaqat qulay ish texnologiyasiga ega bo'ldilar, balki ishonchli ma'lumotlarning iqtisodiy afzalligiga ham ishonch hosil qilganlar.

Yo'llarning o'ziga xos xususiyatlari mavjud. Yo'llarning o'ziga xosligi GAT texnologiyalariga alohida talablar qo'yadi. Yo'l - bu faqat avtotransport vositalari ketayotgan yo'l bo'lagigina emas, balki texnik yo'l inshootlari - ko'priklar, tonnellar, estakadalar, yo'l belgilari va yo'l bo'yidagi inshootlarning butun majmuasidir. Boshqa sohalar kabi, yo'l sohasida ham qurilishidan oldin qidiruv va loyihalash ishlari olib boriladi. Loyiha materiallari bugungi kunda yo'lning joylardagi holati haqidagi eng ishonchli, ba'zi hollarda esa yagona kartografik material hisoblanadi. Yo'l loyihalashtiruvchilar elektron xaritalar bo'yicha yo'l xizmatidagi hamkasblaridan ancha ilgarilab ketishdi va allaqachon elektron grafik materiallardan foydalanishmoqda.

Yo'llar va yo'l inshootlari juda murakkab va qimmat turadigan texnik inshootlar bo'lib, ular doimiy nazoratni va ularning asosiy xususiyatlarini hisobga olishni talab qiladi. Tabiiyki, pasportlashtirish, diagnostika va boshqa ishlarda tizimlashtirish va tahlil qilish zarur bo'lgan turli xil ma'lumotlarning to'planadi. Bunda zamonaviy kompyuter texnologiyalariga asoslangan axborot tizimlari, xususan, geoaxborot tizimlari katta yordam beradi. Biroq, geoaxborot tizim (GAT) texnologiyasini joriy etishda quyidagi muammolar mavjud:

- Axborot tizimlarini rivojlantirish bo'yicha aniq markazlashtirilgan ma'lumotlarni mavjud emasligi;

- Tarmoq axborot tizimlarini yaratishning asosiy qoidalarini aniq tartibga soluvchi me'yoriy va boshqa hujjatlarning mavjud emasligi;

- Yo'l kompleksini boshqarishning ayrim doiralarida muammolarni tushunish va bunday tizimlarni rivojlantirishni yo'qligi;

- Yo'lchilarning boshqa xizmatlar (geodezistlar, ekologlar va boshqalar) bilan o'zaro aloqasining yetarli darajada emasligi.

Avtomobil yo'llarida geoaxborot tizim (GAT) larini yaratish va rivojlantirishda o'ziga xos bo'lgan muammolar yuzaga keladi. Ulardan ba'zilarini va eng jiddiylarini ko'rib chiqamiz:

1. Ma'lumotlarning optimal modelini tanlash. Yo'l xo'jaligida yo'l obyektlari to'g'risidagi ma'lumotlarning murakkabligi va xilma-xilligi tufayli dolzarbdir. Yo'l xo'jaligi geoaxborot tizim (GAT)da ma'lumotlar modeli turli xil bo'lishini, ularning ishonchli saqlanishini, boshqa tizimlar bilan mos kelishini va boshqalarni ta'minlashi kerak.

2. Axborot tizimlarining barcha darajalarida to'g'ridan-to'g'ri aloqaning mavjud emasligi. Har-xil geoaxborot tizim (GAT)ga o'xshash tizimlarda ma'lumotlar formatlarini mos kelmasligi.

3. Yo'l xo'jaligida GATlarida axborotni to'plash va yangilash muammosi dolzarb hisoblanadi. Yo'l obyektlarini pasportlashtirish va diagnostika qilish har doim eng dolzarb muammolardan biri bo'lib kelgan.

Amaldagi me'yoriy hujjatlar, texnologiyalar va yo'l laboratoriyalari sezilarli darajada eskirgan yoki hozirgi vaziyat talablariga javob bermaydi. Pasportlashtirish natijasida nima va qanday aniqlanishi, ma'lumotlarning aniqligi, ishonchliligi, bu vazifalarning kichik bir qismidir.

Avtomobil yo'llari geoaxborot tizimini yaratishning asosiy tamoyillari va yondashuvlari:

1. Ushbu tizim qabul qilingan me'yoriy hujjatlar asosida yaratish va imkon qadar boshqa tizimlar (shu jumladan, arzon) bilan mos kelishi kerak. Ushbu shart qabul qilingan tasniflar, raqamlash va boshqalardan foydalanishni nazarda tutadi;
2. Geoaxborot tizimni yaratishda ma'lumotlarning optimal modelini, foydalaniladigan platforma va dasturiy ta'minotni tanlash masalasini juda sinchkovlik bilan o'rganish kerak;
3. Geoaxborot tizim ochiq, ya'ni to'ldiriladigan va o'zgartiriladigan bo'lishi kerak;
4. Odatda, kompyuter bilan ishlashda foydalanuvchi uchun oson interfeys;
5. Bunday tizimni yaratish katta vaqt va moddiy xarajatlarni talab qilishini hisobga olib, uni joriy etishning shunday sxemasini ishlab chiqish kerak.

Hozirgi kunga kelib, geoaxborot tizimlari yo'l xo'jaligini boshqarishda ahamiyati judda katta va axborot jamiyatida yo'l xo'jaligi boshqaruvining ajralmas qismiga aylandi.

Avtomobil yo'llarini qurilishi va ekspluatatsiyasiga ta'sir qiluvchi barcha omillarni baholash uchun zarur bo'lgan axborot qatlamlarini birlashtirish va tahlil qilish faqat GATda joriy qilingan fazoviy algoritmlardan foydalangan holda amalga oshirilishi mumkin. Faqat axborot ta'minoti uchun qanday ma'lumotlar (vaziyat, yerdan foydalanuvchilar, gidrologiya, ma'muriy-siyosiy chegaralar, transport tarmog'i) kerakligini, qancha turishini, uni qanday yo'l bilan olish mumkinligini va uni qanday qilib qatlamlab taqdim etish kerakligini hal qilish kerak.

Avtomobil yo'llarini qurilishda atrofdagi hududga ta'sirini hisobga olish talablari va o'z navbatida loyiha yechimlarining ushbu hududning tabiiy sharoitiga bog'liqligini geoaxborot tizimi (GAT) butun loyihalash jarayoni davomida kuzatib borishi mumkin. Yo'l harakati ochilgandan so'ng yo'ldan foydalanish tashkilotlari tomonidan bajariladigan ishlar bilan bog'liq barcha masalalar yo'lni yagona kompleks inshoot sifatida tasavvur qiluvchi loyiha muallifi va yo'ldan foydalanish xizmatlari tomonidan birgalikda hal qilinishi mumkin

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