SYSTEMIC VASCULITIS IN KAZAKHSTAN: A COMPLEX RESEARCH APPROACH

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Abstract
Rare diseases known as systemic vasculitides involve the inflammatory destruction of blood vessels, leading to complex disorders that can affect a single organ or multiple organs and systems. The challenges in diagnosis, coupled with the lack of awareness among healthcare providers, particularly primary care physicians, and delayed treatment, often result in disability and worsen the prognosis of systemic vasculitis patients. We have conducted a comprehensive research approach to understand the features of systemic vasculitis, considering demographic, clinical, and laboratory data in Kazakhstan (Shymkent city and the Turkestan region). This approach, which encompasses a retrospective research method, an analytical research method, and a one-stage cross-examination (online survey), is essential in our quest to improve the understanding and management of systemic vasculitis in Kazakhstan.

Keywords: Vasculitis, Systemic vasculitis, Survey, Questionnaire, COVID-19


INTRODUCTION
Rare illnesses known as systemic vasculitides (SV) involve the inflammatory damage of blood vessels, leading to complicated conditions that can affect a single organ or multiple organs and systems [1]. The Chapel Hill Consensus Conference (CHCC) established a system for categorising SV in 1994. Two decades later, they updated the naming system to include more categories and reflect current trends and advancements in understanding vasculitis [2,3]. SV can be classified by the vessel sizes primarily involved (large, medium, small), clinical presentations, root causes, or histological characteristics [1,4]. These conditions impact patients of every age group and present distinctive difficulties in diagnosis and treatment [5].

Over the last four decades, improved drug regimens have changed vasculitis from an often lethal, sudden illness to a continuing disorder with recurring episodes and lasting effects that many patients live with for a long time [6]. Most SV have no universal test or specific diagnostic guidelines [7]. The outlook for SV is no longer always deadly, but individuals may still have ongoing symptoms, permanent damage to their organs, and adverse effects from immunosuppressive therapy [8,9]. It has been reported in the literature that 25% of individuals with primary vasculitis suffer from depression, while over 40% experience anxiety [10]. Approximately 25% of individuals with ANCA-associated vasculitis (AAV) are unemployed, and 50% have expressed that their condition hinders their professional advancement [11,12].
Thus, the following goal was established for a more in-depth investigation of SV, an autoimmune condition of significant importance in Kazakhstan and globally. Considering clinical and laboratory data, the dissertation research aimed to optimise treatment tactics and identify patients with SV in Shymkent City and the Turkestan region.

To achieve this goal, the following tasks were set:
1. To analyse systemic vasculitis that first appeared after infection with COVID-19 and vaccination;
2. To evaluate the factors leading to delayed diagnosis of systemic vasculitis;
3. To study the demographic, clinical and anamnestic features of individuals with SV in the period from 2019 to 2021;
4. Evaluating the understanding and attitudes of healthcare professionals in the Republic of Kazakhstan and abroad regarding systemic vasculitis;
5. To provide recommendations for improving the management approach for patients with systemic vasculitis.

A complex research approach was applied to achieve the research goal and solve each task.

The study coincided with the COVID-19 pandemic, so choosing a retrospective research method and an online survey of healthcare professionals (a cross-sectional study) was advisable.

Millions of fatalities worldwide have resulted from COVID-19. The disease's widespread transmission was primarily due to respiratory issues being the most prevalent symptoms [13]. During the early stages of the pandemic, steps like isolation, maintaining physical distance, quickly tracing patients, limiting access to enclosed spaces, and reducing crowding were implemented to handle the transmission of the illness [14].

In 2020, the COVID-19 pandemic energised the international scientific society, especially in life sciences [15,16]. The pandemic altered numerous facets of human existence worldwide, leading to enduring adverse social and economic repercussions [17,18].

In the first phases of the study, and when gathering patient data, extensive examination of the data linked to the selected subject was conducted.

A literature review involves a thorough and critical examination and integration of the current research and academic literature concerning a particular subject. It summarises the present understanding, concepts, and discussions related to the topic, ultimately laying the groundwork for the research carried out in the dissertation or thesis. A literature review is critical in contextualising research by offering a thorough overview. It tracks the development of concepts, theories, and research results in the field, preparing the groundwork for your investigation. Through analysing existing literature, researchers can grasp the present knowledge landscape, pinpoint essential topics, and examine how their research adds to the larger academic discourse.

Researchers use the literature review to help them choose the proper methodologies for their study. By looking at how previous studies were carried out, what methods were used, and which approaches were successful, researchers can learn about the best practices and potential problems in research design. This information helps researchers decide about data collection, analysis techniques, sampling methods, and overall research strategy. The literature review provides a framework for selecting research methods and allows researchers implement reliable and feasible research methods that align with standard practices in the field [19].

Also, before the start of the study, the ethical approval of the Local Ethics Commission was obtained, where all relevant documents related to the planned research were provided (research protocol, form of informed consent of the subjects, abstract of the work, questionnaire questions, etc.).

**LITERATURE REVIEW**

Literature data show that COVID-19 infection and COVID-19 vaccines can cause SV, similar to the phenotypes of primary vasculitis. IgA vasculitis and leukoclastic skin vasculitis are the most common vasculitis reported after infection or vaccination with COVID-19, with a better prognosis than de novo vasculitis [20,21]. Steroids play a central role in treatment, and in most reported cases, a positive effect of prednisone doses of 0.8 to 1 mg/kg per day was observed. Vasculitis that develops after coronavirus infection damages blood vessels of all sizes, and therefore, it was recommended that they be classified as «Virus-specific vasculitis» in the Chapel Hill consensus [21].
During the assessment of the factors leading to the delay in the diagnosis of SV, it was concluded that the relatively low level of SV and insufficient awareness of general practitioners, as well as the uneven clinical signs of SV, suggest a delay in diagnosis. Increasing the awareness of therapists and providing patients with timely access to rheumatological care ensures the initiation of timely treatment, which leads to a reduction in injuries caused by SV and an improvement in the quality of life. Raising the public's and doctors' awareness about detecting systemic vasculitis early and establishing efficient referral systems is crucial. Achieving this necessitates the involvement and agreement of all stakeholders, including rheumatologists, diverse medical communities, and politicians [22].

At this stage, we conducted a comprehensive, thorough literature review, which allowed us to examine what had been studied before, identify gaps in our research area, and, most importantly, build a highly accurate research plan [23].

A RETROSPECTIVE STUDY OF PATIENT MEDICAL HISTORIES
The virus that causes COVID-19 rapidly spread across the globe and was characterised as a pandemic by the WHO on March 11, 2020. Local and national recommendations implemented the following public health measures, including the extensive adoption of masks and the observance of social distancing. Schools and businesses were temporarily shut down, big events were limited, and individuals were encouraged to stay away from others to prevent the virus from spreading [24].

According to the tasks set, it was necessary to analyse the medical history data of patients with systemic vasculitis from 2019 to 2021 and study their demographic, clinical, and anamnestic characteristics. To accomplish this task, it was advisable to choose a retrospective research method since the study period coincided with the COVID-19 pandemic, and difficulties arose with patient access.

An analysis of the demographic, clinical, and historical traits of patients with systemic vasculitis in the years 2019, 2020, and 2021 revealed that the condition was most commonly diagnosed in female patients within the studied group (Shymkent city and Turkestan region). The most prevalent conditions were Takayasu disease (43.9%) and IgA vasculitis (31.71%). Patients had a range of health issues, including diabetes, anaemia, coronary heart disease, high blood pressure, and gastrointestinal tract conditions. In the analyzed groups, 27.1% of the individuals exhibit some form of disability, and most of these individuals fall into the category of group II disability. Out of 162 patients, the obesity rate is 37.6%. The musculoskeletal system was affected in 75.6% of patients with systemic vasculitis, while the gastrointestinal tract was affected in 57.3%. Additionally, the skin was impacted in 48.8% of patients, and peripheral vessels were affected in 37.8% of cases. Finally, the cardiovascular system showed symptoms in 31.7% of patients [25,26].

At this stage, we have revealed that most patients in the studied population are women of reproductive age of rural origin. The patient's profound level of disability is a reminder of the consequences of delayed treatment and the absence of comprehensive information about managing systemic vasculitis in the medical community. This situation has caused a pattern of delayed diagnosis and treatment. The significance of doctors' in-depth knowledge about autoimmune diseases cannot be overstated. It is essential to quickly and promptly identify these conditions and refer the patient to a rheumatologist. The rheumatologist has a vital function in the treatment process and in ensuring the application of appropriate treatment. This is vital for achieving positive patient outcomes and a favourable prognosis.

ONLINE SURVEY DURING THE COVID-19 PANDEMIC: A ONE-STEP CROSS-SECTIONAL STUDY
Survey research is vital in the healthcare field. It gathers information about healthcare delivery, service utilisation, and general issues related to the quality of care [27].

Over the last twenty years, online surveys have become necessary as a significant research methodology [28]. The benefits of online surveys have become increasingly clear amidst the COVID-19 pandemic. The frequency and rapid publication of online surveys over the past half-year evidence this [29].

According to the task, an online survey (a one-step cross-sectional study) of healthcare professionals in Kazakhstan and abroad was conducted. During the COVID-19 pandemic, the research was carried out when it was not feasible to conduct face-to-face interviews with physicians; using this approach was the most efficient and saved time.

A web-based questionnaire connected demographic segments in various regions of the world [30]. The survey included 113 healthcare professionals from 21 nations, such as rheumatologists, internists, and general practitioners. Respondents shared information...
on organs affected by AAV, vasculitis causes, diagnostic tests, medication options, and the impact of COVID-19 on AAV patients.

The information gathered in this study reflects the understanding and viewpoints of a global team of medical professionals managing AAV during the COVID-19 outbreak.

This questionnaire mainly focused on clinical aspects: knowledge of definitions and guidelines, choice of diagnostic methods, management of cardiovascular risks in AAV, medical education regarding AAV, patient management and drug selection, and COVID-19 and AAV.

The survey has shown that all medical professionals must refresh their awareness about small vessel vasculitis from its early development stages.

The survey also highlighted various approaches to reducing cardiovascular risks in AAV and emphasised the importance of improved medical education to enhance awareness and knowledge about AAV [31].

Results from an internet-based healthcare practitioner questionnaire indicated differences in AAV identification and management. The questionnaire showed a need for more consensus on managing AAV patients during the COVID-19 pandemic.

GUIDANCE FOR THE MANAGING OF SYSTEMIC VASCULITIS DURING CORONAVIRUS INFECTION AND AFTER VACCINATION AGAINST COVID-19

As part of the fifth task, «Recommendations for managing systemic vasculitis during COVID-19 and after vaccination against COVID-19» were developed.

At the initial stage of the study, a comprehensive analysis of the existing literature revealed that there is no single algorithm for managing patients with SV during coronavirus infection and after COVID-19 vaccination. The recommendations are based on the recommendations of EULAR and ACR, as well as recent literature data and the results of individual studies, to provide medical professionals with up-to-date information on treating systemic vasculitis during and after vaccination against COVID-19. The guidelines have been developed as a guide for medical professionals providing medical care to patients with autoimmune rheumatological diseases, students of medical universities, and residents.

CONCLUSION

To summarise, the types and features of systemic vasculitis, which are most common among the adult population in modern conditions, depending on gender, age, and socio-demographic characteristics in the Republic of Kazakhstan (using the example of Shymkent city and Turkestan region) (2019-2021), were presented, which had not been studied before.

Of particular importance is increasing the awareness and literacy of primary care physicians, general practitioners and rheumatologists regarding the timely diagnosis of systemic vasculitis and improving the prognosis of patients' lives.

References

ҚАЗАҚСТАҢДАҒЫ ЖҮЙЕЛІ ВАСКУЛИТТЕР: КЕШЕНДІ ЗЕРТТΕУ ТӘСІЛДЕРІ

Түйін
Жүйелі васкулиттер деп аталатын сирек кезделетін аурулар қан тамырларының қабынуымен бірге жүретін бузылғының қамтиды, ауру тобы бір мүшене немесе бірнеше мүшельер мен жүйелерге асер етуді мүмкін құрдады. Бұл бұзылғымдық мүнізді қалыңдықтар, медицина құзметкерлеріңізді, асире алғашқы медициналық қомек дәрігерлеріңізді хабардап болмауына және өмір кешіртірілген салдарының кеңінен мүдетеде келеді. Диагностика жасауға қындықтар, медицина құзметкерлеріңізді, асире алғашқы медициналық қомек дәрігерлеріңізді хабардап болмауына және өмір кешіртірілген салдарының кеңінен мүдетеде келеді. Жұмыс істеу өмір сүру әрқылы болмайды. Біз Қазақстандағы (Шымкент қ., және Қырғызстан облысы) демографиялық, клиникалық және зертханалық мәліметтерді ескере отырып, жүйелі васкулиттердің ерекшеліктерін түсіну үшін кешенді зерттеу өдісін жүргіздік. Ретроспективті, аналитикалық және бір сатылы кросс-тексеру (онлайн- сауалнама) сынды зерттеу әдістерін қамтитын бұл кешенді зерттеу Қазақстандағы жүйелі васкулиттерді түсіну мен басқаруды жақсартуға ұмтылуымызда әте маңызды.


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СИСТЕМНЫЕ ВАСКУЛИТЫ В КАЗАХСТАНЕ: КОМПЛЕКСНЫЙ ПОДХОД ИССЛЕДОВАНИЯ

Резюме
Редкие заболевания, известные как системные васкулиты, включают воспалительное разрушение кровеносных сосудов, приводящее к сложным нарушениям, которые могут поражать один орган или несколько органов и систем. Проблемы в диагностике в сочетании с недостаточной осведомленностью медицинских работников, особенно врачей первичной медико-санитарной помощи, и задержкой лечения часто приводят к инвалидности и ухудшают прогноз пациентов с системным васкулитом. Мы провели комплексное исследование для понимания особенностей системных васкулитов с учетом демографических, клинических и лабораторных данных в Казахстане (г. Шымкент и Туркестанская область). Этот подход, который включает в себя метод ретроспективного исследования, метод аналитического исследования и одноэтапный перекрестный опрос (онлайн-опрос), имеет важное значение в нашем стремлении улучшить понимание и лечение системных васкулитов в Казахстане.

Ключевые слова: васкулит, системные васкулиты, анкетирование, COVID-19.

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