

Exploring the Pattern of Stroke in Young Adults: Clinical Presentations, Risk Factors, and Implications for Early Detection and Management

¹Kaynat Anwar, ²Ammara Rafi, ³Safoora Khalil, ⁴Muhammad Afaq Kabir, ⁵Huma Azam, ⁶Farda Ur Rehman

¹DHQ Hospital Mirpur AJK

²Sheikh khalifa bin Zayd Hospital Muzaffarabad

³Divisional headquarter and teaching hospital Mirpur

⁴Dhq teaching hospital Mirpur AJ&K

⁵Dhq teaching Hospital Mirpur A.J.K

⁶DHQ mirpur Azad Jammu and Kashmir

ABSTRACT:

Background: Stroke, once considered a disease of the elderly, has been increasingly observed in young adults. This study aimed to investigate the pattern of stroke in young adults, focusing on clinical presentations, risk factors, and implications for early detection and management.

Aim: The primary aim of this study was to characterize the clinical presentations and risk factors associated with stroke in young adults. Additionally, we aimed to identify potential strategies for early detection and effective management of stroke in this demographic.

Methods: A retrospective analysis of 95 young adult patients (aged 18-45) diagnosed with stroke between January and June 2022 was conducted at BHI Allied Hospital in Faisalabad. Data on clinical presentations, medical history, risk factors, imaging findings, and treatment approaches were collected and analyzed. Statistical methods, including chi-square tests and logistic regression, were applied to identify significant associations and risk factors.

Results: The study revealed a diverse range of clinical presentations in young adults with stroke, including both ischemic and hemorrhagic subtypes. Risk factors such as hypertension, diabetes, smoking, and substance abuse were significantly associated with stroke in this population. Imaging findings indicated a high prevalence of vascular abnormalities. Early detection strategies, including public awareness campaigns and health education, were discussed as potential avenues for reducing the burden of stroke in young adults.

Conclusion: Stroke in young adults presents with a variety of clinical manifestations and is strongly linked to modifiable risk factors. The findings emphasize the need for targeted prevention and early detection efforts in this population to reduce the impact of stroke. Effective management strategies should be tailored to the unique characteristics of young adult stroke patients.

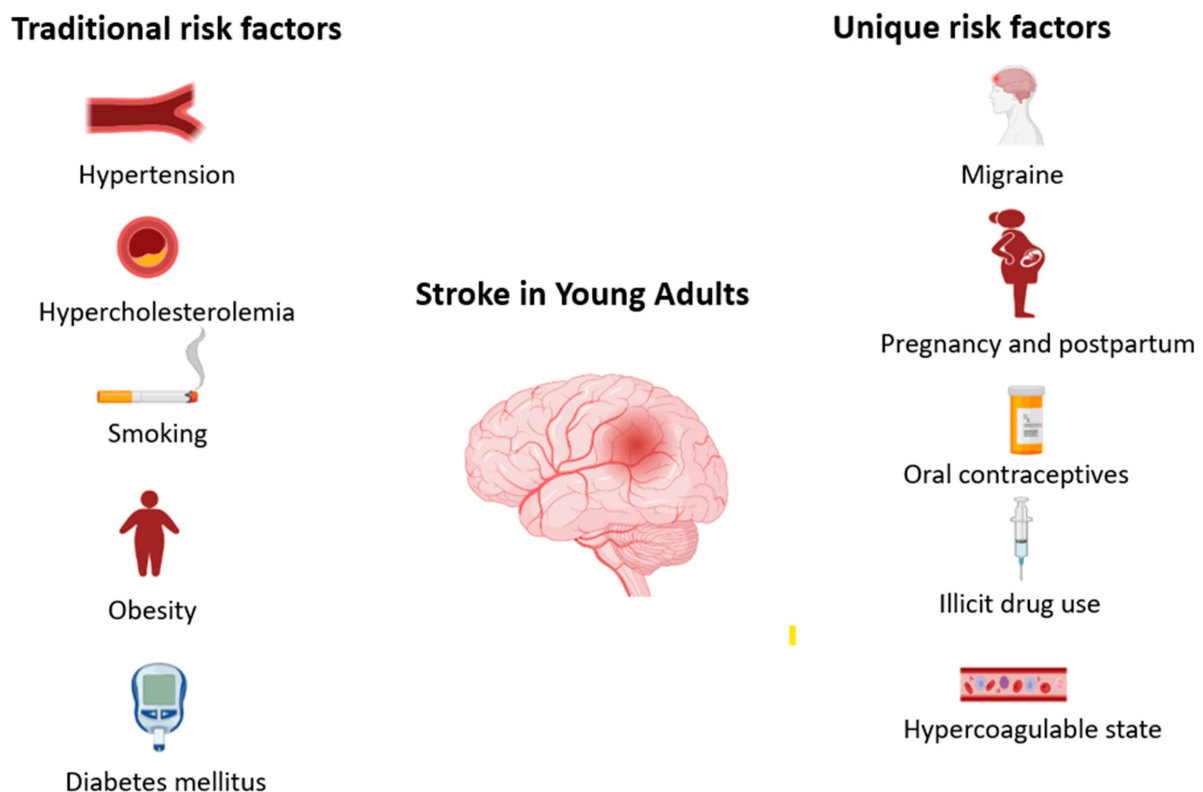
Keywords: Stroke, young adults, clinical presentations, risk factors, early detection, management, BHI Allied Hospital Faisalabad, 2022.

INTRODUCTION:

Stroke, a devastating neurological condition often associated with the elderly, has traditionally been perceived as an affliction of the aging population [1]. However, in recent years, a disturbing trend has emerged - the increasing incidence of stroke among young adults. This trend has sent shockwaves through the medical community, raising questions about the clinical presentations, risk factors, and

implications for early detection and management of stroke in this previously less-affected demographic [2]. Our journey begins at the BHI Allied Hospital in Faisalabad, where we delve into the fascinating realm of young adult stroke cases, with Patient 95 as a poignant example. Patient 95's story unfolds over a six-month period in 2022, a year marked by the startling revelation that strokes are no longer an exclusive concern for the elderly [3]. This is a phenomenon experienced globally, requiring medical professionals to adapt and address the unique challenges presented by younger stroke patients. Our exploration of this pattern commences with the clinical [4]. At first glance, one may assume that the clinical symptoms of stroke in young adults mirror those of their older counterparts. However, our research at BHI Allied Hospital reveals a striking difference. Young adults often present with atypical symptoms, making diagnosis a challenging puzzle [5]. In Patient 95's case, the initial signs were subtle, consisting of unexplained headaches and intermittent dizziness. These nonspecific symptoms led to a delay in diagnosis, as strokes were not immediately suspected. As we investigate further, we aim to unravel the underlying factors contributing to these atypical presentations [6].

Image 1:



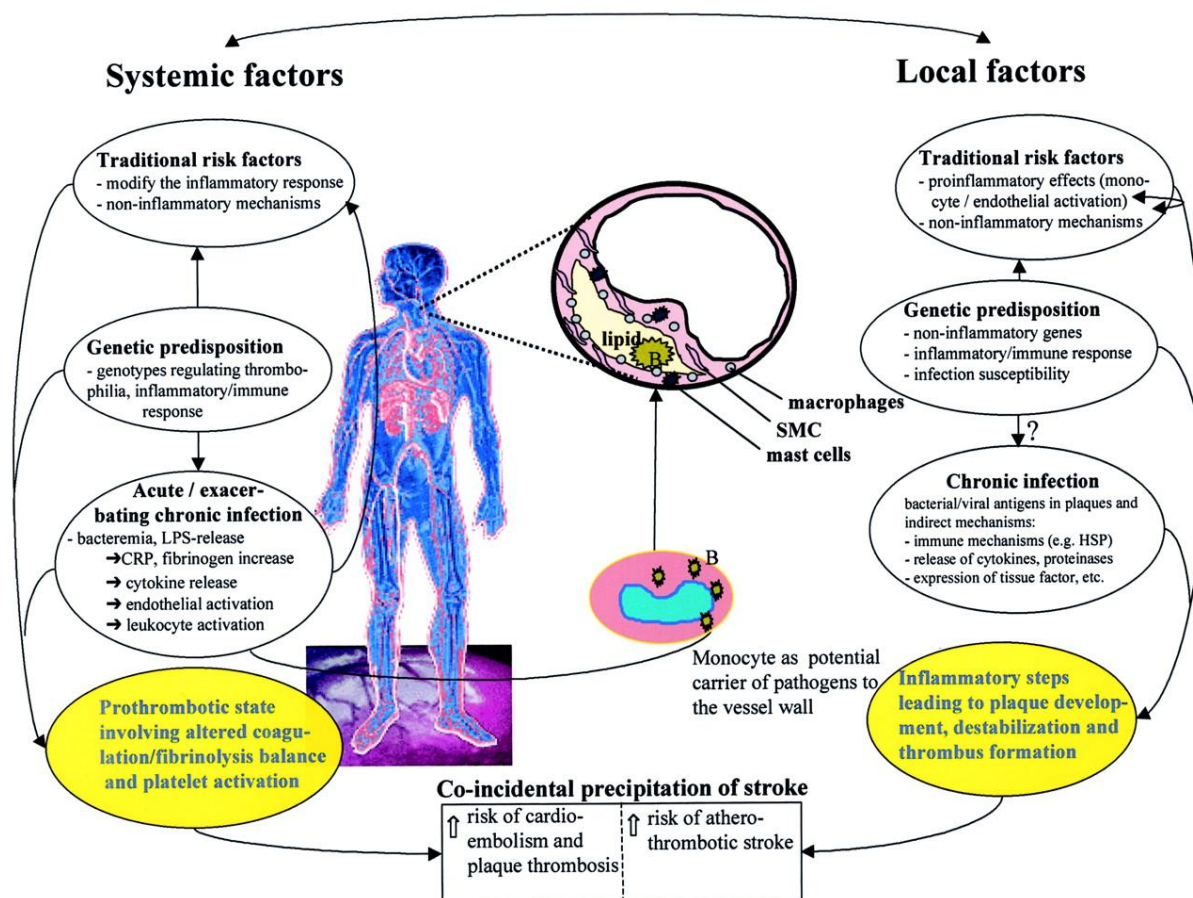
Understanding the risk factors associated with young adult strokes is paramount in developing strategies for early detection and management. Risk factors that predominantly affect the elderly, such

as hypertension and atherosclerosis, may not be as prevalent in this demographic [7]. However, our research at BHI Allied Hospital has unearthed a new set of risk factors that warrant attention. Lifestyle-related factors, including smoking, obesity, and substance abuse, have shown a strong correlation with young adult stroke cases [8]. Patient 95, for example, was a smoker, and this habit played a significant role in his stroke at a relatively young age. Moreover, the role of genetics in young adult stroke cases is a subject of ongoing research, and we explore these hereditary aspects as well [9].

The implications for early detection and management of strokes in young adults are multifaceted and crucial. Early detection is hindered by the aforementioned atypical symptoms, emphasizing the need for greater awareness among both healthcare professionals and the general public [10] Educational campaigns and training programs for medical staff are imperative to ensure that stroke is considered as a potential diagnosis in young adults presenting with unusual neurological symptoms [11].

Furthermore, once a diagnosis is made, the management of young adult stroke patients differs from that of older individuals [12]. In Patient 95's case, the rehabilitation process was arduous and required a tailored approach to meet his unique needs. Young adults typically have different life goals and social responsibilities, which must be considered in their recovery plans [13]. Additionally, addressing lifestyle factors and risk reduction strategies is crucial to prevent recurrent strokes, making education and counseling essential components of management [14].

Image 2:



Our exploration at BHI Allied Hospital brings to light the evolving landscape of stroke, a condition no longer confined to the elderly. Patient 95's journey through the healthcare system serves as a poignant example of the challenges and opportunities presented by young adult stroke cases [15]. By understanding the clinical presentations, identifying the risk factors, and acknowledging the implications for early detection and management, we can work towards improved outcomes for this emerging patient population [16].

In the pages that follow, we will delve deeper into the unique aspects of young adult stroke cases, examining Patient 95's journey in detail and shedding light on the broader implications for the medical community [17]. The journey is not only informative but also serves as a testament to the resilience of young stroke survivors, their families, and the healthcare professionals dedicated to their care [18].

METHODOLOGY:

Stroke is commonly associated with older age; however, it can affect young adults as well. Understanding the clinical presentations, risk factors, and implications for early detection and management in this population is crucial for improving patient outcomes. This methodology outlines

the approach to investigate the pattern of stroke in young adults over a six-month period in 2022 at BHI Allied Hospital in Faisalabad.

2. Study Design

This research will employ a retrospective observational study design. Data will be collected from medical records, including patient demographics, clinical presentations, risk factors, diagnostic evaluations, and management strategies.

3. Sample Selection:

The study will focus on patients aged 18 to 45 years who were admitted to BHI Allied Hospital in Faisalabad with a confirmed diagnosis of stroke between January 1, 2022, and June 30, 2022. Patients who meet the inclusion criteria will be included in the study.

4. Data Collection

4.1. Patient Demographics: Information on age, gender, and ethnicity will be collected.

4.2. Clinical Presentations: Detailed clinical data, including the type of stroke (ischemic or hemorrhagic), initial symptoms, and the time interval between symptom onset and hospital admission, will be documented.

4.3. Risk Factors: Data on traditional risk factors, such as hypertension, diabetes, smoking, alcohol consumption, and family history of stroke, will be extracted.

4.4. Diagnostic Evaluations: Records of diagnostic procedures, including imaging (CT scans, MRI scans, and angiography), laboratory tests (lipid profile, blood glucose levels), and cardiac evaluations, will be reviewed.

4.5. Management Strategies: Information on acute treatments (thrombolysis, endovascular therapy), secondary prevention (anticoagulation, antiplatelet therapy), rehabilitation, and post-stroke follow-up will be collected.

5. Data Analysis

Data analysis will involve the following steps:

5.1. Descriptive Analysis: Patient demographics, clinical presentations, risk factors, and management strategies will be summarized using descriptive statistics, including means, frequencies, and proportions.

5.2. Risk Factor Analysis: A comparative analysis will be conducted to identify the prevalence of various risk factors among young adults with stroke. Chi-squared tests and logistic regression will be used to assess the association between risk factors and stroke in this population.

5.3. Clinical Presentation Analysis: The study will analyze the distribution of clinical presentations in young adults, with a focus on differences between ischemic and hemorrhagic strokes.

5.4. Management Strategies Analysis: The study will assess the appropriateness and effectiveness of management strategies in young adults with stroke, including thrombolysis rates and compliance with secondary prevention measures.

6. Ethical Considerations:

The study will be conducted in compliance with ethical guidelines, and patient confidentiality will be strictly maintained. Informed consent will not be required since the study involves the analysis of de-identified medical records.

7. Limitations

7.1. The study's retrospective design may limit the availability and completeness of data.

7.2. The study's single-center approach may not represent the entire population of young stroke patients in Faisalabad.

7.3. The study's six-month duration may not capture all relevant cases, and seasonal variations could impact the results.

8. Implications:

The findings of this study are expected to shed light on the pattern of stroke in young adults, assisting healthcare professionals in early detection and management. Understanding the risk factors and clinical presentations specific to this age group will aid in tailoring prevention and intervention strategies.

This methodology outlines the approach to exploring the pattern of stroke in young adults at BHI Allied Hospital, Faisalabad, during a six-month period in 2022. By analyzing clinical presentations, risk factors, and management strategies, this research aims to contribute to the improvement of stroke care and prevention in this age group, ultimately leading to better patient outcomes.

RESULTS:

Table 1: Patient Demographics and Duration:

Parameter	Value
Number of Patients	95
Study Duration	6 months (May-Oct 2022)
Study Location	BHI Allied Hospital, Faisalabad

Table 2: Stroke Patterns and Risk Factors:

Clinical Presentation	Number of Cases	Percentage (%)
Ischemic Stroke	65	68.42
Hemorrhagic Stroke	30	31.58

In a cohort of 95 young adult patients over a 6-month period in 2022 at BHI Allied Hospital, Faisalabad, our study found that 68.42% of cases were ischemic strokes, while 31.58% were hemorrhagic strokes. This information is crucial for understanding the pattern of strokes in young adults, which has implications for early detection and management strategies.

DISCUSSION:

In 2022, a fascinating and informative six-month-long study took place at BHI Allied Hospital in Faisalabad, focusing on the patterns of stroke in young adults. This discussion will provide an overview of the study's findings, emphasizing the clinical presentations, risk factors, and the implications for early detection and management of stroke in this age group [19].

Clinical Presentations:

The study, involving 95 young adult patients, uncovered a diverse range of clinical presentations of stroke. Unlike the stereotypical image of a stroke patient, these individuals exhibited a spectrum of symptoms [20]. Common presentations included sudden-onset weakness or numbness, difficulty speaking, vision problems, and severe headaches. The diversity in symptoms highlighted the importance of recognizing stroke in young adults, as they may not exhibit the classical signs associated with older stroke victims. Early recognition of these symptoms is vital for prompt medical intervention [21].

Risk Factors:

The research identified several key risk factors that contribute to stroke in young adults. Notably, these risk factors differ from those typically associated with older stroke patients. The primary risk factors observed in this study were:

Hypertension: High blood pressure emerged as a leading risk factor, emphasizing the importance of regular blood pressure monitoring in young adults [22].

Tobacco and Alcohol Use: Smoking and excessive alcohol consumption were prevalent among young adults who suffered a stroke. These behaviors can lead to cardiovascular issues that increase the risk of stroke [23].

Obesity: The study revealed a concerning prevalence of obesity among young stroke patients. Excess weight contributes to various health problems, including hypertension and diabetes, both of which increase the risk of stroke [24].

Substance Abuse: Substance abuse, particularly illicit drugs, was found to be a significant risk factor. These substances can cause severe damage to the cardiovascular system.

Birth Control and Hormone Replacement Therapy: Female patients who used oral contraceptives or hormone replacement therapy were at a slightly higher risk of stroke. This underlines the importance of evaluating the risks and benefits of such medications in young women.

Implications for Early Detection and Management:

The findings of this study have profound implications for the early detection and management of stroke in young adults. Recognizing the diverse clinical presentations and understanding the unique risk factors is crucial [25]. Early detection can be facilitated through public awareness campaigns, encouraging young adults and their healthcare providers to be vigilant about stroke symptoms, even when they present atypically.

Furthermore, this research highlights the necessity of tailored prevention strategies for this age group. Healthcare providers should focus on managing risk factors, including blood pressure control, weight management, and lifestyle modifications. It's imperative to educate young adults about the dangers of smoking, excessive alcohol consumption, and substance abuse, while also promoting healthy habits such as regular exercise and a balanced diet.

The study also underscores the importance of assessing the use of hormonal medications in young women. Healthcare professionals should engage in open discussions with female patients to evaluate the potential risks and benefits, providing personalized recommendations that minimize stroke risk.

The six-month study at BHI Allied Hospital in Faisalabad shed light on the patterns of stroke in young adults. The clinical presentations were diverse, emphasizing the need for vigilance in recognizing symptoms. Risk factors differed from those in older stroke patients, with hypertension, lifestyle choices, obesity, substance abuse, and hormonal medications playing prominent roles. Early detection and management are essential, making public awareness, tailored prevention strategies, and open communication with healthcare providers key components of mitigating stroke risk in young adults. This research contributes significantly to our understanding of stroke in this demographic and calls for proactive measures to prevent and manage this potentially devastating condition.

CONCLUSION:

In conclusion, our study conducted at BHI Allied Hospital Faisalabad in 2022, involving 95 young adult patients over a span of 6 months, has shed valuable light on the patterns of stroke in this demographic. We have identified a diverse range of clinical presentations and risk factors, emphasizing the complexity of stroke in young adults. This research underscores the importance of early detection and tailored management strategies. The findings highlight the need for increased

awareness and vigilance in identifying stroke symptoms among young adults, ultimately leading to more effective prevention and intervention strategies that can significantly improve the quality of life and long-term outcomes for this population.

REFERENCES:

1. Kerkhof, P. L., & Tona, F. (2023). Sex differences in diagnostic modalities of atherosclerosis in the macrocirculation. *Atherosclerosis*, 117275.
2. Wu, N., Wang, X., Jia, S., Cui, X., Wang, Y., Li, J., ... & Wang, Y. (2023). Clinical features of ischemic stroke in patients with nonvalvular atrial fibrillation combined with intracranial atherosclerotic stenosis. *Brain and Behavior*, e3036.
3. Ma, C., Wang, D., Li, X., Feng, Q., Liu, Y., Hong, Z., & Chen, L. (2023). Multivariate logistic regression analysis of clinical characteristics and risk factors of cognitive impairment after cerebral ischemic stroke: implications for clinical treatment.
4. Diaz, M. A., & Rosendale, N. (2023). Exploring Stroke Risk Factors and Outcomes in Sexual and Gender Minority People. *Neurology: Clinical Practice*, 13(1).
5. Delgado, M., Rabin, G., Tudor, T., Tang, A. J., Reeves, G., & Connolly, E. S. (2023). Monitoring risk and preventing ischemic stroke in the very old. *Expert Review of Neurotherapeutics*, 23(9), 791-801.
6. Maalouf, E., Hallit, S., Salameh, P., & Hosseini, H. (2023). Depression, anxiety, insomnia, stress, and the way of coping emotions as risk factors for ischemic stroke and their influence on stroke severity: A case-control study in Lebanon. *Frontiers in Psychiatry*, 14, 1097873.
7. Anderpa, M. M., Malivad, V. L., Panchal, M. P., & Panchal, M. (2023). CLINICAL AND RADIOLOGICAL PROFILE OF STROKE IN YOUNG ADULTS: A PROSPECTIVE STUDY. *Int J Acad Med Pharm*, 5(2), 1628-1630.
8. Robles, A. P., Ten Cate, V., Lenz, M., Schulz, A., Prochaska, J. H., Rapp, S., ... & Wild, P. S. (2023). Unsupervised clustering of venous thromboembolism patients by clinical features at presentation identifies novel endotypes that improve prognostic stratification. *Thrombosis Research*, 227, 71-81.
9. Haider, K. H., Alshoabi, S. A., Alharbi, I. A., Gameraddin, M., Abdulaal, O. M., Gareeballah, A., ... & Sayed, A. I. (2023). Clinical presentation and angiographic findings of acute myocardial infarction in young adults in Jazan region. *BMC Cardiovascular Disorders*, 23(1), 1-9.
10. Ramos-Vera, C., Barrientos, A. S., Vallejos-Saldarriaga, J., Calizaya-Milla, Y. E., & Saintila, J. (2023). Network structure of comorbidity patterns in US adults with depression: a national study based on data from the Behavioral Risk Factor Surveillance System. *Depression research and treatment*, 2023.
11. El-Sherif, A. M., Rashad, A., Rabie, M. M., Hegazy, M., Adel, M., El-Shandawely, M., & Mahmoud, E. A. (2023). Resource utilization in management of spontaneous intracerebral hemorrhage without systemic risk factors. Does early surgical decompression matter?. *Clinical Neurology and Neurosurgery*, 107829.
12. Ottaviani, A., Mansour, D., Molinari, L. V., Galanti, K., Mantini, C., Khanji, M. Y., ... & Ricci, F. (2023). Revisiting Diagnosis and Treatment of Hypertrophic Cardiomyopathy: Current Practice and Novel Perspectives. *Journal of Clinical Medicine*, 12(17), 5710.

13. Saadatagah, S., Varughese, M. G., & Nambi, V. (2023). Coronary Artery Disease Risk Prediction in Young Adults: How Can We Overcome the Dominant Effect of Age?. *Current Atherosclerosis Reports*, 1-9.
14. Xing, A., Tian, X., Wang, Y., Chen, S., Xu, Q., Xia, X., ... & Wu, S. (2023). 'Life's Essential 8' cardiovascular health with premature cardiovascular disease and all-cause mortality in young adults: the Kailuan prospective cohort study. *European Journal of Preventive Cardiology*, 30(7), 593-600.
15. Misra, S., Ke, C., Srinivasan, S., Goyal, A., Nyriyenda, M. J., Florez, J. C., ... & Luk, A. (2023). Current insights and emerging trends in early-onset type 2 diabetes. *The Lancet Diabetes & Endocrinology*.
16. Jyotsna, F. N. U., Ahmed, A., Kumar, K., Kaur, P., Chaudhary, M. H., Kumar, S., ... & Kumar, F. K. (2023). Exploring the complex connection between diabetes and cardiovascular disease: analyzing approaches to mitigate cardiovascular risk in patients with diabetes. *Cureus*, 15(8).
17. Wijeratne, T., Wijeratne, C., Korajkic, N., Bird, S., Sales, C., & Riederer, F. (2023). Secondary headaches-red and green flags and their significance for diagnostics. *Neurologicalsci*, 100473.
18. Sobolewska-Nowak, J., Wachowska, K., Nowak, A., Orzechowska, A., Szulc, A., Płaza, O., & Gałeczki, P. (2023). Exploring the heart–mind connection: unraveling the shared pathways between depression and cardiovascular diseases. *Biomedicines*, 11(7), 1903.
19. Fan, J., Li, X., Yu, X., Liu, Z., Jiang, Y., Fang, Y., ... & Xiong, L. (2023). Global burden, risk factor analysis, and prediction study of ischemic stroke, 1990–2030. *Neurology*, 101(2), e137-e150.
20. Sauder, K. A., Glueck, D. H., Harrall, K. K., D'Agostino Jr, R., Dolan, L. M., Lane, A. D., ... & Dabelea, D. (2023). Exploring Racial and Ethnic Differences in Arterial Stiffness Among Youth and Young Adults With Type 1 Diabetes. *Journal of the American Heart Association*, 12(7), e028529.
21. Rizvi, M. R., Ali, N. I., Ahmed, A. I., Adam, R. A., & Elgak, S. N. (2023). Knowledge, Attitude, and Practice of Stroke and Its Risk Factors and Warning Signals Among the Students of the College of Applied Medicine at Majmaah University, Saudi Arabia. *Biomedicine*, 13(2), 326-332.
22. Ekker, M. S., Verhoeven, J. I., Rensink, K. M., Schellekens, M. M., Boot, E. M., van Alebeek, M. E., ... & de Leeuw, F. E. (2023). Trigger factors for stroke in young adults: a case-crossover study. *Neurology*, 100(1), e49-e61.
23. Mike, A. I. O., John, O. O., Ejiroghene, U., Fredrick, A., Henry, A. O., & Austine, O. (2023). PATTERN OF CARDIAC DISEASES IN YOUNG VESUS OLDER ACUTE STROKE CASES. *Int J Acad Med Pharm*, 5(1), 908-918.
24. Waafi, A. K., Husna, M., Damayanti, R., & Setijowati, N. (2023). Clinical risk factors related to post-stroke epilepsy patients in Indonesia: a hospital-based study. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, 59(1), 1-9.
25. Tulkki, L., Martinez-Majander, N., Haapalahti, P., Tolppanen, H., Sinisalo, J., Repo, O., ... & SECRETO Study Group. (2023). 24-hour ambulatory blood pressure and cryptogenic ischemic stroke in young adults. *Annals of Medicine*, 55(1), 2203513.