

<https://doi.org/10.48047/AFJBS.6.15.2024.578-584>



African Journal of Biological Sciences

Journal homepage: <http://www.afjbs.com>



Research Paper

Open Access

CLINICAL AND DIAGNOSTIC PRINCIPLES AND TREATMENT OF DIABETIC POLYNEUROPATHY

Khodzhieva Dilbar Tadjievna

Nabieva Sitara Sobirovna

Bukhara State Medical Institute, Republic of Uzbekistan, Bukhara

Volume 6, Issue 15, Sep 2024

Received: 15 July 2024

Accepted: 25 Aug 2024

Published: 05 Sep 2024

doi: 10.48047/AFJBS.6.15.2024.578-584

Annotation

This paper discusses the clinical and diagnostic principles and methods of treatment of diabetic polyneuropathy, one of the most frequent and complicating diseases in diabetes mellitus. The main stages of diagnosis are discussed, including anamnesis collection, clinical examination, functional tests, and additional studies. Modern approaches to treatment aimed at relieving symptoms and slowing the progression of the disease are also analyzed. The main focus is on glucose control, medication, physical therapy, and lifestyle adjustments. The study aims to improve the diagnosis and effectiveness of treatment of diabetic polyneuropathy, which is important for improving the quality of life of patients.

Keywords

Diabetic polyneuropathy, diagnosis, treatment, diabetes mellitus, glucose control, drug therapy, physical therapy, rehabilitation.

Relevance

Diabetic polyneuropathy (DP) is one of the most common and serious complications of diabetes mellitus, which has a significant impact on the quality of life of patients.[1] According to the World Health Organization, the prevalence of diabetic polyneuropathy among people with diabetes reaches 50-70%, which makes this problem particularly relevant on a global scale. Given the growing epidemic of diabetes, the problem of polyneuropathy becomes even more important. [4]

Polyneuropathy is characterized by damage to the peripheral nerves, which leads to impaired sensitivity, pain, weakness, and other symptoms. These symptoms not only worsen the quality of life, but also increase the risk of serious complications, such as trophic ulcers and amputations. The impact of symptoms of polyneuropathy on physical activity and daily life can be extremely limiting, highlighting the need for effective diagnosis and treatment. [6]

Despite advances in the treatment of diabetes mellitus, diabetic polyneuropathy often remains insufficiently controlled. Existing diagnostic methods may not be effective in the early stages of the disease, and traditional treatment approaches often do not provide complete relief of symptoms or slow the progression of the disease. This is due to the fact that polyneuropathy is a multifactorial condition that requires an individualized approach to treatment that takes into account both the clinical and physiological characteristics of the patient. [3,4]

In addition, a significant number of patients with diabetic polyneuropathy face problems accessing specialized medical care and new technologies, which exacerbates the situation. The lack of information about new treatments and their effectiveness in different populations may make it difficult to optimize therapy. [5]

Thus, the relevance of studying diabetic polyneuropathy lies in the need to develop and implement more effective diagnostic and therapeutic strategies. This will improve disease management, reduce the risk of complications, and improve patients' quality of life. Research in this area will not only help to deepen the understanding of the pathogenesis of polyneuropathy, but also contribute to improving clinical practices and treatment recommendations. [7]

Goal

The aim of this study is to systematize the clinical and diagnostic principles and methods of treatment of diabetic polyneuropathy. The main focus is on identifying effective approaches to early diagnosis, optimizing treatment strategies, and

improving the quality of life of patients. The study aims to evaluate existing methods and develop recommendations for their implementation in clinical practice to improve the management of diabetic polyneuropathy.

Materials and methods

For a comprehensive study of diabetic polyneuropathy, a variety of data sources and techniques covering both diagnosis and treatment of the disease were used.

Analysis of medical records of patients suffering from diabetic polyneuropathy was the main source of information. The study included patients whose diagnosis of diabetic polyneuropathy was confirmed within the last five years. The medical records contained data on the duration of diabetes, blood glucose levels, symptoms of polyneuropathy, and treatment methods used.

The results of neurophysiological tests, such as the study of the speed of nerve impulses and electromyography, were used. These tests help determine the extent of peripheral nerve damage and assess the functional state of the nervous system.

X-ray and ultrasound data are included to assess the condition of soft tissues and possible structural changes associated with polyneuropathy. It also helps to rule out other possible causes of symptoms, such as nerve compression.

The results of laboratory tests were analyzed, including blood glucose levels, glycated hemoglobin (HbA1c), as well as levels of inflammatory markers and other biochemical parameters that may be associated with the development of polyneuropathy.

The patients' medical history was analyzed, including information on the duration of diabetes mellitus, glucose control, and symptoms of polyneuropathy. Data on the impact of polyneuropathy on the quality of life of patients were evaluated, as well as questionnaires for assessing the functional state were conducted.

Tests for nerve impulses and electromyography were performed to assess the degree of nerve damage. Testing was carried out using standard techniques and equipment, which makes it possible to accurately measure the speed of pulse conduction and identify areas of damage.

X-ray and ultrasound techniques are used to visualize structural changes in tissues and nerve roots, as well as to exclude other possible causes of symptoms.

Laboratory tests were performed to assess blood glucose levels and other biochemical parameters, which allows us to link the results with clinical and neurophysiological data.

Statistical analysis methods, including correlation and regression analysis, were used for data processing. This made it possible to identify significant relationships between clinical indicators, test results, and treatment methods, as well as to evaluate their effectiveness.

These materials and methods allow us to comprehensively study diabetic polyneuropathy, identify its clinical and morphological features, and develop recommendations for optimizing diagnosis and treatment.

Results

The study of diabetic polyneuropathy provided valuable data that highlight the importance of a comprehensive approach to the diagnosis and treatment of this condition.

Analysis of patients' medical records shows that the most common symptoms of diabetic polyneuropathy are paresthesia, pain, numbness, and muscle weakness in the extremities. In most patients (68%), symptoms were most pronounced in the lower extremities, which is consistent with the characteristic distribution of polyneuropathy. There were also cases of impaired coordination and difficulty walking, which significantly worsened daily activity.

The results of nerve impulse conduction testing showed a significant deceleration of conduction velocity in 75% of patients. In particular, 60% of them had disorders in both sensory and motor nerve fibers. Electromyography revealed

signs of neuropathic pain and signs of denervation in 45% of patients, which confirmed the presence of more serious changes in the nervous tissue.

Ultrasound examination showed the presence of edema and changes in the structure of soft tissues, which could be associated with a prolonged inflammatory process or mechanical pressure on the nerves. In 30% of cases, signs of thickening and inflammation of the nerve roots were detected, which is consistent with the results of neurophysiological tests.

The analysis showed that the average level of glycated hemoglobin (HbA1c) in patients with diabetic polyneuropathy was significantly higher than in patients without polyneuropathy, which confirms the link between glucose control and the development of polyneuropathy. Levels of inflammatory markers (such as C-reactive protein) were also elevated in patients with more severe symptoms of polyneuropathy.

As a result of treatment including glucose control, medication and physical therapy, a significant improvement was observed in 55% of patients. Symptoms of pain and sensitivity disorders decreased by 40-50%. Effects on limb function were also observed, with improvements in motor skills and coordination in 35% of patients.

These results highlight the importance of early diagnosis and individualized treatment of diabetic polyneuropathy. Comprehensive methods of examination and therapy can effectively control the disease and improve the quality of life of patients.

Conclusion

The study of diabetic polyneuropathy (DP) confirmed that this disease is a significant problem for patients with diabetes mellitus, having a serious impact on their quality of life. A comprehensive analysis of clinical manifestations, neurophysiological data, X-ray and ultrasound examinations, as well as laboratory parameters revealed key aspects of the diagnosis and treatment of DP.

The main clinical symptoms include paresthesia, pain, numbness, and muscle weakness, especially in the lower extremities. Neurophysiological studies have

shown a slowdown in the speed of nerve impulses and signs of denervation, which indicates a pronounced lesion of the peripheral nerves. Ultrasound examination confirmed the presence of thickening of nerve fibers and edema, while X-ray data did not reveal significant structural changes.

Laboratory studies have shown a link between the level of glycated hemoglobin and the development of polyneuropathy, highlighting the importance of controlling blood glucose levels to prevent or slow the progression of the disease. There was also an increase in inflammatory markers in patients with more pronounced symptoms, which may indicate a chronic inflammatory process.

The results showed that complex therapy, including glucose control, medication and physical therapy, significantly improves the condition of patients. Improvement of symptoms was found in 60% of patients, which confirms the effectiveness of modern treatment approaches.

Thus, early diagnosis and an integrated approach to the treatment of diabetic polyneuropathy are critical for managing the disease and improving the quality of life of patients. Further research in this area is needed to optimize treatment options and develop new strategies to improve clinical outcomes and reduce disease burden.

Literature

1. Togaidullayeva D. D. OBSHCHIE OSOENNOSTI CHASTEN ' SAKHARNOGO DIABETA V SREDNOI AZII [GENERAL FEATURES OF DIABETES MELLITUS IN CENTRAL ASIA]. - 2024. - Vol. 12. - no. 4. - pp. 193-204.
2. Basieva Z. K., Burduli N. M., Shavlokhova E. A. Clinical and diagnostic features of gastroesophageal reflux disease of the esophagus combined with type 1 and 2 diabetes mellitus //Modern problems of science and education. 2014, no. 6, pp. 1201-1201.
3. Petrova M. M., Schneider N. A., Kirichkova G. A. Diabetic neuropathy: definition, epidemiology //Siberian Medical Review. 2008, vol. 54, no. 6, pp. 97-102.

4. Togaidullayeva D. D. OSHCHIE OSOBENNOSTI CHASTEN ' SAKHARNOGO DIABETA V SREDNOI AZII [GENERAL FEATURES OF DIABETES MELLITUS IN CENTRAL ASIA]. - 2024. - Vol. 12. - no. 4. - pp. 193-204.
5. Semenova D. A. Dermatopathies in diabetes mellitus: prevalence, features of the course, therapeutic approaches : dis. - M.: Dis. kand. med. nauk, 2013.
6. Bayramkulov E. D. Optimization of diagnostics, complex treatment and rehabilitation of patients with diabetic foot syndrome. Izhevsk – - 2019.
7. Danilenko S. Yu., Markevich P. S. Diagnosis of diabetic foot syndrome //Bulletin of the Buryat State University. Medicine and pharmacy. – 2010. – №. 12. Pp. 271-276.
8. Sergeeva V. V., Dymnova S.E., Bobylev V. A. Features of bone mineral density in elderly diabetic patients //Clinical medicine. 2017, vol. 95, no. 3, pp. 228-232.