

**BRAIN DISEASES AMONG MIDDLE-AGED PEOPLE: SYMPTOMS AND
TREATMENT APPROACHES**

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Abstract: This article provides a comprehensive analysis of common brain diseases among middle-aged individuals, including their main symptoms, diagnosis, and modern treatment methods. Research shows that neurological disorders are most prevalent in the 40-60 age group. This paper includes detailed scientific and practical information on early detection, prevention, and effective treatment approaches for these diseases.

Keywords: brain diseases, neurological disorders, stroke, Parkinson's disease, Alzheimer's disease, migraine, epilepsy, brain aneurysm, diagnosis, treatment, prevention.

Аннотация: В данной статье представлен всесторонний анализ распространённых заболеваний мозга у людей среднего возраста, включая их основные симптомы, диагностику и современные методы лечения. Исследования показывают, что наиболее часто неврологические расстройства встречаются в возрастной группе 40-60 лет. В статье содержится детальная научная и практическая информация о раннем выявлении, профилактике и эффективных методах лечения данных заболеваний.

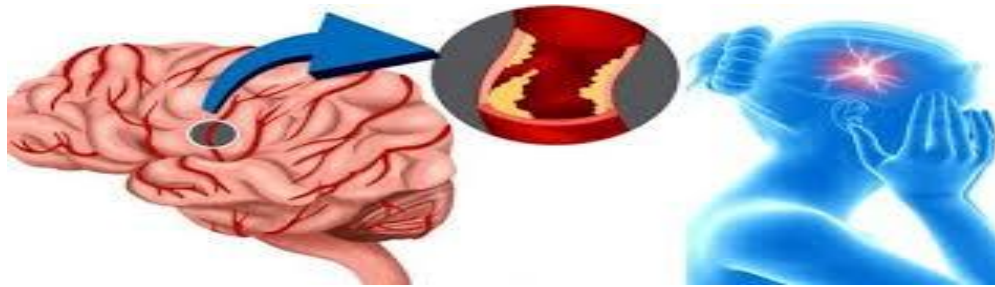
Ключевые слова: заболевания мозга, неврологические расстройства, инсульт, болезнь Паркинсона, болезнь Альцгеймера, мигрень, эпилепсия, аневризма мозга, диагностика, лечение, профилактика.

Middle-aged individuals are at the peak of their physical and mental activity. However, this stage of life is also associated with the increased risk of developing various pathological conditions. Brain diseases are particularly prevalent among individuals approaching old age, often leading to severe neurological conditions, reduced quality of life, and, in some cases, disability. This article provides an in-depth review of the most common brain diseases in middle-aged individuals, their causes, main symptoms, diagnostic methods, and treatment options.[1]

Brain diseases: Stroke

Stroke is a serious neurological condition caused by a sudden disruption of blood circulation in the brain. It is classified into two main types: ischemic stroke, resulting from blocked blood vessels leading to oxygen deficiency, and hemorrhagic stroke, caused by the rupture of a cerebral blood vessel and subsequent bleeding. Risk factors include hypertension, atherosclerosis, heart arrhythmias, diabetes, and an unhealthy lifestyle.[8] Symptoms of a stroke include sudden headaches, speech disturbances, facial drooping on one side, limb paralysis, loss of balance, and unconsciousness.

Diagnosis is carried out using computed tomography (CT), magnetic resonance imaging (MRI), and laboratory tests.



Treatment for ischemic stroke involves thrombolytic therapy, which dissolves the clot blocking the blood vessel. Hemorrhagic stroke, on the other hand, may require surgical intervention to stop the bleeding.

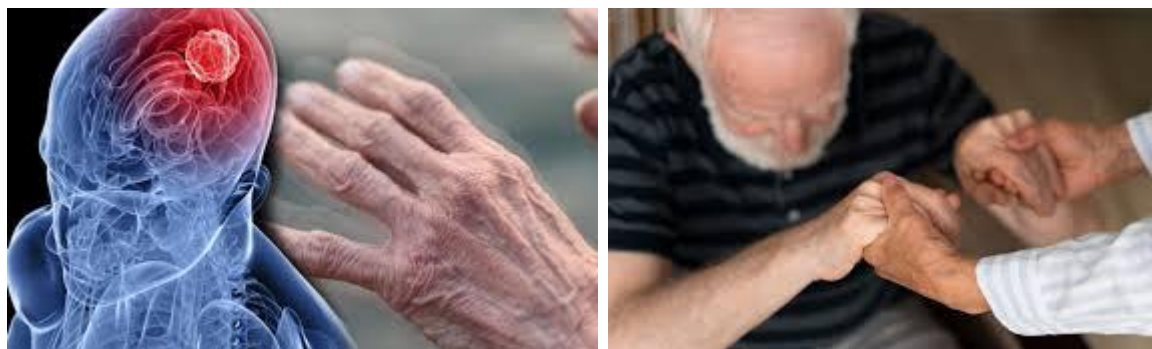
Prevention strategies include blood pressure control, a healthy diet, physical activity, and avoiding harmful habits.[5][7]

Parkinson's disease

Parkinson's disease is a neurodegenerative disorder primarily associated with dopamine deficiency. It develops gradually, affecting movement and coordination. Key symptoms include tremors, bradykinesia (slowed movements), muscle stiffness, and balance impairments.

Causes involve genetic predisposition, environmental toxins, and age-related neurodegenerative processes.

Diagnosis is based on neurological examinations and MRI scans. Treatment includes dopamine replacement therapy with levodopa, dopamine agonists, physical therapy, and in some cases, deep brain stimulation (DBS) surgery.[3][9]



Alzheimer's disease

Alzheimer's disease is a progressive neurodegenerative disorder that leads to memory loss and cognitive decline. Alzheimer's disease (AD) is a progressive neurodegenerative disorder that primarily affects memory, thinking, and behavior. It is the most common cause of dementia and mainly occurs in individuals over 65 years old. The disease gradually worsens, leading to severe cognitive decline and loss of independence.

Genetic factors – APOE ϵ 4 gene increases risk; mutations in APP, PSEN1, and PSEN2 cause early-onset AD.

Brain changes – Beta-amyloid plaques and tau tangles disrupt neuron function. Other risks – Aging, cardiovascular diseases, obesity, diabetes, smoking, and head trauma.

Symptoms
Early stage: Mild memory loss, difficulty concentrating, misplacing objects.
Middle stage: Confusion, personality changes, trouble recognizing people.
Late stage: Severe cognitive decline, inability to communicate, loss of motor function.
Diagnosis : Cognitive tests – MMSE, MoCA.

Brain imaging – MRI, CT, PET scans.

Biomarker tests – Cerebrospinal fluid analysis.

Treatment and Management

Medications – Cholinesterase inhibitors (Donepezil, Rivastigmine), NMDA antagonists (Memantine).

New therapies – Aducanumab targets amyloid plaques

Non-drug approaches – Cognitive therapy, exercise, and social engagement.
Caregiving – Support for daily activities, specialized care for advanced stages.
Prevention and Risk Reduction : Healthy lifestyle: Regular exercise, a Mediterranean diet, mental stimulation.

Managing chronic conditions: Controlling blood pressure, diabetes, and cholesterol.
Avoiding risk factors: No smoking, limiting alcohol, stress management. Alzheimer's remains incurable, but early diagnosis and proper management can slow progression and improve quality of life



Prevention methods include mental exercises, a healthy diet, and regular physical activity.[4][8]

Migraine

Migraine is a neurological disorder characterized by severe, recurrent headaches, often accompanied by nausea, vomiting, and sensitivity to light and sound. It affects millions of people worldwide and can significantly impact daily life.

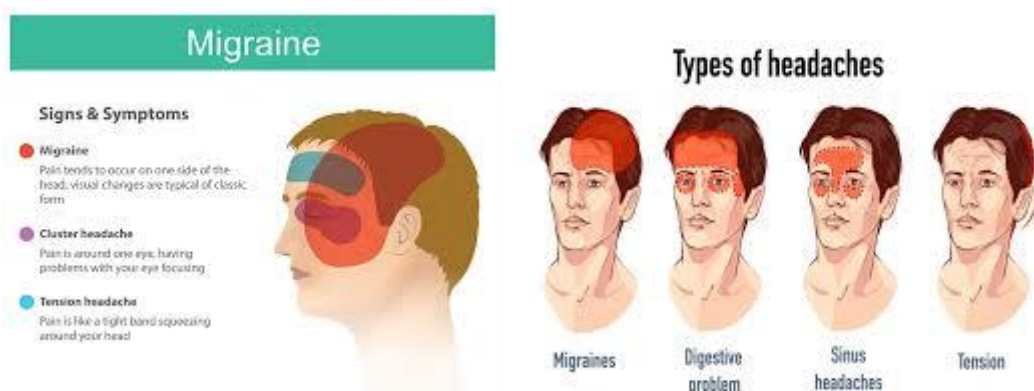
Rsk factors: Genetic factors – Family history increases the risk.

Hormonal changes – More common in women, especially during menstruation.
Neurological triggers – Abnormal brain activity affects blood flow and neurotransmitters like serotonin.

Lifestyle and environmental factors – Stress, lack of sleep, dehydration, and certain foods (caffeine, alcohol, processed foods).

Symptoms: Migraine attacks develop in four stages, though not everyone experiences all of them:

1. Prodrôme (Warning Signs) – Mood changes, food cravings, neck stiffness, frequent yawning (hours or days before).
2. Aura (In Some Cases) – Visual disturbances (flashing lights, blind spots), tingling sensations, speech difficulties.
3. Headache Phase – Severe throbbing pain, usually on one side of the head, lasting 4-72 hours, accompanied by nausea, vomiting, and sensitivity to light/sound..
Diagnosis is based on clinical symptoms. Treatment involves triptans, analgesics, and stress management techniques.

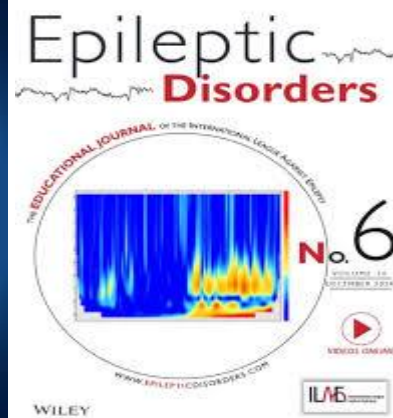
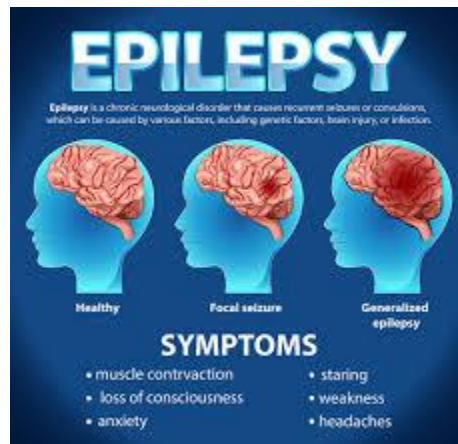


Epilepsy

Epilepsy is a chronic neurological disorder characterized by recurrent seizures caused by abnormal electrical activity in the brain. It affects people of all ages and can vary in severity, ranging from mild, brief seizures to prolonged and life-threatening convulsions. Epilepsy can develop due to various factors, including:

1. Genetic factors – Some types of epilepsy run in families, indicating a hereditary component.
2. Brain injuries – Traumatic brain injuries (TBI) from accidents, strokes, or infections can trigger epilepsy.
3. Stroke and vascular diseases – Reduced oxygen supply to the brain can lead to seizure activity.
4. Brain tumors – Abnormal brain growths may disturb neural function and cause seizures.
5. Infections – Meningitis, encephalitis, and neurocysticercosis are known to cause epilepsy.
6. Developmental disorders – Conditions like autism spectrum disorder (ASD) and neurodevelopmental delays increase epilepsy risk.
7. Metabolic disorders – Electrolyte imbalances, hypoglycemia, and mitochondrial disorders can contribute to epilepsy.

Symptoms include seizures, temporary loss of consciousness, and involuntary muscle contractions. Diagnosis is done through electroencephalography (EEG), MRI, and CT scans.[10]



Treatment involves antiepileptic drugs (Valproate, Lamotrigine) and, in some cases, surgical procedures.

Conclusion

Brain diseases are highly prevalent among middle-aged individuals, and early diagnosis is crucial for effective treatment. Maintaining a healthy lifestyle, engaging in physical activity, and regular medical check-ups can help reduce the risk of neurological disorders. Preventive measures, such as blood pressure control, cognitive stimulation, and avoiding harmful habits, play a vital role in protecting brain health. Modern medicine continues to develop new medications and treatment techniques, providing promising outcomes in the fight against brain diseases. Every individual should take proactive steps to safeguard their neurological health by following preventive guidelines and seeking medical attention when necessary.

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