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CLINICAL AND NEUROLOGICAL CHARACTERISTICS OF MIDDLE-AGED INDIVIDUALS WITH COGNITIVE IMPAIRMENT

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Abstract

This article presents data on the epidemiology, research objectives, study population, and the clinical and neurological characteristics of middle-aged individuals with cognitive impairment.

Keywords

dementia, middle age, clinical and neurological markers

Introduction

Dementia is a pathological condition characterized by a decline in cognitive abilities, including memory, thinking, and problem-solving, which leads to impairment of daily activities. In addition, patients may experience emotional disturbances, speech difficulties, and decreased motivation. Dementia is considered one of the most significant global public health and social care challenges of the 21st century. Cognitive impairment, including its most severe form—dementia—currently represents one of the major health problems among older adults. In the coming decades, as the proportion of elderly individuals increases not only in developed but also in developing countries, the burden of this condition is expected to rise substantially.

According to global estimates, in 2021 approximately 55 million people worldwide were living with dementia, and nearly 10 million new cases are diagnosed annually [3]. The World Health Organization reported that in 2021 Alzheimer's disease and other dementias ranked as the seventh leading cause of death globally, accounting for approximately 1.8 million deaths.

Epidemiological studies indicate that among middle-aged adults (typically 45–60 years), cognitive impairment—particularly mild cognitive impairment (MCI)—is relatively common. According to data from the U.S. Centers for Disease Control and Prevention (CDC), clinically significant cognitive decline is observed in approximately 10–11% of individuals aged 45–64 years. Global systematic reviews and meta-analyses report that the prevalence of MCI among individuals aged 50 years and older is approximately 15–20%. Recent large-scale meta-analyses estimate that the overall prevalence of MCI among community-dwelling adults ranges between 15.5% and 19.7%. These findings indicate a substantial epidemiological burden of cognitive impairment already in middle age and highlight this period as an important "window of opportunity" for early intervention to prevent or delay the development of dementia.

Aim of the Study

To develop methods for early diagnosis of dementia in middle-aged individuals and to introduce adequate pharmacological correction strategies into clinical practice.

Study Population and Methods

A total of 30 patients aged 45–60 years were included in the study. Among them, 17 were male and 13 were female. The mean age of the participants was 54.2 ± 5.1 years. The patients were divided into two groups:

Group I: Patients with confirmed cognitive impairment.

Group II: Patients without cognitive impairment or with only mild cognitive changes.

The mean age in Group I was 43.7 ± 8.6 years, while in Group II it was 52.3 ± 7.5 years, which was significantly higher. In Group I, males constituted 5 out of 14 patients, whereas in Group II, males accounted for 11 out of 16 patients. The mean duration of cognitive impairment was 10.8 ± 5.6 years in Group I and 7.3 ± 2.1 years in Group II.

Clinical Characteristics

Clinical analysis revealed that cognitive dysfunction was significantly more frequent in Group I than in Group II. Short-term memory impairment was observed in 11 patients (78.6%) in Group I compared with 4 patients (25.0%) in Group II. Decreased attention and concentration were detected in 10 patients (71.4%) in Group I and in 5 patients (31.3%) in Group II.

Slowing of thinking processes was identified in 13 patients (92.86%) in Group I, whereas only 4 patients (25.0%) in Group II demonstrated this symptom. Emotional lability and affective changes were present in 8 patients (57.1%) in Group I and in 3 patients (18.75%) in Group II. Difficulties in activities of daily living were observed in 50.0% of patients in Group I and in 12.5% of patients in Group II. Executive dysfunction was detected in 9 patients (64.3%) in Group I compared with 3 patients (18.8%) in Group II, indicating more pronounced difficulties with planning and performing complex tasks in cognitively impaired patients.

Sleep disturbances were identified in 10 patients in Group I and in 4 patients in Group II, demonstrating a clear association between cognitive impairment and sleep disorders.

Neurological Characteristics

Neurological examination revealed that signs of central nervous system dysfunction were significantly more frequent in Group I. Pyramidal signs were observed in 5 patients (35.7%) in Group I and in 2 patients (12.5%) in Group II. Impairments in coordination tests (Romberg test, finger-to-nose test) were detected in 6 patients (42.9%) in Group I and in 3 patients (18.8%) in Group II.

Asymmetry of deep tendon reflexes was noted in 7 patients (50.0%) in Group I and in 4 patients (25.0%) in Group II. Mild sensory disturbances were observed in 4 patients (28.6%) in Group I and in 2 patients (12.5%) in Group II. Dizziness and subjective instability were reported by 8 patients (57.1%) in Group I and by 5 patients (31.3%) in Group II.

Mild extrapyramidal signs, including rigidity and bradykinesia, were identified in 3 patients (21.4%) in Group I and in 1 patient (6.3%) in Group II. Cranial nerve examination revealed mild facial nerve asymmetry or impaired ocular movements in 4 patients (28.6%) in Group I and in 2 patients (12.5%) in Group II. Gait instability and reduced postural control were observed in 6 patients (42.9%) in Group I and in 3 patients (18.8%) in Group II

The obtained results demonstrated that neurological signs were significantly more frequent and more diverse in patients with confirmed cognitive impairment. This finding indicates that cognitive dysfunction is associated with functional and structural changes in the central nervous system. In particular, the high prevalence of pyramidal signs, coordination disorders, and asymmetry of tendon reflexes confirms the presence of a distinct neurological component in cognitive impairment.

In this study, middle-aged patients with cognitive impairment were divided into two groups. Clinical observations showed that patients in the first group had significantly pronounced memory and attention deficits, and sleep disturbances were observed in 78.6% of cases. In contrast, patients in the second group demonstrated minimal memory- and attention-related impairments, and sleep disturbances were recorded in only 25% of patients.

A significant correlation was identified between cognitive status and sleep disturbances, confirming that these clinical findings are directly associated with neurological characteristics.

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