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NOVEL METHODOLOGY FOR THE ASSESSMENT OF PSYCHOPHYSICAL PERFORMANCE IN EARLY OLD AGE FOR THE EARLY DETECTION OF NEURODEGENERATIVE DISEASES

Keywords: neurodegenerative diseases, dementia, prediction early old age, AI

The projected increase in the number of people over the age of 65 in Poland between 2002 and 2030 is expected to rise from 4.9 million to 8.5 million, representing a 74% change. In 2000, the number of people over 80 years old in the Silesian Voivodeship was 85,000; in 2011, it was 151,712; and in 2014, it was 171,246, confirming a 100% increase. The demographic changes associated with the aging population will be accompanied by an increase in healthcare costs, partly due to the rising prevalence of neurodegenerative diseases: dementia, and parkinsonian syndromes. Dementia is a syndrome caused by chronic and progressive brain disease, affecting over 40 million people worldwide. Identifying patients at risk of dementia is one of the highest priorities in public health. Increasingly, research projects are focused on screening or predicting dementia. The decline in cognitive function poses numerous diagnostic challenges in distinguishing the physiological decline in cognitive functioning due to aging of the nervous system from early changes caused by neurodegenerative or vascular processes.

The aim of the conducted work was to develop a modern and efficient methodology for assessing the psychophysical fitness of individuals in early old age for the purposes of screening to detect neurodegenerative diseases (dementia, parkinsonian syndromes). Research in this area included a literature review and the selection of existing methods for assessing the psychophysical fitness of individuals in early old age, which would serve as a compendium of knowledge and were proposed as an unobtrusive yet effective diagnostic package. Efforts were also made to select a model based on artificial intelligence algorithms that could be used to predict neurodegenerative diseases, as well as an analysis of actual clinical data.

The analysis of psycho-physical performance corresponding to functional status is done by complex diagnostic systems that are difficult to access, so it seems important to carry out research to find easy and more accessible tools and to compile them into a single package of diagnostic tests.

The results of the project may help to develop prevention and health promotion programmes targeting the target group, as well as updating the standards for the management of patients with neurodegenerative diseases.