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IMMUNOLOGICAL BIOMONITORING OF ELDERLY ADULTS – INFLUENCE OF PHYSICAL ACTIVITY

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The increase in life expectancy in developed countries is accompanied by concern about the possible raise in the incidence of aging related diseases in the elderly. Increase in the basal levels of inflammatory response during aging is associated with alterations in innate and acquired immunity. Inflammation also arises in response to the continuous antigenic charge from subclinical infections, atherosclerosis and other chronic diseases. This involves a chronic inflammation condition, which has been related to many harmful effects and may significantly contribute to the increase in morbidity and mortality in elderly.

Initiatives to encourage healthy aging have been triggered by adopting lifestyles aimed to reduce the incidence of common chronic diseases and to improve the quality of life, including environmental, physical, psychological and social factors. These initiatives include promoting physical activity, which is known to be related to good health and physical and psychological wellbeing. Benefits of physical activity are particularly relevant in the elderly, since it contributes to decrease risk factors and prevent diseases.

The objective of this work was to determine whether immunological biomarkers are related to physical activity in a population of elderly adults, by means of a cross-sectional study including 259 individuals aged 65 and over. Data on physical activity and several clinical markers (nutritional status, functional status, cognitive dysfunction, and depressive symptoms) were obtained by means of appropriate questionnaires. Percentages of different lymphocyte subsets, and serum concentrations of neopterin, tryptophan and kynurenine were determined as immunological biomarkers.

Results obtained showed that several lymphocyte subsets and serum levels of neopterin, tryptophan and the ratio kynurenine/tryptophan (indicative of indoleamine 2,3-dioxygenase enzyme activity) were significantly different in the group of low physical activity with regard to the group performing normal physical activity, and some immunological biomarkers were associated with cognitive impairment and functional status. These data contribute to reinforce the belief that physical activity supports healthy aging, particularly by helping protect the immunological system from aging-related changes.

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