Association among serum levels of TNF alpha with cognitive impairment and muscle strength/mass in the Elderly

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Introduction: With the population aging incapacitating issues are of great concern. Dementia as well as musculoskeletal weakness are poorly associated to inflammatory cytokines chronically produced in elderly. **Objectives:** Characterize a cytokine panel in elder people that may exhibit low cognitive and/or musclesqueletic osteoporotic abilities. **Material and Methods:** Research conducted in long-stay institutions for the Elderly (ILPIs) with a population of 50 elderly (men and women).The evaluation consisted of an application of two validated questionnaires for dementia detection and staging of disease to: Mini Mental State examination (MMSE) and clinical Dementia Scale (CDR), individuals were separated by groups(controls and experimental). Also performed a physical examination measuring body fat data, BMI, and handgrip strength. Blood samples were retained for analysis of cytokines of ELISA (IL-10, IL-2; IL-4;IL6; TNF-α). **Results and Discussion:** The correlations between the data when comparing the groups, there is significance between MMSE and age as expected (GC P - 0.1617/Shaz - 0.069) however has moderate significance for the control group and the CDR (GC <0.650) and MMSE/CDR. When compared control group (n=10) to group SHAZ (n=20) only TNF-α showed to be statistically significant (5.1 ± 0.7 pg/dL for SHAZ vs. 2.4 ± 0.7 pg/dL for control group, n = 10, $p < 0.05$). Also, TNF α showed to be significantly lower in control group when compared with BMI group, suggesting it to be a link between sarcopenia and dementia. When SHAZ men are compared to age paired SHAZ women, TNFα showed to be significantly higher in men (6.2 ± 0.8 pg/dL for SHAZ vs. 3.7 ± 0.5 pg/dL for control group, n = 8, $p < 0.05$), suggesting a higher degree of decaying observed in men when compared to women. **Conclusions:** The data indicates that is a relationship between predictors of dementia, muscle mass, and cachexia cytokines, such as TNFα. Also, gender differences were observed. However, additional studies are needed. **Key Words:** Dementia, Physical Dependence, Cachexia, **Financial Support:** CAPES, CNPq, FAPESP, and FAPES.