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Evaluation of CMV infection occurrence, nutritional status and cognitive functions of elderly

Introduction. The aging of the body is a non-modifiable factor affecting population around the world, which causes numerous changes in each human organ system, many diseases and increased mortality. Age progress also has a substantially negative effect on the immune system, nutritional status and human cognitive functions. Cytomegalovirus (CMV) infection affects people of all ages, but in the population over 80 years infection rate may be over 0.9. CMV infection may affect weakness of the body functions, including the functions of the immune system in elderly people.

Assumptions and objectives of the paper. The main objective of this paper was to assess the occurrence of cytomegalovirus infection, nutritional status and cognitive functions of the elderly.

Material and methods. The study was carried out on resident patients in *Zakład Opiekuńczo - Leczniczy im. Sue Ryder Stołecznego Centrum Opiekuńczo – Leczniczego, Sp. z o.o.* (Sue Ryder Care and Treatment Facility of Warsaw Care and Treatment Centre) in Warsaw in the period between April and October 2015. The study was composed of: an interview with the patient, analysis of the patient's medical records, collection of 15 ml peripheral blood for the purpose of a test of the level of IgM and IgG Cytomegalovirus antibodies in the patients' blood serum and determining gene expression for CMV in blood plasma, testing body composition by bioelectric impedance analysis and carrying out an MMSE test (Mini-Mental State Examination).

Results. The results were published in 2 papers: Pytka D, Czarkowska-Paczek B.: Cognitive functions is a prognostic factor of in mortality. *Dementia and Geriatric Cognitive Disorders EXTRA*, 2020, and Pytka D, Czarkowska-Paczek B., Wyczalkowska-Tomasik A: CMV seropositivity does not increase the risk of death among elderly nursing home residents. *Nursing of the 21st century*. The average mean MMSE result for the study group was 21.36 ± 6.35 , indicating mild cognitive impairment. The presented results indicate that there is a possibility that the risk of death is slightly higher solely in the seropositive group > 250 IgG [Au/ml] compared to the seropositive group < 250 IgG [Au/ml].

Conclusions. 1. The mean antibody titer in the study group of patients (n=202) was 206. 33[AU/ml] (± 73.51). The mean IgG titer among surviving patients (n=76) in the whole study group was 201. 8(± 79.58), while in deceased patients (n=126) it was 209. 06(± 69.78).

2. Viral genetic material evaluated in plasma was not found in any patient.

3. The mean CMV IgG titers of patients who survived the follow-up period and patients who died during the follow-up period did not differ. There was no increase in the risk of death in the elderly due to CMV seropositivity. Cytomegalovirus (CMV) antibody titers were not found to affect the risk of death in the study group.

4. MMSE test results showed a negative correlation with age and diastolic blood pressure, as well as a positive correlation with body weight, BMI, lean mass, muscle mass, and educational level in the study group.

5. A lower MMSE score was associated with a higher risk of death during the 3-year follow-up period. Each point scored on the MMSE scale reduced the patient's risk of death by an average of 9.19%.