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Monitoring the Effectiveness of Treatment of Alzheimer's Disease with Morphologically Substantiated Dementia Scale - The Tomography Dementia Rating Scale (TDR)

Ivan V Maksimovich

Clinic of Cardiovascular Diseases named after Most Holy John Tobolsky, Russia

Background: Morphologically determined, objective assessment of disease stage and dementia severity plays an important role in Alzheimer's disease (AD) treatment. Consequently, the Tomography Dementia Rating scale (TDR scale) based on tomographic assessment of brain atrophic changes severity was developed and compared to the Clinical Dementia Rating scale.

The research presents results of AD stage evaluation by means of TDR scale before and after treatment.

Materials and Methods: 172 patients with different AD stages were examined. The examination included: CDR, MMSE evaluation, cerebral scintigraphy (SG), rheoencephalography (REG), cerebral CT and MRI, morphometric definition of AD stages (TDR), cerebral multi-gated angiography (MUGA).

For the treatment, we selected 89 patients aged 34-79 (mean age 67), 31 (34.83%) men and 58 (65.17%) women. According to AD stages, the patients were divided:

- TDR-0 (preclinical stage) - 10 (11.24%) patients;
- TDR-1 (early stage with mild dementia, mild cognitive impairment) - 28 (31.46%) patients;
- TDR-2 (middle stage with moderate dementia, cognitive impairment sufficiently resistant) - 34 (38.20%) patients;
- TDR-3 (late stage with fairly severe dementia, severe cognitive impairment) - 17 (19.10%) patients.

Test Group - 46 (51.68%) patients - transcatheter treatment using low-energy lasers.

Control Group - 43 (48.31%) patients - conservative treatment with Memantin Rivastigmine.

Results: All 46 (100%) Test Group patients showed improvement of cerebral microcirculation, which resulted in persistent reduction of dementia and restoring cognitive functions and allowed to transfer patients to an earlier TDR group or to withdraw from TDR stages. Patients with TDR-1 and TDR-2 stages have shown positive effect for over 10 years. Patients with TDR-2 stage demonstrated positive effect within 4-5 years. Patients with TDR-3 stage displayed positive effect within 2-2.5 years.

Control Group patients with earlier AD stages (TDR-0, TDR-1, TDR-2) had stabilization of their condition for the period of 6 months - 2 years, with subsequent increase of dementia and cognitive impairment. Patients with late AD stage (TDR-3) had further increase in dementia and cognitive impairment.

Conclusions: Using morphologically, CT and MRI justified tomography dementia rating scale allows to more easily and objectively assess the level of dementia during AD, by taking into account the severity of cerebral atrophy changes. It can be done before, during and after treatment, regardless of the chosen treatment method; besides, the scale makes it possible to evaluate the effectiveness of the treatment.

Biography

Ivan V. Maksimovich, MD, Head Physician of Clinic of Cardiovascular Diseases named after Most Holy John Tobolsky (Moscow, Russia) since 1993. One of the major problems the clinic deals with is the diagnosis and treatment of various brain lesions including Alzheimer's disease. For a long time I have fully concerned myself with the diagnosis and treatment of Alzheimer's disease. Over the past 15 years I have published over 60 scientific works on this subject. ISTAART member, ESC member, EAPCI member, WSO member, ESO member, EPA member.

carvasc@yandex.ru