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Is High Oral Dose L-arginine Intake Effective in Leukoaraiosis? Preliminary Data, Study Protocol and Expert's Opinion

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Abstract:

Background: Leukoaraiosis is worldwide considered as a part of the normal aging process, although it is strongly associated with dementia and other disabilities. The pathogenesis of leukoaraiosis still has not been thoroughly acknowledged, even though chronic ischemia with consequent arteriolosclerosis probably due to endothelial dysfunction has been suggested. Treatment focuses on prevention of lesion formation and progression by aggressive control of risk factors, which should begin at an early age and continue on regular basis.

Aim of our protocol is to evaluate the effect of long-term oral administration of high-dose L-arginine (6 g/day at least for 24 months) on white matter lesions and neurological and cognitive functions.

Materials and Methods: Patients affected by mild to moderate leukoaraiosis will be enrolled in the study. After a complete neurovascular assessment (i.e. accurate blood test examinations, Echocardiography, Doppler ultrasound of the neck and peripheral arteries), they will undergo MRI, specific neuropsychological tests and gait analysis. Patients will be evaluated at baseline, at 6, 12, 18 and 24 month-follow up. **Statistical Analysis** will be performed using the software R. A significant level of $P < 0.05$ will be set for all the tests.

Preliminary Data: Two of the 4 patients currently enrolled in the study presented a mild improvement in cognitive function.

Discussion: Because of its high prevalence in over-65-year-old subjects, we hypothesized that treatment with 6 gr of Larginine, as supplementary dietary option, could be helpful in patients affected by leukoaraiosis to improve the cognitive and gait impairment often observed in these subjects (as demonstrated by the LADIS study).

Keywords: Cognitive decline, gait imbalance, L-arginine, leukoaraiosis, magnetic resonance, neuropsychological assessment.

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