GENETIC TESTING FOR FAMILIAL ALZHEIMER DISEASE AND FRONTOTEMPORAL DEMENTIA: TEST INTENTIONS AND MUTATION SPECTRUM IN AN ITALIAN COHORT

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Introduction: Genetic testing is nowadays available for hereditary forms of dementia such as Alzheimer disease (AD) and frontotemporal dementia (FTD): the APP, PSEN1 and PSEN2 genes for AD and MAPT and PGRN genes for FTD. In our previous study at risk family members expressed high intentions (more than 70%) to undergo a hypothetical genetic testing, independently of test accuracy or availability of a successful treatment.

Aims: To explore mutations spectrum and genetic test intention in patients affected by dementia and their relatives undergoing genetic counseling protocol.

Methods: Patients were enrolled at the Memory Clinic of the IRCCS “Centro San Giovanni di Dio-Fatebenefratelli” in Brescia, Italy. The presence of mutations in APP, PSEN1, PSEN2, MAPT and PGRN was investigated by direct sequencing. The family history was determined by the collection of the Family History Questionnaire. The genetic counseling multidisciplinary protocol includes: a pre-test educational session, diagnostic or predictive genetic testing, a post-test session for the communication of genetic testing results.

Results: Thirty-nine percent of patients affected by AD and FTD had a positive family history for the disease: among them, 10% required genetic testing (n=59). Diagnostic test resulted positive in 25% of patients: 60% of patients carried mutations in the PGRN gene, 20% in PSEN1, 7% in PSEN2, 7% in APP, 7% in MAPT. Predictive genetic test was proposed to 26 at risk family members: 42% of them expressed intention to undergo genetic testing.

Conclusions: After genetic counselling, at risk family members developed more criticism in undergoing genetic testing.