High frequency of the mutation PSEN1Δ9 in Mexican families with Alzheimer type 3

D. Garcia-Cruz Garcia-Cruz[5], G. Castañeda-Cisneros[1], J. Sánchez-Corona[2], S. Alberto Ramirez-Garcia[3], C. Belén Montaño-Montejano[4]

[1]*Servicio de Neurocirugía, Hospital de Especialidades, Unidad Médica de Alta Especialidad, Centro Médico Nacional de Occidente, Instituto Mexicano del Seguro Social, Mexico*

[2]*División de Medicina Molecular, Centro de Investigación Biomédica de Occidente, Centro Médico Nacional de Occidente, Instituto Mexicano del Seguro Social, Mexico*

[3]*Instituto de Nutrición, Universidad de la Sierra Sur, Mexico*

[4]*Doctorado en Genética, Biología Molecular y Genómica, Universidad de Guadalajara, Centro Universitario de Ciencias de la Salud, Mexico*

[5]*Instituto de Genética Humana, Biología Molecular y Genómica, Universidad de Guadalajara, Centro Universitario de Ciencias de la Salud, Mexico*

Introduction: In Mexico dementia has a frequency of 6.1% and an incidence or 27,3 per habitants. Alzheimer type 3 (also known as spastic paraparesis and early-onsset dementia) is characterized by an autosomal dominant mode of inheritance due to a mutation in the PSEN1 gene encoding preseniline-1; mutations in PSEN1 included point mutations (exons 3, 4, 7, 8 y 12), insertions (exon 3) and deletions (exons 4, 9, 12) have been also identified. The PSEN1Δ9 mutation represents a 4.6 to 5.9 kb loss spanning 3' intron 8, exon 9 and 5' intron 9. In Mexico there are not reports about frequency of PSEN1 mutations in Alzheimer type 3. The aim of this study is to detect the PSEN1D9 mutation in Mexican families and to calculate its frequency. Materials:. Patients diagnosed with Alzheimer type 3 were identified between 2003-2018 at the Neurology and Genetic Departments of Specialty Medical Hospital of IMSS (Mexican Institute of Social Security). There were included 12 families with spastic paraparesis and early-onset dementia. The brain IRM scans revealed cortical and subcortical atrophy, a mini-mental test was done to evaluate cognitive alterations. Molecular Analysis and Results:. The mutation was detected by PCR-GAP. Affected subjects per family were 2 to 6, with mean onset age of 45.1 years and male/female proportion of 1/0.76. Molecular analysis demonstrated a PSEN1D9 mutation in 12 affected subjects and two non-affected subjects (33 and 36 years old) of 12 families studied. Discussion: In the present study, twelve Mexican families corresponded to the clinical picture of Alzheimer's disease type 3. Affected individuals, in whom the PSEND9 mutation was demonstrated as a band of 640 bp on PCR, presented with different degrees of spastic paraparesis and early-onset dementia from moderate to severe. In conclusion the frequency of the PSEN1Δ9 mutation the Northwest of Mexico was of 83.3%