nystagmus, dislocation of the left lens in the vitreous humour, and multiple retinal atrophic lesions were also found. An IQ of 49 was found on the Wechsler adult intelligence scale. The neurological clinical examination showed cerebellar ataxia with limb and truncal ataxia and ataxic gait; also in this patient, mild hypertonia of the lower limbs, brisk tendon reflexes, and Babinski’s sign on the left side were present. Speech was hyperkinetic, poor, and echolalic.

Brain MRI showed a pronounced reduction in size of the vermis and of the cerebellar hemispheres and a mild cerebral cortical atrophy. An EEG was characterised by a slow background activity (6 Hz). No signs of muscular or peripheral nervous system involvement were found on EMG.

Routine blood and urine analysis, lysosomal, axonal, and mitochondrial and yellow seric activities were normal. Routine screening for the FMK-I gene was normal.

These two patients represent a difficult diagnostic problem. They show some common features such as congenital ataxia, nystagmus, mental retardation, and ocular abnormalities (retinal atrophic changes) which make it difficult to include them in one of the groups already proposed. In particular, the Gillespie syndrome is defined by the association of partial anhidria, congenital cerebellar ataxia, and mental retardation. Our patients were both affected by different ocular abnormalities such as retinal atrophic lesions and nystagmus. Additionally, one of them also had keratoconus, for which surgical treatment was needed and the dystrophic changes of the iris reported above only occurred after the surgical manipulation of the eyes.

For these reasons, we think that our patients are a new example of the considerate clinical and genetic heterogeneity which characterise congenital cerebellar ataxia. Also, the family tree of our patients does not allow us to reach a conclusion on the mode of inheritance of the disorder, even if the strict consanguinity of the parents strongly suggests the possibility of an autosomal recessive inheritance.

It seems important to underline that the patients with congenital ataxia described in the previous literature are usually of a much younger age than our two brothers and that the memory loss reported in the brothers could represent the first symptom of a true dementia process, for which monitoring will be necessary in the future. In fact, even if no assessment of the cognitive status was performed before, our patients had presented a stable psychomotor picture before the development of memory loss. Thus memory loss and dementia are long-term complications of cerebellar ataxia syndromes.

In conclusion, we suggest that our patients may represent a new combination of congenital cerebellar ataxia, mental retardation, and atrophic retinal lesions, including 3 Hz repetitive unila eye view; (2) routine CNEGM; (3) voluntary SFEMG; (4) stimulation SFEMG. Routine nerve conduction studies, repetitive nerve stimulation, and EMG (Counterpointed, Dantec Corp, Denmark) were performed with concentric needle electrodes (Medelec CN-35, UK) and single fibre electrodes (Medelec SF-25, UK). Stimulation SFEMG was performed at the extensor digitorum communis muscle, which showed spontaneous activities without any weakness according to standard methods. Stimulation frequency was set at 5 Hz.

Routine nerve conduction studies that included measurement of distal latencies, conduction velocities, and amplitudes of compound muscle action potentials (CMAPs) and sensory nerve action potentials (SNAPs) in upper and lower limbs were normal. Repetitive unila eye view at 3 Hz showed no significant decrement of amplitude and area of CMAPs. CNEGM showed needle insertions and mechanical stimulation, and mild muscular contraction induced two types of spontaneous activity which persisted even at rest. One type of spontaneous activity was typical myotonic discharges that showed increment and decrement of firing rates and amplitudes. The maximal firing rate was 100 Hz and the duration of the myotonic run was about 10 seconds. Another type of spontaneous activity was high frequency biphasic simple discharges that did not show variations of frequency and amplitudes, and that had a firing rate of about 50 Hz and a duration of 10–30 seconds. Fibrillations were rarely seen. Precise analysis of motor unit potentials (MUPs) were difficult because of interference from spontaneous activities. Among those MUPs found, the durations were either normal or slightly increased. Fibrillation potentials during voluntary contraction showed that most of the spontaneous activity consisted of single muscle fibre action potentials, different from spontaneous spontaneous activity, that was evident only after removal of spontaneous activity and muscular contraction that persisted at rest. Neither clinical manifestation nor laboratory tests suggested the spinal muscular atrophy. This type of involvement could have been caused by a genetic defect on chromosome 5 encoding Rab 35, a candidate for a new muscular dystrophy (16).
Stimulation SFEMG findings with (A) and without (B) interference of spontaneous activities in the same recordings with the same stimulation strength. Jitter was increased with interference of spontaneous activity because of myogenic jitter. The propagation velocity along the muscle fibre changes with activity, particularly when it is irregular such as during spontaneous discharges.

The present stimulation SFEMG study, with a careful analysis, showed normal end plate function and strongly supports the hypothesis that the origin of spontaneous activities in our patient with Schwartz-Jampel syndrome is in the muscle itself.

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Apolipoprotein E polymorphism and late onset Alzheimer's disease in Argentina

Several genes and, possibly, environmental factors are involved in the initiation, progression, and severity of Alzheimer's disease (AD). The inheritance of the three common

Apolipoprotein E (APOE) alleles (ε2, ε3, and ε4) can induce a differential individual susceptibility to Alzheimer's disease.

There is a large body of evidence showing that the ε4 allele of APOE is a genetic risk factor for late onset of Alzheimer's disease in an allele dose dependent manner.

The ε4 allele frequency varies with the ethnic background as inferred from Japanese and Spanish studies, in which values for the general population are lower than those from the United States, Canada, and northern European countries. The ε4 frequencies reported range from 0-24 to 0-52 in patients with Alzheimer's disease, 0-06 to 0-18 in controls, and 0-1 to 0-2 in the general population, regardless of the prevalence of Alzheimer's disease in each country (for review see Adro et al.).

As little is known about the ε4 allele frequency and Alzheimer's disease in Hispanic people from South America, we conducted a case-control study in Argentina. The aim of our work was to evaluate the association between the APOE allele genotype and late onset Alzheimer's disease in a population with a heterogeneous genetic background due to the fusion of South American Indian natives with northern and southern European immigrants.

We studied 45 patients (mean age 74-72 (SD 5-5) years, mean age of onset 69-61 (SD 4-7) years) with a diagnosis of probable Alzheimer's disease according to NINCDS-ADRA criteria. Sporadic patients were defined as those with no first or second degree relatives with dementia in at least two generations back. The 45 age matched controls (mean age 71-89 (SD 7-2) years) had a normal neuropsychological evaluation and no history of psychiatric disorders or alcoholism. In addition, we studied 101 healthy blood donors younger than 50 years (mean age 33-81 (SD 8-5) years) to determine the ε4 allele frequency in the general population. All the subjects included in the study were Hispanic and at least the second generation of native Argentinians. The study protocol and informed consent from all subjects or their relatives was approved by the institution's ethics committee.

Genomic DNA was obtained from peripheral blood by standard procedures and APOE genotyping was performed using the polymerase chain reaction and TaqI digestion. The ε4 frequency was calculated by allele counting and the differences between groups tested with Fisher's exact test. Odds ratios (ORs) and 95% confidence intervals (95% CIs) were calculated with GraphPad InStat (1994) V2-05a software.

The table shows the genotypes and allele frequencies of each group. The ε4 allele frequencies for late onset Alzheimer's disease patients and controls were 0-22 and 0-077 respectively. Heterozygosity for the ε4 allele was found in both the patients in the Alzheimer's disease group and in the control group among controls. Our young population had an ε4 allele frequency of 0-153 which agrees with the reported frequencies for white populations. We found a statistically significant difference between patients with late onset Alzheimer's disease and controls (P = 0-015) but not between the Alzheimer's disease group and the young population (P = 0-26). The OR for our case control study, in the presence of one or two ε4 alleles, was 3-33 (95% CI 1-204-9-020). Although our results are in general agreement with most reports, we found a rela-
Stimulation single fibre EMG study in a patient with Schwartz-Jampel syndrome.

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