STEINERT MYOTONIC DYSTROPHY CONSIDERATIONS ON A CLINICAL CASE

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Abstract: *The authors present the case of a male patient, aged 32 years, diagnosed with Steinert myotonic dystrophy. The patient with a history of progressive muscle weakness and wasting in the lower limb, neck and face, gait and balance disorders, myotonic phenomena for about 10 years, addressed specialized services tardly, when chewing disorders occurred. At the time of admission he did not present significant oculo-cardio-respiratory impairment and was still professionally active. The patient reported three cases in his family with the same symptoms, two with premature, sudden death. Biological and laboratory exploration revealed elevated LDH values and electromyographic curve of myogenic type with myotonic features. Under therapy with membrane stabilizer, a slight improvement of the myotonic syndrome was observed.*

Cuvinte cheie: *distrofie miotonică Steinert*

Rezumat: *Autorii prezintă cazul unui pacient de sex masculin, în vârstă de 32 ani diagnosticat cu distrofie miotonică Steinert. Pacientul cu un istoric de deficit motor progresiv, amiotrofii distale şi ale extremităţii cefalice, tulburări de mers şi echilibru, fenomene miotonice de aproximativ 10 ani se adresează serviciilor de specialitate tardiv, în momentul asocierii tulburărilor de masticaţie. La momentul internării nu prezintă afectare oculo-cardio-respiratorie semnificativă, fiind încă activ profesional. Pacientul relatează trei cazuri în familie cu aceeaşi simptomatologie, două cu deces prematur prin moarte subită. Explorările biologice şi paraclinice relevă valori crescute ale LDH şi traseu electromiografic de tip miogen cu salve miotonice. Sub terapie cu stabilizator de membrană se remarcă o uşoară ameliorare a sindromului miotonic.*

INTRODUCTION

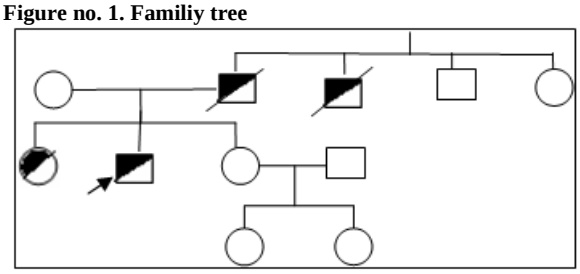
Steinert Myotonic Dystrophy, inherited disease, transmitted in an autosomal dominant way, with multisysistemic damage, is the most common adult form of muscular dystrophy, with an incidence of 1:10000 live births [1]. It is caused by an expansion of a CTG trinucleotide repeat within 3' untranslated region of DMPK gene on chromosome 19q13.3 [2]. It is clinically defined by myotony, myopathy with distal and cephalic extremity amyotrophies, symmetrical and progressive motor deficit. EMG myogenic route with myotonic discharges is paraclinically significant. It is frequently associated with cataracts, frontal baldness, cardiac dysrhythmia, endocrine manifestations (testicular atrophy, infertility), insulin resistance, specific digestive disorders, (eso-gastrointestinal motility disorders, topical infections), psycho-cognitive problems, hypersomnolence and changes of nictemeral rhythm [3,4].

We present the case of a male patient, aged 32 years, living in the rural area, who was admitted in the Neurology Clinic from Sibiu, with 10 years history of progressive muscle weakness, decreased muscle mass in the distal limbs, with gait and balance disturbances and difficulty in mastication.

The patient reports three family cases with the same symptoms: a sister aged 38 years, father and a paternal uncle who died of sudden death at the age of 42 respectively 46 years.

The objective examination shows: relatively good general condition, asthenic constitution, frontal baldness, hypotrichosis, cardiopulmonary and haemodynamic balanced patient, AV = 68 beats/min, TA = 130/ 80 mm Hg, ogival palate bolt, slow intestinal transit (1 excretion/ 72 h), hypotrophic testicles.

Figure no. 1. Familiy tree



The neurological examination shows: "myopathic" facies with temporalis and masseter muscle atrophy, with slight bilateral palpebral ptosis, slight hoarseness, thin neck, curved above "gooseneck" by sternocleidomastoid muscle atrophy. There is a reduction in muscle force, with significant symmetrical atrophies of the muscles of the hand, forearm and muscles on the antero-external side of the shank. He is unable to walk on his toes and heels. Myotonic both active and passive phenomena are present. ROT are abolished. In addition the patient has bradylalia and bradypsychia.

Laboratory examinations revealed high LDH values (445U/l, VN=135-225 U/l) and normal values of CK (176 U/l), VN=24-204 U/l).

The EMG shows a rich intermediate route, with a myotonic discharge when attempting to relax, motor action potentials of normal amplitude, motor guidance speeds at the lower limit. (Fig. 3).

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Figure no. 2. S.T. pacient

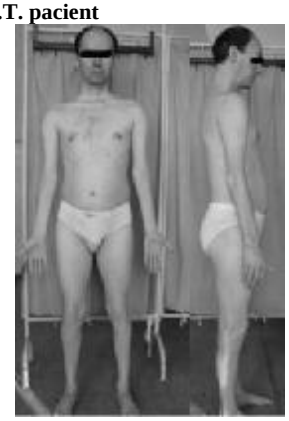
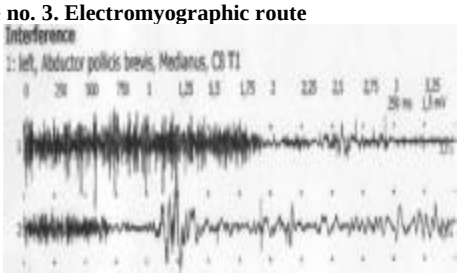


Figure no. 3. Electromyographic route



During the electrocardiography, early repolarization changes are seen with no clinical, radiological and ultrasound correspondent.

The complementary examinations performed: cranial, lung radiography, eye examination revealed no pathological changes.

The personality inventory indicates a moron profile started by intellectual restricted level, diminished intellectual performance, associated with various unpredictable dyskinesia, with mimicry changes and varied posts (irregular, monotonous talk), bradypsychia, IQ=40 (Raven scale).

Although the disease was diagnosed by corroborating the anamnestic clinical data and the EMG route, "the gold standard" for diagnosis remains the gene analysis by PCR techniques or southern blott [5].

There were excluded: inflammatory, toxic myopathies, progressive muscular dystrophies, distal muscular dystrophies, in the absence of myoton symptom, Eulenburg's paramyotonia and Thomsen's myotonia, congenital myopathies and PROMM myotonic myopatia with proximal amyotrophies.

The disease has no etiological treatment, the therapy being conservative and supportive: thermal protection of extremities is recommended, the cold stressing the myotonic phenomenon, adaptive physical education of easy-moderate intensity, but effectively challenged to improve motor deficits, occupational therapy, psychiatric / pychological counselling [6, 7]. To reduce the myotonic phenomenon Carbamazepine was administered as a membrane stabilizer, in doses of 100- 100-200 mg/day, with slight improvement of the myotonic phenomenon.

Recent studies show that the disease pathogenesis is grafted on the toxic RNA mechanism, RNA chains structurally modified by extensive nucleotide sequences, that capture regulatory proteins (MBNL). Thus, the pathogenic therapy is projected, targeting the toxic ARN playback function, by replacing or removing the extensive nucleotide sequences by changed nucleotide analogues, or the cleavage of toxic ARN complexes – regulatory proteins (MBLN), with the release of proteins and the restoration of the cellular activity, under the action of Pentamidine and Hexamide [8, 9].

The case presented meets pathognomonic criteria for Steinert myotonic dystrophy, still unaffected by mayor cardio-pulmonary and eye complications (cataracts present in 70 – 90 % of the cases).

Late prognosis is for disability and reduce life expectancy, with an increased risk of sudden death by bradyarrhythmias, alteration of respiratory function, with alveolar hypoventilation, sleep apnea.

The patient is involuntarily oriented towards a profession (night watchman) adapted to the inversion of the nictemeral rhythm, which allows him to be still active professionally.

It is noted that many affected families have a progressive biological decline in successive generations, featured by reducing fertility, more severe phenotypic expressions and early onset [10,11]. The case in question confirms the "anticipation" phenomenon: the early onset of the disease, at the age of 23 years, compared with the clinical decline of the father and uncle installed in the early third decade of life. The failure to call for medical services is unexplained, the diagnosis being established only in the second generation of disease.

The transmission of the abnormal trinucleotide expansion has a high penetration in 100% heterozygous male patients and 60% heterozygous female patients, which explains in this family case the sex ratio of 3:1 for men [11].

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