S.P.27

Electrophysiological study with prophylactic pacing and survival in adults with myotonic dystrophy and conduction system disease

K. Wahbi [1], C. Meune [2], R. Porcher [3], H.M. Bécane [1], A. Lazarus [4], P. Laforet [1], T. Stojkovic [1], A. Béhin [1], H. Radvanyi-Hoffman [5], B. Eymard [1], D. Duboc [1]

[1] *Pitié-Salpêtrière Hospital, AP-HP, Paris, France;* [2] *Cochin Hospital, Cardiology, Paris, France;* [3] *Saint Louis Hospital, Paris, France;* [4] *InParys Clinic, Saint Cloud, France;* [5] *Ambroise Paré Hospital, Paris, France*

Up to one-third of patients with myotonic dystrophy type 1 (DM1) die suddenly. Thus far, no intervention has effectively prevented sudden death. The objective was to determine whether an invasive strategy (IS) based on systematic electrophysiological studies and prophylactic permanent pacing is associated with longer survival in patients presenting with DM1 and major infranodal conduction delays than a noninvasive strategy (NIS). A retrospective study, the DM1 Heart Registry, included 914 consecutive patients older than 18 years with genetically confirmed DM1 who were admitted to the Myology Institute of Pitié-Salpêtrière Hospital, between January 2000 and December 2009. Among 486 patients whose electrocardiogram showed a PR interval greater than 200 ms, a QRS duration greater than 100 ms, or both, we compared the outcome of 341 (70.2%) who underwent an IS was compared with 145 (29.8%) who underwent a NIS. A propensity score risk adjustment and propensity-based matching analysis was used to account for selection biases. Over a median follow-up of 7.4 years (range 0–9.9 years), 50 patients died in the IS group and 30 died in the NIS group (hazard ratio [HR], 0.74 [95 CI, 0.47–1.16]; $P = .19$), corresponding to an overall 9-year survival of 74.4% (95% CI, 69.2%–79.9%). Regardless of the technique used to adjust for between-group differences in baseline characteristics, the IS was associated with a longer survival, with adjusted HRs ranging from 0.47 (95% CI, 0.26–0.84; $P = .01$) to 0.61 (95% CI, 0.38–0.99; $P = .047$). The survival difference was largely attributable to a lower incidence of sudden death, which occurred in 10 patients in the IS group and in 16 patients in the NIS group, with HRs ranging from 0.24 (95% CI, 0.10–0.56; $P = .001$) to 0.28 (95% CI, 0.13–0.61; $P = .001$). Among patients with DM1, an invasive strategy was associated with a higher rate of 9-year survival than a noninvasive strategy.

http://dx.doi:10.1016/j.nmd.2012.06.302

S.P.28

Reported incidence of orthopedic and cardiopulmonary complications in patients with congenital muscle disease

M.E. Leach [1], J. Collins [2], C.G. Bonnemann [3]

[1] *Children's National Medical Center, Research Center for Genetic Medicine, Washington, DC, United States;* [2] *Cincinnati Children's Hospital Medical Center, Division of Neurology, Cincinnati, OH, United States;* [3] *National Institutes of Health, NINDS/Neurogenetics Branch, Bethesda, MD, United States*

Congenital muscle disease, including congenital myopathies (CM) and congenital muscular dystrophies (CMD) may develop hip dysplasia, progressive joint contractures, and scoliosis, sometimes leading to surgical intervention. Both the incidence of orthopedic problems and cardiopulmonary abnormalities that may impact surgical management and patient outcomes in certain CM/CMD subtypes are unknown. Defining the incidence and outcome of orthopedic and cardiopulmonary involvement per CM/CMD subtype will direct pre and post-surgical management to improve patient care. The objective was to determine the incidence of orthopedic, pulmonary and cardiac problems in CM/CMD subtypes. A PubMed search of peer-reviewed literature limited to human case reports, series, and multicenter studies was performed with the keywords "congenital myopathy," "congenital muscular dystrophy" and CM/CMD specific genes. We excluded articles that did not report on orthopedic, pulmonary or cardiac involvement and excluded patients without genetic confirmation or if symptom onset was after 2 years of age. Twenty-eight articles met the review criteria, which included 365 patients who had CM/CMD with confirmed mutations in either ACTA1, COL6, DNM2, FKTN, LAMA2, LMNA, POMT1, POMT2, POMGnT1, LARGE, RYR1, or SEPN1. There were 504 orthopedic findings, including congenital hip dislocation (24), torticollis (15), joint contractures (201), joint laxity (42), and abnormal spinal curvatures (222). More than half of patients (210) had respiratory compromise with 114 patients requiring ventilatory support. 27 patients had documented cardiac abnormalities. Orthopedic manifestations, respiratory compromise, and cardiac abnormalities are common in patients with congenital muscle disease. Pre-surgical cardiac and respiratory evaluations are indicated.

http://dx.doi:10.1016/j.nmd.2012.06.303

S.P.29

Respiratory dysfunction of dysferlinopathy

A. Nishikawa [1], M. Mori-Yoshimura [1], Y. Hayashi [2], Y. Oya [1], I. Nishino [2], M. Murata [1]

[1] *National Center Hospital, National Center of Neurology and Psychiatry, Department of Neurology, Tokyo, Japan;* [2] *National Institute of Neuroscience, National Center of Neurology and Psychiatry, Department of Neuromuscular Research, Tokyo, Japan*

Dysferlinopathy is an autosomal recessive muscular dystrophy caused by *DYSF* mutations. There are two major phenotypes of dysferlinopathy, proximal dominant limb-girdle muscular dystrophy (LGMD) 2B and distal dominant Miyoshi myopathy (MM). Respiratory dysfunction has been rarely reported in dysferlinopathy patients. *Objective:* To examine the respiratory function in patients with dysferlinopathy. We retrospectively reviewed the respiratory function (% forced vital capacity [FVC]) for 27 dysferlinopathy patients confirmed by genetic analysis and/or immunohistochemical staining in our hospital. The mean age at the onset was 22.8 ± 8.5 (range 10–46 years). Of 27 patients, LGMD2B, MM, and unclassified were 13, 13, and 1, respectively. Serum CK level was 5171 ± 3005 (range 192–12,671 IU/l). Twenty-one patients were still ambulant and four were wheelchair-bound. The %FVC was 99.0 ± 29.1 (range, 15.3–131.0). In three (11.1%) patients, %FVC was <80% (23.9–41.4%) and two patients used non-invasive positive pressure ventilation. The average %FVC of patients within 25 years from the onset was $108.8 \pm 13.5\%$ ($n = 19$), while $68.2 \pm 43.6\%$ ($n = 8$) in patients over 25 years and $109.5 \pm 12.3\%$ in ambulatory patients ($n = 21$), while $43.3 \pm 28.9\%$ in wheelchair-bound ($n = 4$). The Linear regression analysis to determine the relationship between %FVC and other clinical parameters revealed the age ($p = 0.004$), the duration from the onset to present ($p = 0.003$), and the CK ($p = 0.009$) as to be significantly correlated with %FVC. There was no significant difference in %FVC of LGMD2B and MM. Dysferlinopathy can cause severe respiratory failure. Respiratory dysfunction in patients with dysferlinopathy, which is characterized by long disease duration and advanced weakness and muscle atrophy, should be carefully monitored.

http://dx.doi:10.1016/j.nmd.2012.06.304

PHYSICAL THERAPY AND GENERAL ASPECTS – POSTER PRESENTATIONS

S.P.42 Effects of a physical exercise programme in adults with myotonic dystrophy type 1 – A one-year follow-up study

M. Kierkegaard [1], L. Widén Holmqvist [2]