

## **Fewer Electrocardiogram Abnormalities in Duchene Muscular Dystrophy Patients Treated With Bisphosphonates**

Wong K.K. (1,2), Gordon K.E.(1,3), Dooley J.M.(1,3)

Department of Pediatrics, Faculty of Medicine, Dalhousie University, Halifax, Nova Scotia, Canada (1); Division of Pediatric Cardiology (2); Division of Pediatric Neurology (3), Department of Pediatrics, IWK Health Centre, Halifax, Nova Scotia, Canada

**Introduction:** Cardiac involvement in Duchene muscular dystrophy (DMD) is well described with varying onset and severity of electrocardiogram (ECG) and echocardiogram changes. A regional cohort of patients with DMD receiving steroid therapy and bisphosphonates managed in a single centre showed improved survival (Pediatrics, in press). This study describes the possible effect of therapy on ECG abnormalities.

**Methods:** The cardiology records of a previously described regional cohort of patients with confirmed DMD who were born from 1963 to 2006 and who had received at least one year of steroid therapy were reviewed. Available ECGs were reviewed by a cardiologist (KKW). The following measurements were abstracted: R V1, S V1, R V6, S V6, Q in V6, and Q in III and compared to available age appropriate standards. Given the small sample size, tabular analysis used a two tailed Fisher's exact test.

**Results:** Forty-four boys with DMD from this cohort were exposed to continuous steroid use. Bisphosphonate therapy had been initiated for 16 patients (36%) at a median age of 12.5 years (range: 7-23 years). ECGs were available for review for 26 (59%). Single ECGs were available for 69% of the sample and serial ECGs for the remainder. One ECG measurement appeared to be associated with bisphosphonate use, a normal R V1 ( $p=0.10$ ). When only children in their second decade were reviewed, the relationship between a normal R V1 and bisphosphonate use appeared stronger (OR 15,  $p=0.04$ ) and for those with serial ECG data, all who had abnormal R V1 measurements, 3 receiving bisphosphonate therapy improved to normal, with 5 not receiving bisphosphonate therapy remained abnormal ( $p=0.02$ ).

**Conclusions:** The treatment of patients with Duchene muscular dystrophy with steroid and bisphosphonate may be associated with improved and/or fewer patients with ECG criteria for right ventricular hypertrophy.