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Letter to the Editor

Genetic Background and Therapy of Dilated Cardiomyopathy in Dystrophinopathies

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In a recent study of Jefferries *et al.*, (2005) on 27 Duchenne-muscular-dystrophy (DMD) and 4 Becker-muscular-dystrophy (BMD) patients the authors found that certain deletions predict dilated cardiomyopathy (dCMP) and that ACE-inhibitors (ACEI) or beta-blockers (BB) improve cardiac performance (Jefferies, J. L. *et al.*, 2005). The study raises the following concerns.

The title is misleading as only dystrophinopathies were studied. The term "muscular dystrophies" includes various other dystrophies, which were not investigated (Bakker, E., & van Ommen, G.J.B. 1998).

How was cardiac involvement (CI) and dCMP defined? Were only patients with dCMP or also patients with rhyhtm-abnormalities without dCMP included?

How long was the follow-up before dCMP developed? Did patients receive cardiac therapy already prior to onset of dCMP? There is some evidence that prophylactic cardiac therapy is effective even in the absence of clinical cardiac disease (Bushby, K. *et al.*, 2003). dCMP may also precede skeletal muscle manifestations and the heart may be exclusively affected in dystrophinopathies (Finsterer, J., & Stöllberger, C. 2003).

How many patients with dCMP carried a dystrophin-mutation? Was the neurological diagnosis in the 22 non-genetically confirmed patients established by muscle-biopsy or Western-blot? How were other muscular dystrophies excluded and how many of the 22 developed dCMP?

Spinal and thoracic deformities are hallmarks of DMD and greatly influence cardiac and pulmonary function (Bakker, E., & van Ommen, G.J.B. 1998), why surgical correction is frequently recommended. How many of the 27 DMD-patients underwent spinal stabilization before or during therapy? In how many patients did stabilization-surgery improve cardiac performance?

Today, corticosteroids are an established therapy for muscle weakness and wasting in DMD. Corticosteroids even improve systolic function (Markham, L.W. *et al.*, 2005). How many DMD-patients received corticosteroids and with which effect on cardiac function? Did they also receive diuretics or non-steroidal anti-inflammatory drugs?

Most DMD-patients also suffer from muscular respiratory failure, for which they receive non-invasive positive-pressure-ventilation (NIPPV). How many DMD-patients were under NIPPV during the trial and did those under NIPPV have a better cardiac outcome?

Whether the location of a dystrophin-deletion predicts CI is controversial. Early reports found dystrophin-deletions in exons 1-10 more prone to cardiac disease than deletions in other exons. Recent studies, however, showed equal power between different deletions to predict dCMP. How to explain certain deletions to predict dCMP whereas others

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shouldn't? Was molecular weight of dystrophin correlated with the severity of CI?

What was the indication for digoxin in the 4 BMD-patients and how can one exclude that improvement of cardiac performance was a digitalis effect?

Following these objections and inherent limitations it is not justified to conclude that only ACEI and BB were responsible for improvement of cardiac performance and that certain dystrophin-deletions predict dCMP in DMD/BMD.

REFERENCES

1. Jefferies, J. L., Eidem, B. W., Belmont, J. W., Craigen, W. J., Ware, S. M., Fernbach, S. D., ... & Towbin, J. A. (2005). Genetic predictors and remodeling of dilated cardiomyopathy in muscular dystrophy. *Circulation*, *112*(18), 2799-2804.
2. Bakker, E., & van Ommen, G.J.B. (1998). Duchenne and Becker muscular dystrophy. In: Emery AEH (ed.) Neuromuscular disorders: Clinical and molecular genetics. John Wiley & Sons, Chichester.
3. Bushby, K., Muntoni, F., & Bourke, J.P. (2003). 107th ENMC International Workshop: the management of cardiac involvement in muscular dystrophy and myotonic dystrophy. 7th-9th June 2002, Naarden, the Netherlands. Neuromuscul Disord, 13, 166-172.
4. Finsterer, J., & Stöllberger, C. (2003). The heart in human dystrophinopathies. Cardiology, 99, 1-19.
5. Markham, L.W., Spicer, R.L., Khoury, P.R., Wong, B.L., Mathews, K.D., Cripe, L.H. (2005). Steroid therapy and cardiac function in Duchenne muscular dystrophy. Pediatr Cardiol, (in press).