

**Title: FAT EMBOLISM SYNDROME IN PATIENTS WITH DUCHENNE MUSCULAR DYSTROPHY FOLLOWING LOW ENERGY FEMUR FRACTURE**

Author(s): **Emma Ciafaloni**<sup>1</sup>, M. Medeiros<sup>1</sup>, C. Behrend<sup>2</sup>, J. Sanders<sup>2</sup>,

*Institute(s): <sup>1</sup>Neurology, <sup>2</sup>Orthopedics, University of Rochester, Rochester, NY, USA*

**Text: Introduction:** Patients with Duchenne muscular dystrophy (DMD) are at increased risk for fractures from low energy trauma due to immobilization and use of corticosteroids. Fat embolism syndrome (FES) requiring intensive care management is not a well recognized complication of low energy fractures in DMD.

**Case report:** Five DMD boys age 14, 15, 15, 19 and 20, 1 ambulatory, 4 wheelchair bound, 3 on prednisone and 1 on deflazacort, all with underlying osteopenia, presented with acute encephalopathy and hypoxia after a low energy fall. 3 fell on their knees from the wheelchair, 1 had a minor fall from his shower chair and 1 fell while walking. All patients had non displaced distal femur fracture, bilateral in one. In 2 patients the fracture was missed at the time of initial presentation. Visual symptoms were reported in 2 patients; dilated eye exam showed Purtscher retinopathy with fat emboli in the vasculature in 1. Altered mental status ranged from agitation and confusion to coma. All had tachycardia and leucocytosis, 2 had petechial rash. Chest CTs showed diffuse ground glass opacifications, nodular densities and atelectasis. Brain MRI showed cortical and subcortical hyperintense foci in DWI. Outcomes varied from permanent ventilatory dependence with a persistent vegetative state to complete recovery.

**Conclusion:** FES should be considered in any patients with DMD who present with acute mental status changes or sudden respiratory decompensation. In these patients low energy fractures may occur from even minor falls and even from manipulation during transfers or physical therapy and can sometimes be overlooked.

Author Keywords: Fat embolism syndrome; Duchenne Muscular Dystrophy