

# **Radiologically Confirmed Fractures** University of Glasgow In A Scottish Nationwide Contemporary Cohort Of Boys

With Duchenne Muscular Dystrophy



# S Joseph <sup>1, 2</sup>, M Di Marco <sup>3</sup>, I Abu-Arafeh <sup>4</sup>, A Baxter <sup>5</sup>, N Cordeiro <sup>6</sup>, L McLellan <sup>7</sup>, K McWilliam <sup>5</sup>, K Naismith <sup>8</sup>, E Stephen <sup>9</sup>, I Horrocks<sup>2</sup>, SF Ahmed<sup>1</sup>, SC Wong<sup>1</sup>

Developmental Endocrinology Research Group, Royal Hospital for Children, Glasgow UK<sup>1</sup>, Paediatric Neurosciences Research Group, Royal Hospital for Children, Glasgow UK<sup>2</sup>, Scottish Muscle Network <sup>3</sup>, Forth Valley Royal Hospital, Stirling UK <sup>4</sup>, Department of Paediatric Neurology, Royal Hospital for Sick Children, Edinburgh UK <sup>5</sup>, Crosshouse Hospital, Ayrshire <sup>6</sup>, Raigmore Hospital, Inverness, UK<sup>7</sup>, Ninewells Hospital, Dundee UK<sup>8</sup>, Royal Aberdeen Children's Hospital, Aberdeen, UK<sup>9</sup>

# Background

There is an increasing concern regarding fragility fractures in boys with DMD but studies of fractures in DMD using radiologically confirmed fractures in sufficiently large cohorts are limited.

# **Objectives**

To determine the frequency of fractures in a contemporary cohort of 91 boys with DMD managed in Scotland.

## **Methods**



## **Results continued**

Fractures were classified into the vertebral fracture (VF) and non-VF in a retrospective study of all boys currently managed in Scotland, United Kingdom. The probability of fractures was determined by Kaplan–Meier plot.

Results	
	Median (Range) or N (%)
Age (years)	11.2(2.3,18.9)
Height SDS	-1.4 (-5.3, 1.4)
Weight SDS	0.0 (-5.0, 3.3)
BMI SDS	1.5 (-0.4,3.5)
Ambulant: Non-Ambulant Cohort	46/91(50.5): 45/91(49.5)
Age at Loss of Ambulation (years)	10.4 (7.1,15.3)
Length of Non-Ambulation State (years)	2.92 (0.2,9.0)
GC Treated: GC Naïve Cohort	76/91 (83.5): 15/91(16.5)
GC Start Age	5.5 (2.9,9.9)
GC Therapy Length (years)	5.1 (0.4,11.0)
Current GC: Previous GC cohort	59/91 (64.8): 17/91 (18.7)

#### **Table 1: Clinical Characteristic**



# Figure 4. Probability of all fracture vs. age





- 47/91(52%) No Fracture
- 36/91(40%) Non-VF Fracture
- 7/91(8%) Vertebral fracture
- 1/91(1%) Non-VF & Vertebral Fracture

#### **Figure 1: Fracture Prevalence**



6/43 (14%) Humerus 3/43 (7%) Clavicle **3/43 (7%)** Fibula 2/43 (5%) Radius/ulna **3/43 (7%)** Other

#### **Figure 2: Fracture Sites**

# Figure 5. VF and Non-VF probability vs. age





# 0.2 GC length (Yrs) 0.0 10

# Figure 6.VF and Non-VF Probability vs. GC duration

# Conclusion

In our cohort of boys with DMD, approximately 50% of the cohort have sustained at least one fracture.

Painful vertebral fracture was observed in approximately 9% of our cohort.



# **Figure 3: Fracture Mechanism**

**Disclosure Statements: The authors have nothing to disclose** 

CHIEF **S**CIENTIST **O**FFICE

#### Muscular **Dystrophy Uk** Fighting muscle-wasting conditions

