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## Background

The prevalence of vertebral fractures (VF) in Duchenne Muscular Dystrophy (DMD) is currently unknown as systematic spine imaging is rarely performed.

## Objectives

To determine the prevalence of VF in DMD and factors associated with VF.

## Methods

A prospective study utilising systematic screening with DXA vertebral fracture assessment (VFA) was performed in all 47 eligible boys.

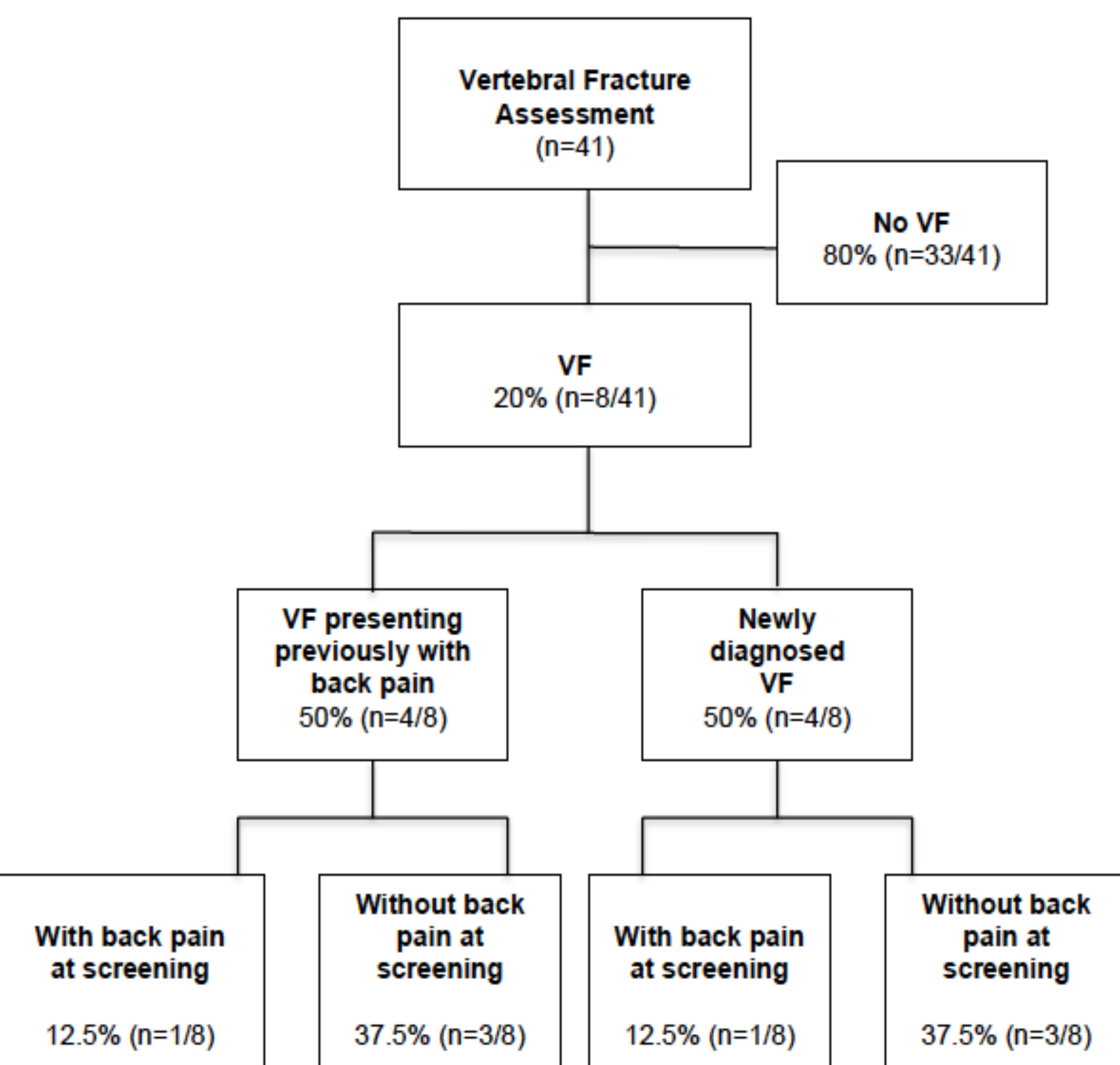
Presence and grade of VF were determined by the Genant method by two independent observers (SJ, SS) and any disagreement resolved by consensus agreement with a third observer (SCW).

## Results

**Table 1: Cohort characteristics**

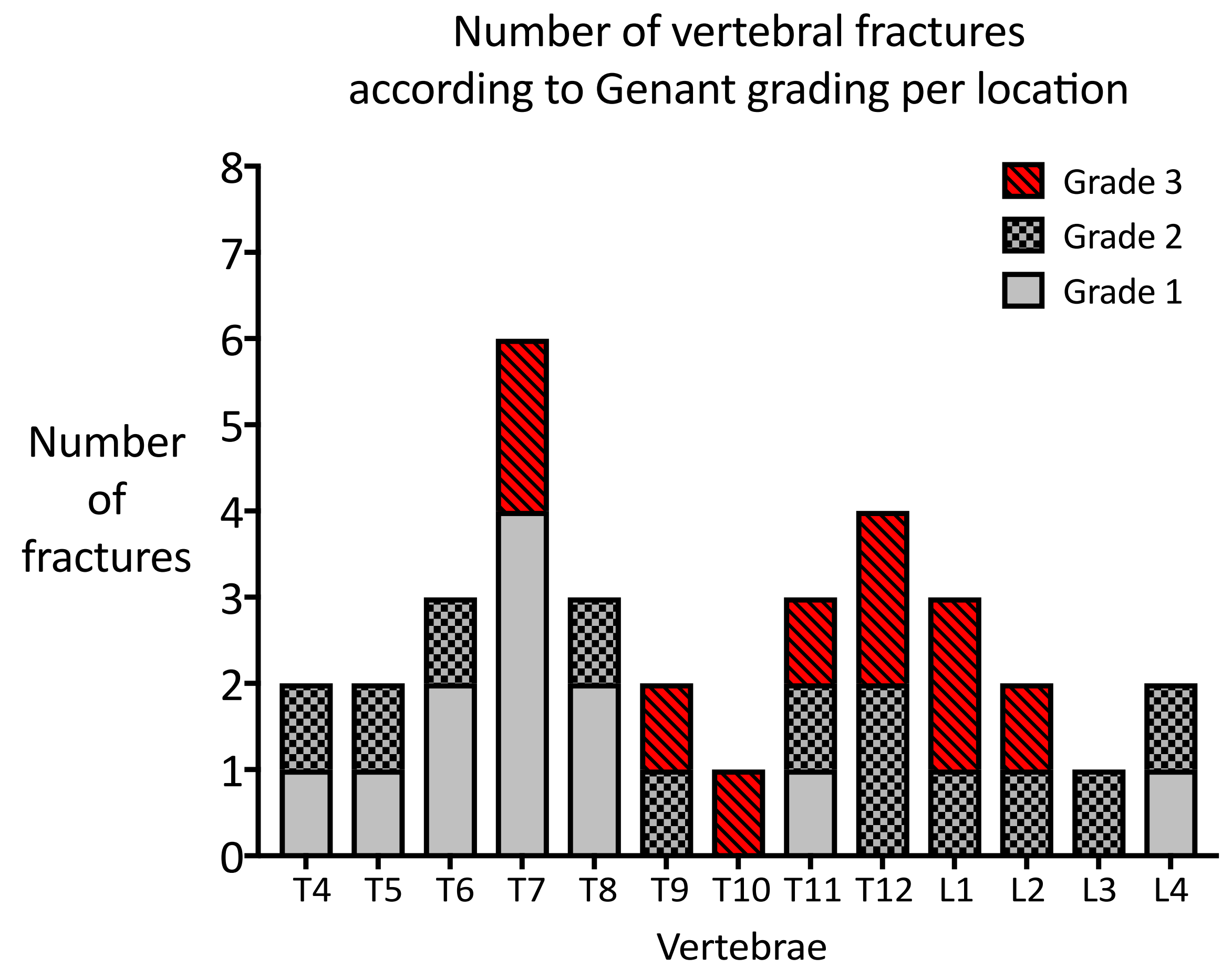
	n=41	Median (Range) / n (%)
Age (years)		9.9 (5.0,18.3)
GC length (years)		3.8 (0.2, 13.4)
GC regimen	GC Naïve	3/41 (7)
	Previous GC	4/41 (10)
	Prednisolone Daily	9/41 (22)
	Prednisolone Pulsed	3/41 (7)
	Deflazacort Daily	21/41 (51)
	Deflazacort Pulsed	1/41 (2)
Mobility	Ambulant	23/41 (56)
	Non-Ambulant	18/41 (44)
Previous fracture	Non-VF	10/41 (24)
	VF	4/41(10)

**Figure1: Prevalent VF rate in DMD was 20% by DXA VFA screening**

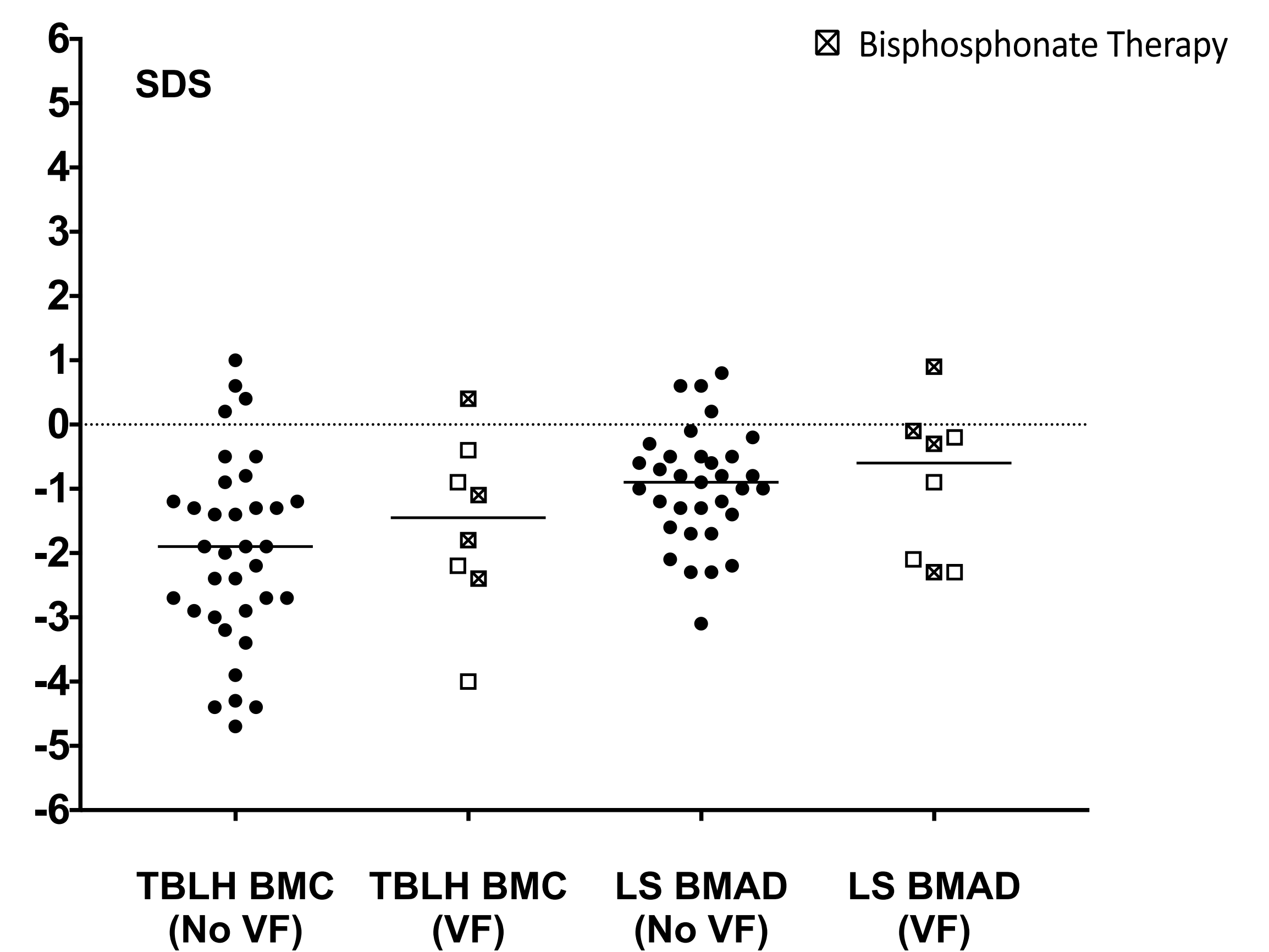


## Results continued

**Figure 2: Vertebral fractures in DMD showed a bimodal peak at T7 & T12**



**Fig 3: DXA bone mass at total body and lumbar spine was not discriminatory for fractures in DMD**



**Table 2: Duration of glucocorticoid was the only independent factor associated with vertebral fracture in DMD**

	Exp(B)	95% Confidence Interval	Sig.(p)
GC length	1.486	1.011 to 2.184	0.044*
Hydrocortisone Dose	0.992	0.968 to 1.016	0.518
Mobility	7.026	0.467 to 105.790	0.159
Back Pain	0.099	0.007 to 1.491	0.095
LS BMAD SDS	1.100	0.572 to 2.116	0.776

- \*Odds of VF detection by screening is increased by 1.5 times every increase in GC exposure (in years), when adjusted for hydrocortisone dose, mobility status, presence of back pain and LS BMAD.

## Conclusion

- In this group of DMD boys with relatively short duration of glucocorticoid exposure, vertebral fracture was present in 20%.
- DXA bone mass was not discriminatory for vertebral fracture.
- Our result provides the evidence-based for the recommendation of routine spine imaging for vertebral fractures in DMD in the new international DMD standards of care (2018).