

# Longitudinal association between medication use and incident vertebral deformities in Tasmanian older adults



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## BACKGROUND

- Bone related adverse effects of commonly used medications are grossly understudied and lack evidence.

## OBJECTIVE

- To describe longitudinal associations between medication use and incident vertebral deformity (VD) in older adults.

## METHODS

- Lateral vertebral scans from dual-energy X-ray absorptiometry (DXA) were used to perform vertebral morphometry at T4-L4 in older adults (age 50-80 years; n=780, 50% male), followed for 10.7 years.
- Several definitions of VD were utilised in this study: height reduction of 20%, 25%, 3SD- and 4SD-criteria.
- A new VD at any of three follow-up visits was termed incident VD.
- Data were analysed using inverse probability weighted log-binomial regressions. Negative binomial regression was used to examine effect of number on incident VDs.

## RESULTS

## CONCLUSIONS

- **Warfarin** use may increase risk of incident VDs while **Angiotensin Receptor Blockers (ARBs)** may be protective.
- ARBs may also protect against multiple incident VDs.
- Mechanisms for these associations are unclear as they are independent of BMD and falls risk.
- Overall, reassuringly, few medications are associated with increased risk of vertebral deformities over 10.7 years.

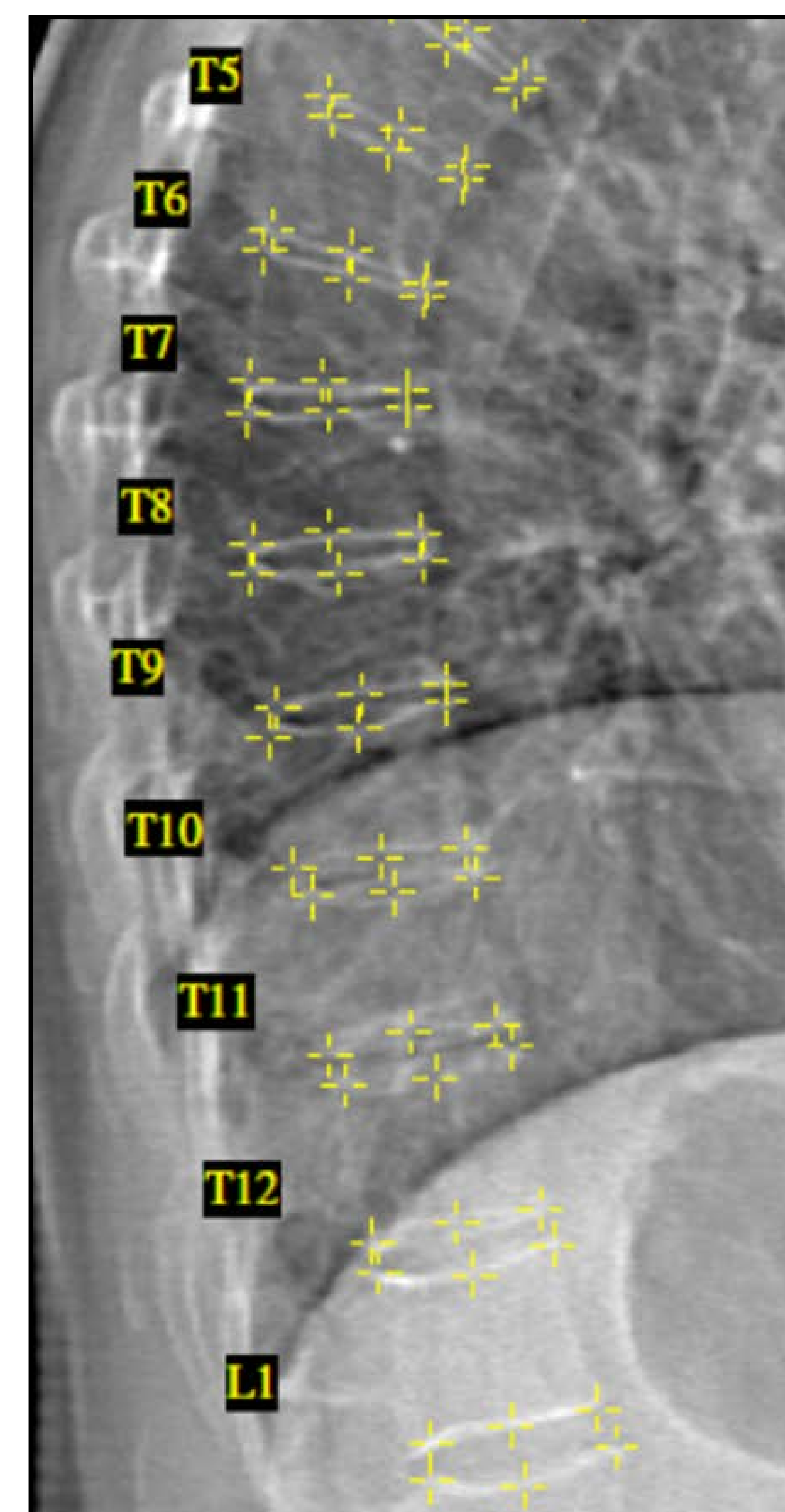
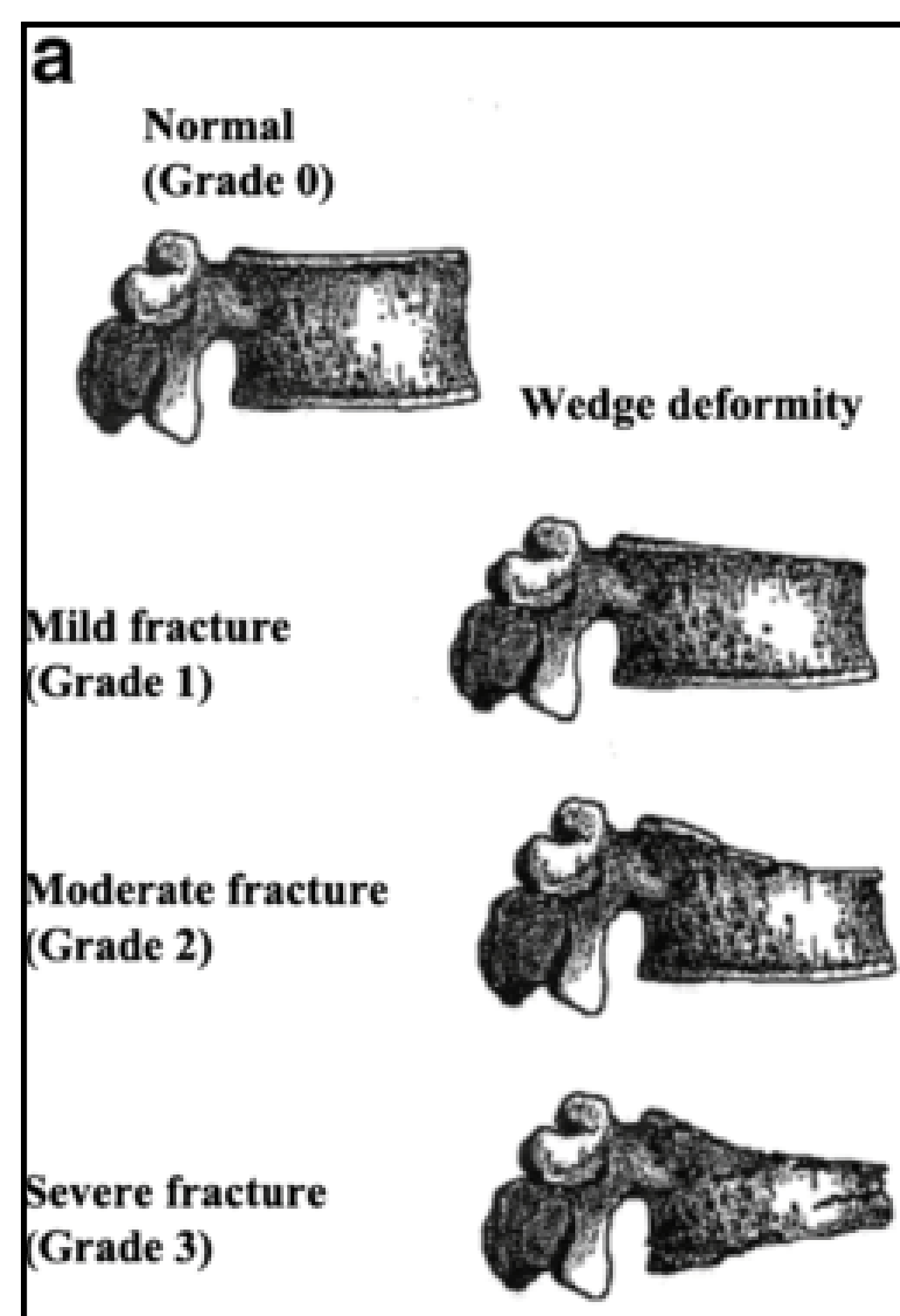


Table 1: Association between medication use and incident vertebral deformities over 10.7 years

	20% Criterion	25% Criterion	3 SD Criterion	4 SD Criterion
	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)
Warfarin	0.90 (0.48-1.68)	1.04 (0.53-2.01)	<b>1.64 (1.16-2.32)</b>	1.27 (0.68-2.36)
Angiotensin Converting Enzyme Inhibitors	0.91 (0.70-1.17)	0.96 (0.72-1.28)	1.00 (0.79-1.27)	0.94 (0.68-1.29)
Angiotensin Receptor Blockers	<b>0.72 (0.55-0.94)</b>	0.97 (0.71-1.34)	0.93 (0.72-1.20)	1.00 (0.71-1.40)

Table 2: Multivariable association between number of incident VDs as a continuous variable and medication use.

	20% Criterion	25% Criterion	3 SD Criterion	4 SD Criterion
	IRR (p-value for trend)	IRR (p-value for trend)	IRR (p-value for trend)	IRR (p-value for trend)
Thiazide diuretics	0.81 (0.241)	0.81 (0.324)	0.76 (0.129)	0.71 (0.155)
Loop diuretics	0.61 (0.135)	0.42 (0.109)	<b>0.33 (0.016)</b>	0.56 (0.221)
Warfarin	1.02 (0.943)	0.81 (0.544)	1.40 (0.087)	0.99 (0.973)
Angiotensin Converting Enzyme Inhibitors	0.91 (0.475)	0.92 (0.595)	1.01 (0.967)	0.89 (0.500)
Angiotensin Receptor Blockers	<b>0.63 (0.004)</b>	0.98 (0.918)	0.86 (0.300)	0.93 (0.701)

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