Is the risk of venous thromboembolism overstated in primary nephrotic syndrome?

AJ Rankin, EP McQuarrie, JG Fox, CC Geddes, B Mackinnon.

Glasgow Renal and Transplant Unit, on behalf of the Scottish Renal Biopsy Registry

Background

The classic triad of nephrotic syndrome is proteinuria, hypoalbuminaemia and oedema. Some argue that hypercoagulability is also a key feature. Venous thromboembolism [VTE] has been reported to occur in 25-30% of adult patients with nephrotic syndrome. As a result, empirical anticoagulation has been advocated in certain situations [1].

Aim: To assess the incidence of thromboembolism in our population in comparison to reported rates.

Methods

All adult patients undergoing native renal biopsy for nephrotic syndrome between 2009 and 2012 in the Glasgow Renal & Transplant Unit were identified. Using the prospectively completed electronic patient record the incidence of VTE at any site was determined.

Results

Demographics

201 patients underwent first renal biopsy for nephrotic syndrome during the 4 year period. 63 were excluded for non-primary causes (diabetic nephropathy, amyloid, SLE and others) leaving 138 for analysis.

Table 1. Baseline demographics

Male	88 (64%)
Mean age at biopsy	55 years (SD 19)
Mean eGFR	75 ml/min/1.73m^2 (SD 42)
Median uPCR	767 mmol/mol (IQR 529-1223
Mean serum albumin	19.1 g/l (SD 7.1).

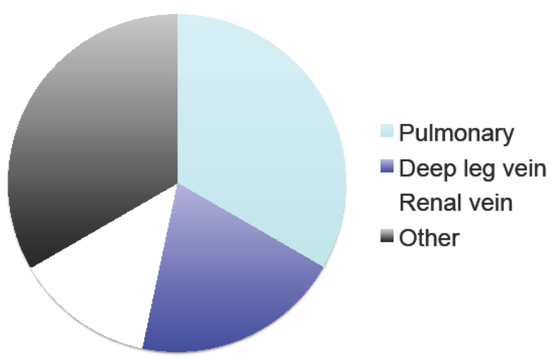
N = 138

Which patients suffered VTE and where?

- Median follow-up was 2.8 years.
- 15 (10.5%) suffered a VTE
- Mean age 58 years and 55% were male.

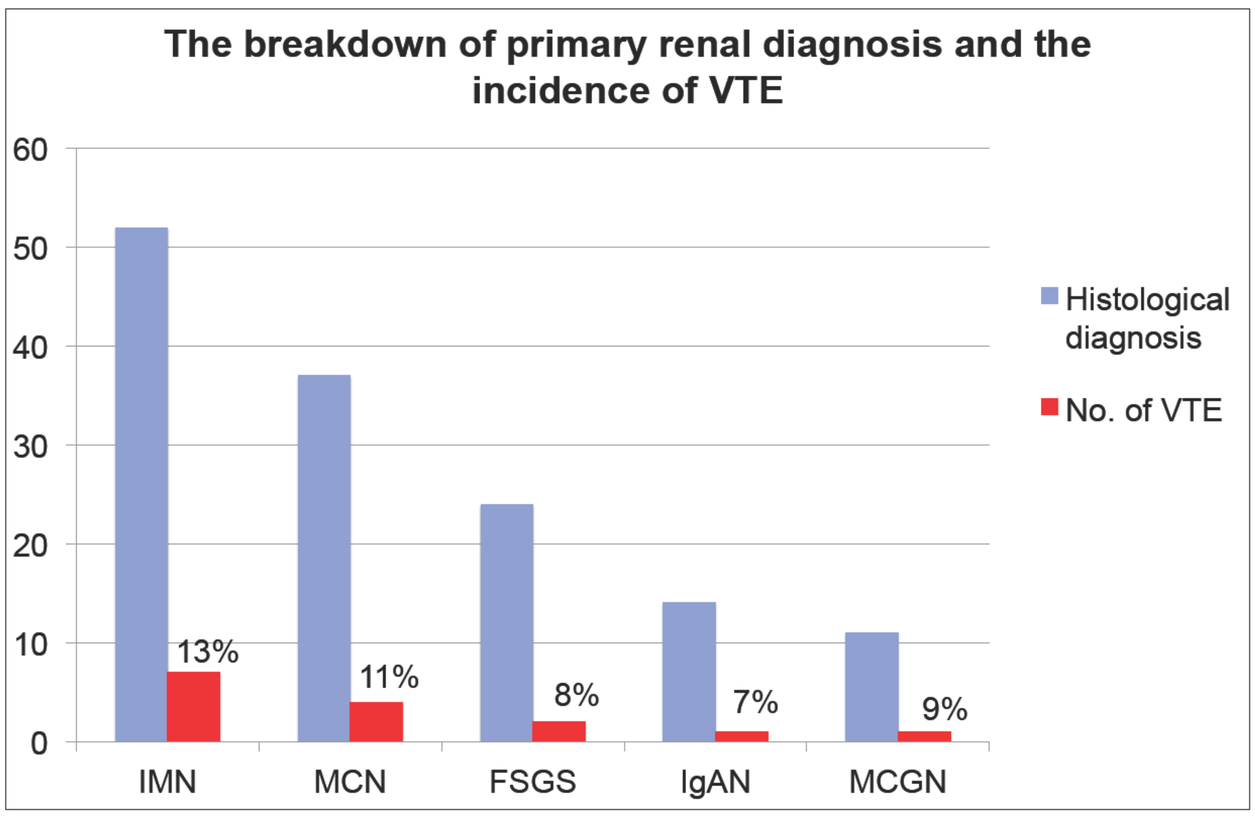
Table 2. Site of VTE

Pulmonary	5
Deep leg vein	3
Renal vein	2
Other	5



- 33% were prescribed an antiplatelet and 45% were prescribed a statin during follow-up.

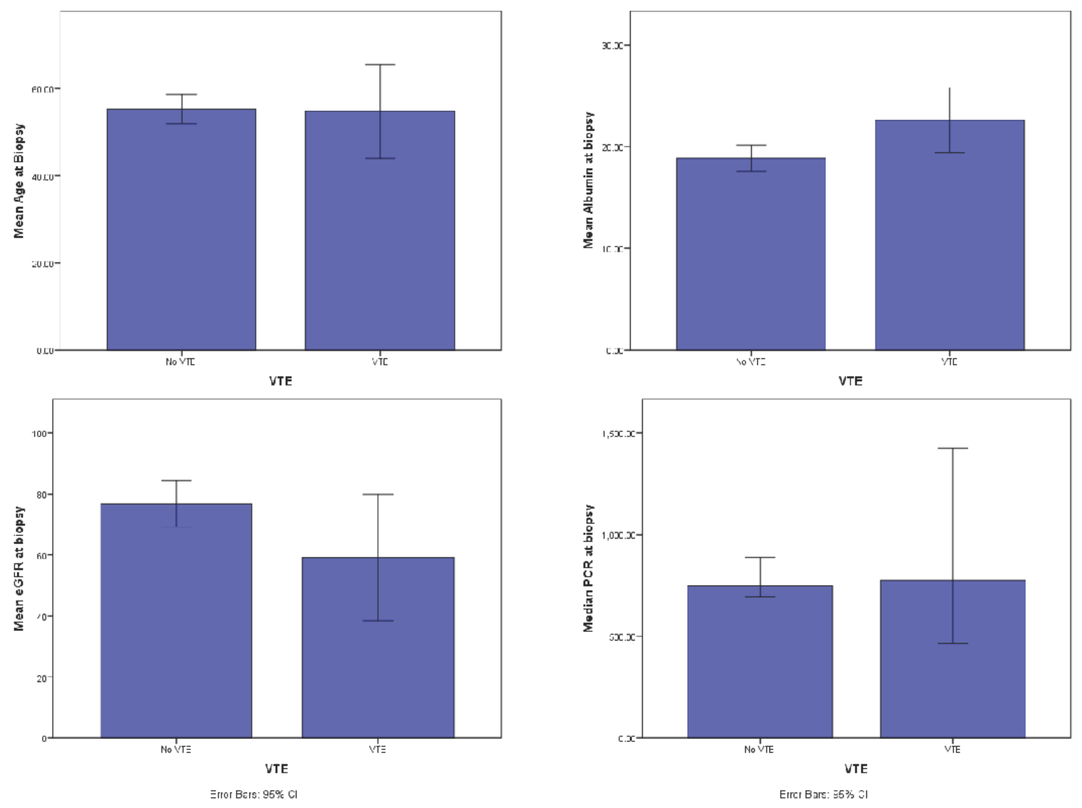
Incidence of each histological diagnosis and VTE



Results (continued)

VTE vs non-VTE

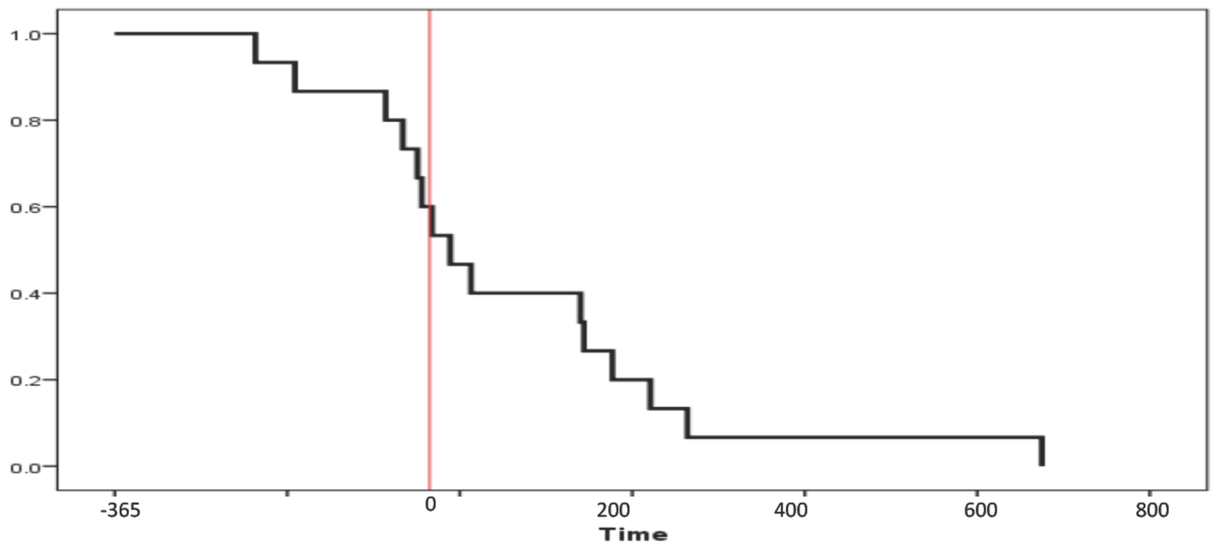
There was no significant difference at time of biopsy in the mean age (p=0.2), serum albumin (p=0.2), eGFR (p=0.1) or median uPCR (p=0.9) between those who suffered a VTE and those who did not.



At time of clot: mean serum albumin 23g/l (SD 11), median uPCR 714mmol/mol and mean eGFR 69 ml/min/1.73m^2 (SD 51).

Time to clot

The majority of clots occurred around the time of biopsy, with a median of 24 days (IQR -22 to 195) from biopsy until VTE. 6 (40%) of VTE occurred prior to biopsy.



Kaplein-meier plot showing the relationship between biopsy and timing of VTE in days. The red-line indicates time of renal biopsy.

Conclusions

- Our incidence of VTE at 10% is lower than quoted in the literature.
- The risk appears highest early in the course of nephrotic syndrome, with some events occurring prior to biopsy.
- There does NOT appear to be a disproportionately high risk in patients with idiopathic membraneous nephropathy compared to other causes.
- The risk of VTE does NOT appear to be associated with the severity of nephrotic syndrome.
- These data suggest that routine anticoagulation of patients with nephrotic syndrome, regardless of severity, may not be justified.

References

1. *KIDGO clinical guideline for glomerulonephritis 2012 http://www.kdigo.org/clinical_practice_guidelines/pdf/KDIGO-GN-Guideline.pdf*

Correspondence address: alastair.rankin@nhs.net

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Alastair Rankin

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