

Sex is an independent risk factor for venous thromboembolism in sickle cell disease

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Introduction

- Venous thromboembolism (VTE) is “a serious and under-recognized complication” of sickle cell disease (SCD)
- However, risk factors are not well characterized in this population
- Our study objectives:
 - To measure the prevalence of VTE among SCD patients in our health system
 - To describe the relationship between biological sex and VTE

Methods

- Retrospective chart review of SCD patients
 - Outpatient hematology clinic visit within the University of Pennsylvania Health System (UPHS) from June 2014 through June 2019
- Demographics and medical history were compared across those with and without a history of VTE
- Bivariate analyses were performed using chi-square tests
- Logistic regression models were developed to describe factors independently associated with VTE in the entire cohort, as well as among women only

Results

Figure 1. Prevalence of history of VTE among patients with SCD in UPHS.

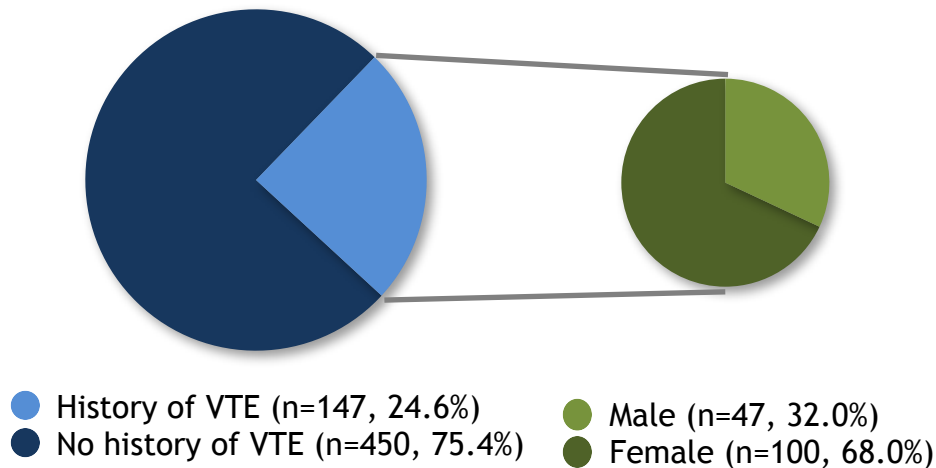


Table 1. Independent risk factors for VTE among patients with SCD in UPHS.

	Odds ratio	95% CI
Pulmonary hypertension	2.78	1.78-4.35
Avascular necrosis	1.94	1.29-2.92
Female sex	1.90	1.25-2.89
Hydroxyurea use	1.75	1.15-2.66
Stroke	1.74	1.10-2.74

Among women only:

- Bivariate analysis of parity showed no difference between those with and without history of VTE
- Logistic regression analysis revealed the following independent risk factors: pulmonary hypertension, end-stage renal disease, avascular necrosis, acute chest syndrome

Conclusions

- One-quarter of the SCD patients in our health system had a history of VTE, confirming significantly higher rates than in the general population
 - Similar to prevalence estimate of 25% in 404 SCD patients from 2013 cross-sectional study from Johns Hopkins
- Women had twice the odds of VTE compared to men, highlighting an important sex disparity in SCD disease outcomes
 - However, parity was not a risk factor for VTE in our analysis of women alone
- Data were limited on circumstances surrounding VTE event, including whether it was provoked and how it was treated



Future directions

What is the risk of VTE in women with SCD who are pregnant or using estrogen-containing contraception?



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