



# Low Socioeconomic Status Patients are at Increased Risk for the Development of VTE after Spinal Cord Injury

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## BACKGROUND

Patients who suffer acute spinal cord injury (SCI) are at an increased risk for development of VTE. Recent studies of large populations suggest a prevalence of nearly 5% despite thromboprophylaxis. Although the reason for this is unknown, previous studies have suggested that patients from low socioeconomic status (SES) populations are at increased risk. Medical comorbidities, medical history, and demographics have also been suggested to play a role in VTE development. These include history of VTE, hypercoagulable states, chronic renal, pulmonary, or cardiac disease, and ambulatory impairment. The current recommendation for VTE prophylaxis in these patients is LMWH or an increased dose of unfractionated heparin in patients with contraindications to LMWH. The efficacy of adding SCDs for acute SCI patients is controversial due to lack of definitive evidence. Nonetheless, SCDs are frequently used due to their low risk profile. Despite the use of chemoprophylaxis and SCDs, VTE prevalence after SCI remains markedly higher than in patients who experience other traumatic injuries.

## METHODS

A retrospective chart review was done of all patients brought to our institution from 2014 to 2019 with a history of acute SCI. VTE development was determined by positive imaging findings or high clinical suspicion.

## RESULTS

29 of the 148 patients (19.95%) included in this study were determined to have developed VTE after acute SCI. Factors associated with VTE development after SCI were mobility impairment, high BMI, history of DVT, CKD, thoracic or cervical cord injury, cancer history, and smokeless tobacco use. LMWH was associated with the lowest rate of VTE development. SCD use was not associated with a statistically significant decrease in VTE development.

Figure 1: VTE Prevalence by Study Group

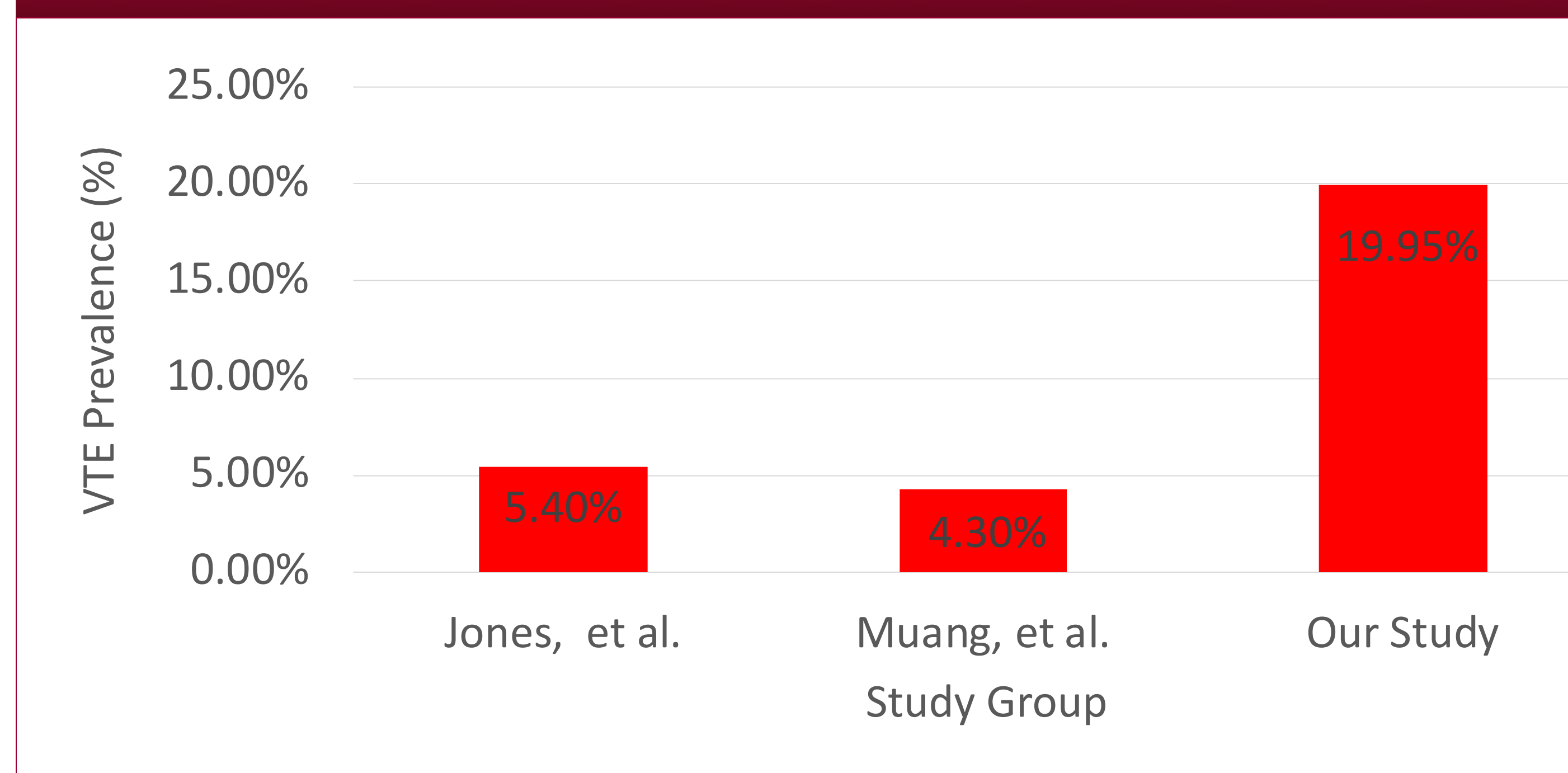


Table 1: VTE-Associated Patient Characteristics

Comorbidity	P-value
Mobility Impairment	0.0249
DVT History	0.0004
CKD	0.0465
Cervical/Thoracic Injury	0.0141
Cancer History	0.0292
Smokeless Tobacco Use	0.0171

VTE Category	BMI Avg, SD	P-value
VTE	25.11, 5.44	0.027
No VTE	27.42, 6.54	

## DISCUSSION AND CONCLUSION

Patients from low SES populations are at an increased risk for VTE development after acute SCI (19.95%) when compared to recent large population studies (~5%). Due to the VTE evaluation methods, patients were only screened after initial evaluation if symptomatic. The true prevalence is likely higher as many patients were either on ventilators after admission or lost sensation due to their injury. LMWH appears to be the most effective thromboprophylaxis in these patients. SCD use did not show a decreased risk of VTE development when used in conjunction with chemoprophylaxis. Low SES patients should be monitored more closely for VTE development due to the high risk for mortal complication. Higher attention should be paid to those with the medical comorbidities and characteristics associated with an increased risk of VTE development.

## REFERENCES

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