

Acute VTE in HIV versus Non-HIV population – Nationwide Analysis of Mortality, Morbidity, Demographics and Healthcare Utilization

M.J. Tariq¹, M.U. Almani¹, J. Tufail², M.A. Elsebaie¹, B. Baral¹, M. Usman¹, S. Gupta¹

¹John H Stroger Hospital of Cook County, Chicago, United States, ²Al Nafees Medical College and Hospital, Islamabad, Pakistan

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Background: HIV infection is considered a prothrombotic condition associated with a 2- to 10-fold increase in VTE in HIV-infected patients compared to general population.

Aims: We aim to compare outcomes of patients admitted with acute VTE with HIV (VTE-HIV) and without HIV (VTE-no-HIV).

Methods: US Healthcare Cost and Utilization Project National Inpatient Sample (HCUP-NIS) was queried to identify HIV and non-HIV acute VTE admissions between 2016-2018. We studied socio-demographic differences, medical comorbidities, healthcare utilization, all-cause mortality and secondary outcomes listed in Table-1. Statistics were performed using t-test and univariate and multinomial logistic regression.

Results: We identified 3050 VTE-HIV and 866,745 VTE-no-HIV admissions. VTE-HIV patients were significantly younger (mean age 51.6 vs 62.8 years), male (73% vs 48%), African American (AA) (59% vs 19%), admitted to teaching hospitals (81% vs 67%), on Medicaid (34% vs 12%), all $p < 0.001$. Rates of CKD, hemodialysis, liver disease and protein energy malnutrition were significantly higher in HIV-VTE while dyslipidemia, hypertension, obesity and smoking were significantly higher in VTE-no-HIV, all $p < 0.05$. VTE-HIV group had lower adjusted inpatient mortality (aOR 0.25, CI:0.13-0.48, $p < 0.001$) while mean length of stay (LOS) (5.6 vs 4.4 days, $p < 0.01$) and mean total hospital charges (THC) (54,961 vs 47,007, $p < 0.01$) were higher than VTE-no-HIV. Rates of thrombolysis, thrombectomy, cardiac arrest were similar while VTE-HIV was associated with lower rates of ICU admissions ($p < 0.05$). Table-1.

Outcome	Without HIV	With HIV	aOR (95% CI)	p-value
In-hospital mortality	2.3%	1.6%	0.25 (0.13-0.48)	0.00*
Secondary outcomes				
Length of Stay (mean) (days)	4.4 (4.3 – 4.4)	5.6 (4.7 – 6.5)	-1.2 (-1.6 to -0.9) [#]	0.00*
Total hospital charges (mean) \$	47,007 (46,350 – 47,665)	54,961 (48,136 – 61,786)	-7954 (-13307 to -2601) [#]	0.00*
tPA administration	4.8%	3%	1.1 (0.65 – 1.8)	0.7
Thrombectomy	2.9%	2.8%	1.3 (0.76 – 2.3)	0.3
Intracranial Hemorrhage	0.25%	0.16%	0.08 (0.01 – 0.58)	0.01*

Outcome	Without HIV	With HIV	aOR (95% CI)	p-value
Cardiac Arrest	1.1%	0.66%	0.51 (0.18 – 0.14)	0.19
ICU admission	2.4%	2.1%	0.52 (0.29 – 0.9)	0.026*

Abbreviations: *=statistically significant, #=unadjusted mean difference, aOR=adjusted odds ratio, CI=confidence interval, tPA=tissue plasminogen activator, ICU=Intensive Care Unit.
Adjusting factors: age, race, gender, hospital location and teaching status, hospital bed size and region, insurance, dyslipidemia, coronary artery disease, hypertension, diabetes mellitus, obesity, heart failure, chronic kidney disease, smoking, liver disease, hemodialysis, protein-energy malnutrition.

Clinical outcomes of patients admitted to hospital with acute VTE with and without HIV in the US from 2016 through 2018, analysis of National Inpatient Sample

Conclusions: VTE-HIV patients are younger, AA, men with significantly lower mortality and ICU-admissions compared to HIV-no-VTE but higher LOS and THC amounting to over \$24 million in 3 years. While higher prevalence of CKD and hemodialysis may partly explain the increased THC in HIV-VTE patients, these discrepancies between outcome and healthcare utilization need to be studied further to save costs.

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