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A RETROSPECTIVE COHORT STUDY OF PATIENTS WITH VENOUS THROMBOEMBOLISM (VTE): AN ANALYSIS FROM A HEALTHCARE MAINTENANCE ORGANIZATION (HMO) PERSPECTIVE IN BRAZIL

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BACKGROUND

Venous thromboembolism (VTE), that consists of the interrelated conditions deep-vein thrombosis and pulmonary embolism, is an under-appreciated vascular disease. VTE, that includes deep vein thrombosis (DVT) and pulmonary embolism (PE), affects 10 million people/year worldwide, being the second most common medical complication and a cause of excess length of hospital stay. Approximately 20% of individuals who have a venous thromboembolism event die within 1 year (although often from conditions that provoked the event), and complications are common among survivors. Its incidence and economic burden are expected to increase as the population ages. This study examined the cost of patients care from an HMO perspective.

FACTS

Venous thromboembolism (VTE) → Deep vein thrombosis (DVT) / Pulmonary embolism (PE)

10 million people/year worldwide

Second most common medical complication

Important cause excess length of hospital stay

Mortality 1 year: **20%**

Complications are common among survivors

Incidence and economic burden: increasing as the population ages

METHODS

Using administrative databases, we identified all incident cases of DVT/PE from September/2019 to August/2022. We calculated the annual direct medical costs from payer's perspective . The healthcare utilization and expenditure were categorized into patients treated with anticoagulants alone group, a sort of advanced therapies (AT) group (systemic thrombolysis (ST), catheter directed thrombolysis (CDT), mechanical thrombectomy (MT) or surgical embolectomy (SE)), and other treatments group. Top-down costing involves dividing the total expenditure for a given set of patients by the total number of services provided to estimate the average unit cost. All unit costs were converted from Brazilian Real to US Dollar (R$ 1.00/USD$ 5.19). To enable valid comparisons, the same costing methodology was applied to all treatments. Descriptive summary statistics were produced, stratified by groups and statical test used to compare cost (significance when p<.05).

RESULTS

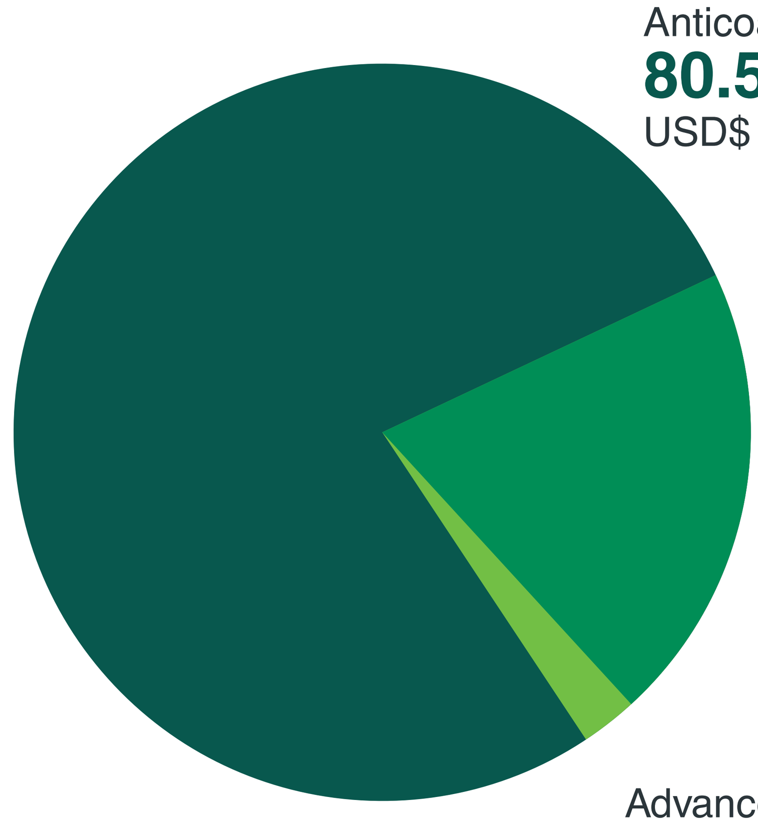
From total of 11,145 admitted, 437 patients (3.9%) were diagnosed with VTE–286 women and 151 men, mean (SD) ages of 72.5(15.3) and 73.9(14.0) years, respectively. Treatment consisted of anticoagulation alone were 80.5% of cases, AT were performed in 13 cases (3.0%) and 16.5% with other treatments. In this period, the number of advanced therapies in private healthcare system registered by national health regulatory agency was, 34.2 per 100,000 which is close to showed in this study (31.9 per 100,000). The VTE all-cause mortality in 36 months was 21.7%. Inpatient treatment, post-acute therapies, including rehabilitation, imaging and lab investigations cost were USD$9,628 per patient/year in anticoagulation alone group, USD$20,020 for AT and USD$2,238 for other treatments (p<.0001). In AT patients, the mean length of stay in the hospital after the procedure was 13.9 days.

VTE (n = 437)

Females 65.4% (n = 286, 72.5 years old)

Males 34.6% (n = 51 , 73.9 years old)

Treatments



Venous thromboembolism (per 100,000)

Brazil, private market 34,2

Study 31,9

CONCLUSIONS

VTE is an underappreciated source of morbidity and mortality worldwide. The major risk factors for VTE include recent hospitalization, recent surgery, cancer, and immobilization. VTE is preventable, and the risk of VTE is a marker of adverse conditions at the levels of the individual, society and health systems. At the individual level, obesity and lack of physical exercise increase the risk of VTE. These factors are often caused by adverse societal conditions, such as a lack of access to high-quality nutrition or safe places to exercise. All measurements of obesity are predictors of the risk for VTE. Positive associations were found between VTE and body weight, body mass index (BMI), waist circumference, hip circumference, and total body fat mass. At the health systems level, opportunities are missed to provide effective preventive measures during hospitalization or after selected interventions, or in individuals with a personal or family history of VTE. T In the past decades, several changes in the prevention, diagnostic strategies, and management of venous thrombosis have been achieved. Costs for VTE treatment are considerable and increasing faster than general inflation for medical care services, with hospitalization costs being the primary cost driver. Results observed reinforce the need for targeted prevention of risk factors for VTE and improvements in in-hospital management to decrease morbimortality and optimize allocations of resources.

KEY POINTS

- Venous thromboembolism (VTE) surveillance systems are lacking, but VTE is estimated to affect one to two individuals per 1,000 person-years in Europe and the USA, with lower rates in other regions
- Risk factors for VTE are varied, and include triggers (acute and subacute), basal risk factors (demographic, behavioral, anthropometric, and genetic) and acquired clinical risk factors
- Numerous complications can occur after a VTE event, and quality of life can decrease
- Reduction in the risk of VTE and adverse outcomes after a VTE event will require prevention across the spectrum of prevention stages (primordial, primary and secondary) and increased awareness of this under-appreciated condition
- Disparities exist in VTE incidence and outcomes. Reducing these disparities will require individual, systems-based and societal commitments to equity.

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