ECONOMIC BURDEN OF VENOUS THROMBOEMBOLISM IN THE GENERAL POPULATION AND AFTER MAJOR ORTHOPAEDIC SURGERY—RESULTS OF A SYSTEMATIC LITERATURE REVIEW

Steinle T1, Ruppert A2, Lees M3
1Steinle-Health Economics and Outcomes Research, Munich, Germany, 2MS Consulting, Cambridge, UK, 3Bayer HealthCare, London, UK

OBJECTIVE: The estimated annual incidence of venous thromboembolism (VTE) is 5–12 per 10,000 and ~10% of hospital deaths are attributable to pulmonary embolism (PE). Despite prophylaxis, 1–3% of patients undergoing major orthopedic surgery (MOS) develop symptomatic deep vein thrombosis (DVT). The incidence of recurrent VTE (DVT and PE) is ~20% and 33–50% of patients develop post-thrombotic syndrome (PTS). Despite the extensive health care burden of VTE, there is no systematic review of the associated costs. The objective of this study was to estimate the costs of VTE in the general population, and in patients undergoing MOS. METHODS: A systematic literature review was performed, which focused on “all-cause” VTE and VTE following MOS. Included studies had to identify and measure, in clinical practice, health care utilization and the economic consequences of VTE and associated complications, including recurrent VTE, PTS and bleeding events. RESULTS: Annual costs per patient for all-cause VTE were $10,804–33,200 in the US and ~€4000 in Europe. Following MOS, annual treatment costs per patient for VTE were €8265 in Europe. In the US, charges for the surgical admission were $52,037 for patients with VTE compared to $34,485 for those without. Complications associated with VTE and its treatment, described above, were frequent. Following MOS, the 1-year cumulative incidence of recurrent DVT was ~24%, ~6.5% for PE, with additional annual treatment costs in the US of up to $6400. European studies suggest that, despite the low cost of prophylaxis, the overall costs of VTE are approximately half the costs associated with MOS. The main cost drivers were inpatient care and hospitalization for recurrent events. CONCLUSION: VTE occurs frequently and is a major cost and resource burden for health care systems, particularly after MOS. Prophylaxis regimens that can reduce the incidence of VTE might enable significant cost savings to be achieved.

UP-TITRATION OF STATIN THERAPY TO MEET CANADIAN TARGET LIPID GOALS: ECONOMIC IMPACT OF TITRATION ASSOCIATED WITH COMPARATIVE EFFICACY OF ROSUVASTATIN, ATORVASTATIN, SIMVASTATIN AND PRAVASTATIN

Friall T1, Beamer B1, Costa-Scharplatz M2
1AstraZeneca Canada Inc, Mississauga, ON, Canada, 2AstraZeneca, Södertälje, Sweden

OBJECTIVE: To evaluate and compare the relative medical costs associated with up-titration of statin therapy (Rosuvastatin, Atorvastatin, Simvastatin, Pravastatin) in order to reach Canadian Lipid Goals. METHODS: Efficacy measures and Canadian LDL-C goal attainment rates on the studied statins were derived from a head to head RCT (McKenney JM et al. 2003). The need for up-titration was modeled during 3-month intervals for a period of one year based on the goal attainment rates for each statin and dose. The total number of physician visits and up-titration from the initial start dose to target lipid goals was captured and associated medical costs were calculated. Medical costs consisting of the physician visits and lab costs were derived from the Ontario Health Insurance (OHIP) Schedule of Benefits and Fees. RESULTS: After initiation on 10 mg for each statin, out of a cohort of 100 patients for each treatment arm, 15 patients required dose up-titration to target lipid goals with Rosuvastatin, 32 with Atorvastatin, 34 with Simvastatin, and 56 with Pravastatin. Additional up-titration to higher doses was further required for 1 patient on Rosuvastatin, 8 on Atorvastatin, 13 on Simvastatin and 20 patients on Pravastatin. Over one year, 16% of patients treated with Rosuvastatin need to be titrated compared with 40% on Atorvastatin, 47% on Simvastatin and 76% on Pravastatin. Total costs for general physician visits and up-titration was estimated to be $6516 for Rosuvastatin, $7849 for Atorvastatin, $8244 for Simvastatin, and $9834 for Pravastatin. CONCLUSION: Statins differ in efficacy at getting patients to target lipid goals. Differences in efficacy can translate for a need of dose titration, and potential increased costs in direct medical expense. This analysis shows that Rosuvastatin may offer increased savings in physician visits and lab costs since fewer patients need to be up-titrated to meet target lipid goals.

A FLEXIBLE TOOL TO ESTIMATE MEDICAL-CARE COSTS FOR STUDY EVENTS IN CARDIOVASCULAR ENDPOINT TRIALS

Thompson D1, O’Sullivan AK1, Rubín J1, Nyambos J1, Kuznik A1, Lee P2, Cohen DJ1, Crown W1, Weinstein MC2
1i3 Innovus, Medford, MA, USA, 2Pfizer Inc, New York, NY, USA, 3Harvard School of Public Health, Boston, MA, USA

OBJECTIVE: Cardiovascular endpoint trials are increasingly being performed in phase IV evaluations of antihypertensive, cholesterol-lowering, and glucose-lowering medications. To facilitate the conduct of economic evaluations in such studies, we developed a flexible tool to permit researchers to assign medical-care costs to events commonly included in cardiovascular endpoint trials. METHODS: We used econometric techniques to fit generalized linear models to administrative data (Ingenix) on longitudinal costs of care for patients experiencing various cardiovascular events, including myocardial infarction, cardiac arrest, stroke (hemorrhagic & ischemic), transient ischemic event (TIA), revascularization procedures (CABG, PTCA, stenting), and various cardiovascular-related hospitalizations. Separate regression equations were estimated for patients who had these events as well as for their propensity-score matched controls. Costs of care (net of controls) were estimated on a monthly basis for the first 36 months following each event and then annually thereafter, with differences in survival between cases and controls factored into the longitudinal cost calculations. The regression models included covariates for age, sex, cardiovascular disease registry, and comorbidity profile to permit differential estimation of event costs for patients of varying characteristics, as would be observed in cardiovascular endpoint trials. RESULTS: Mean costs of care (2006 US$) for fatal events were $18,970 for MI, $12,630 for cardiac arrest, $19,830 for hemorrhagic stroke, and $11,930 for ischemic stroke. Mean costs over 36 months for nonfatal events were $36,370 for MI, $36,020 for resuscitated cardiac arrest, $59,270 for hemorrhagic stroke, $30,150 for ischemic stroke, $8190 for TIA, $30,650 for CABG, and $27,780 for PTCA with stenting. Results differ by age, sex, and patient characteristics. CONCLUSION: The costing tool permits rapid assignment of medical-care costs to events occurring in cardiovascular endpoint trials. Widespread use of this tool will permit standardization of event costing in piggyback economic evaluations in endpoint trials as well as in cardiovascular modeling studies.