A COST-OF-ILLNESS ANALYSIS OF ATRIAL FIBRILLATION IN SWEDEN

Ericson L1, Bergfeldt L1, Borjohl J1

1Nordic Health Economic Research AB, Gothenburg, Sweden, 2 Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

OBJECTIVES: Atrial fibrillation (AF) is the most common cardiac arrhythmia. The prevalence among adults is estimated to be ≥1% in Sweden, increasing with age to nearly 10% among those over 80. The proportion of elderly will rise in coming years resulting in a higher prevalence of AF and probably increasing costs to the Swedish society. The aim of the present study was to estimate the annual cost of AF from a Swedish perspective. In addition, validity of data and problems regarding diagnosis coding were evaluated. METHODS: Prevalence-based cost-of-illness analysis of AF based on data from medical and non-medical, as well as indirect costs, were considered. Data were based on information from the literature, Swedish registries, and an expert panel. RESULTS: The annual total cost of AF was estimated to be SEK660 million (approximately €600 million); direct medical costs 84%, direct non-medical costs 4%, and indirect costs 12%. The key driver (55%) of the result was the direct cost of heart failure and stroke, both having developed as a consequence of AF. Data from the registries were somewhat difficult to interpret due to possible miscoding or ambiguity in data inputs. In particular there was uncertainty associated with the coding of primary and secondary diagnosis as the cause-and-effect relationship varies between patients. CONCLUSIONS: This is the first comprehensive analysis of the direct and indirect costs of AF and its main complications in Sweden. The results showed the annual cost of AF is very high, but it is still likely to be underestimated as a conservative approach was applied in the analysis. This suggests further research is needed.

CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION (CTEPH)

OBJECTIVES: Estimate annual direct costs for privately-insured US chronic thromboembolic pulmonary hypertension (CTEPH) patients and matched controls. METHODs: From a privately-insured claims database (≥8 million beneficiaries, 2002–2007), 423 CTEPH patients were identified as having ≥2 claims for pulmonary hypertension (ICD-9: 416.0, 416.8); ≥1 claim for pulmonary embolism (ICD-9: 415.1, V12.51); ICD-9 procedure: 38.7; CPT-4: 3610, 37620, 73825, 73940; HCPs: CTEPH: ≥3 claims within 12 months prior or 1 month after the initial pulmonary hypertension diagnosis or index date; age 18–64. Patients with CTEPH were matched demographically to controls without pulmonary hypertension. All were required to have continuous coverage for 6 months before (baseline) and 1 month after index date. A variable study period was used to follow patients as long as continuously eligible; mean follow-up was 20.5 months. Chi-squared tests were used to compare baseline comorbidities. Wilcoxon rank-sum tests were used for univariate comparisons of direct (medical and pharmaceutical) patient-month costs to insurers for CTEPH patients vs. controls. RESULTS: Average age for patients with CTEPH was 52.4 years, and 58.20% were women. Compared with controls, CTEPH patients had significantly higher baseline comorbidity rates (e.g., essential hypertension, congestive heart failure, chronic pulmonary disease, and diabetes) and a higher Charlson Comorbidity Index. Mean (median) direct patient-month costs were $4556 ($3159) for CTEPH patients and $4128 ($3080) for controls (p < 0.0001), yielding excess costs of $4151 ($2150). Total direct patient-month costs accounted for 53%, outpatient services for 33%, and drug costs for 12% of CTEPH patient-month direct costs. Circulatory/systemic resource-related patient-month costs were $2289 ($1617) among CTEPH patients and $110 ($7) among controls (p < 0.0001), yielding excess costs of $2179 ($5610). CONCLUSIONS: Patients with CTEPH had substantially higher costs than matched controls. Circulatory/systemic resource-related costs represented 51% of the costs of patients with CTEPH and 54% of the difference in costs between patients with CTEPH and controls.

THE COST-OF-ILLNESS OF ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW

Wallace SE1, Samuel M1, Brennan WC1, Jasso-Mosqueda JG2, Van Gelder IC2

1RTI-Health Solutions, Manchester, UK, 2Sanofi-Aventis, Paris, France

OBJECTIVES: Atrial fibrillation (AF), the most common cardiac arrhythmia, is strongly associated with increased risk of stroke and thromboembolism. AF prevalence increases with age. In many countries there is a growing awareness of the economic burden associated with AF in light of ageing populations and constrained public finances. This study searched to review recent estimates of the cost of illness associated with AF. METHODS: A systematic review was performed of Medline, Embase, Cochrane Library, HS Economic Evaluation, HTA and DARE databases, and conference abstracts, from 1990 to date. Total costs, direct and indirect costs were extracted. Inclusion criteria were AF or atrial flutter patients. This included: persistent, permanent, and paroxysmal AF. Exclusion criteria were costs of AF and costs of non-AF controls. RESULTS: A total of 875 records were retrieved and 34 studies were included. The burden of AF is high and is increasing over time. Direct cost estimates ranged from $2,000 to $12,000 per person per year in the USA, and from €600 to €3,000 in Western Europe. This is high or equivalent compared to estimates for other chronic conditions as diabetes (CADS366; Canada 1999) and chronic angina (US4894; USA 1999). The direct cost of managing AF represented 0.9%–2.4% of the national health care budget for the UK (2000) and had approximately doubled over the previous 5 years. Inpatient care and interventional procedures represented the largest cost component (50%–70% of total costs). In the USA, AF hospitalisations alone cost an estimated $6.65 billion per annum (2005). If indirect costs were included, cost estimates increased by up to 20% over direct costs alone. CONCLUSIONS: The economic burden of AF is high in comparison to other chronic conditions, and is expected to increase over time due to population ageing; hospitalisations represent the main cost driver.