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ANNUAL MEDICAL EXPENDITURE AND MORTALITY RELATED TO ACUTE CORONARY SYNDROME (ACS) IN THE UNITED KINGDOM – A SYSTEMATIC REVIEW

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OBJECTIVES: Overall expenditure for the treatment of ACS imposes a heavy burden on global health care systems. As new treatments and procedures have become available in the past decade, the cost to healthcare systems has increased, yet mortality rates have remained relatively high. A recent research effort was undertaken to benchmark expenditures and outcomes in patients with ACS. The aim of this study was to understand the efficiency of resource use, in relation to mortality for patients with ACS in the UK. **METHODS:** A systematic literature search of 11 databases and secondary desk research were performed to identify ACS related expenditure and outcomes. Data were retrieved for UK patients with MI (STEMI, NSTEMI) and unstable angina. The reported cost data were extracted for hospitalizations, procedures, pharmaceutical treatment, and monitoring; mean annual expenditure per patient was estimated based on of these cost components. Outcomes focused on ACS mortality rate over the entire UK population. **RESULTS:** In the UK, the overall annual mortality rate for ACS was found to be 0.0473%. Total annual expenditure for all patients with ACS was £392,245,277 (£3,733 per patient). Results showed hospitalizations to be the main cost driver, accounting for 65.7% of the total annual cost. Procedure costs represented 24.5% of the total cost, whereas pharmaceutical treatment and monitoring costs accounted for 5.3% and 4.5%, respectively. **CONCLUSIONS:** The findings of this systematic review demonstrate that hospitalization cost accounts for almost two thirds of the total direct cost associated with ACS in the UK. More research and cross-country comparison are needed to determine treatment strategies which provide greater efficiency in resource use for the management of ACS.

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COST-EFFECTIVENESS OF DABIGATRAN FOR THE PREVENTION OF STROKE IN PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION IN AUSTRALIA

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OBJECTIVES: The objective of this cost-utility analysis was to compare the costs and effectiveness of dabigatran (DAB) with adjusted dose warfarin (WAR), aspirin (ASP) or no treatment (UNT) in patients with Non-Valvular Atrial Fibrillation (NVAF), from the perspective of the third party payer in the Australian public healthcare system. **METHODS:** A Markov cohort model was constructed based on the pivotal RE-LY clinical trial and indirect comparisons with aspirin and no treatment. The model calculated the incremental cost per QALY of different dabigatran doses (150 mg BID or 110 mg BID) relative to adjusted-dose warfarin, aspirin or no treatment. The model estimated the number of ischaemic strokes (IS), haemorrhagic strokes (HS), systemic embolic events (SEE), intracranial haemorrhages (ICH), transient ischaemic attacks (TIA), extra-cranial haemorrhages (ECH), minor bleeds (MB) and myocardial infarctions (AMI) associated with the respective treatments. The key consequences of the clinical events were costs, disability and/or reduction in quality of life, and death. The costs, morbidity and mortality of IS and HS in Australia were estimated from a patient audit of 3,307 strokes in Australia. **RESULTS:** The dabigatran treatment groups were associated with greater life years and QALYs compared with all the other treatment groups. These gains were primarily driven by a lower incidence of IS, SEE, TIA, ICH and HS in most comparisons. Incremental cost per QALY ratios were calculated by comparing the expected utilisation of the dabigatran doses (50% of patients using each dose) with current utilisation of adjusted-dose warfarin (40%), aspirin (40%) and no treatment (20%). The incremental cost per QALY of dabigatran was $10,028. Sensitivity and subgroup analyses consistently demonstrated the cost-effectiveness of dabigatran. **CONCLUSIONS:** Treating patients with dabigatran represents a cost-effective treatment for preventing strokes in patients with NVAF in Australia.

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ARE HOSPITAL COSTS FOR STROKE UNDERESTIMATED IN SPAIN?

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OBJECTIVES: To estimate the costs for the first clinically diagnosed stroke, in Spain. **METHODS:** Observational prospective study conducted in 16 Spanish centers (CONOCES study; Costes Socioeconómicos del Ictus en España). Patients will be followed during a 1 year period; 3 visits will be performed (inpatient hospitalization due to stroke, 3 and 12 months after stroke). Patient inclusion was controlled by the presence of Atrial Fibrilation (AF). Currently, hospitalization data from the first visit has been collected including patients' demographics, stroke severity, patient status and QoL at discharge, and direct resource consumption: length of stay, imaging and laboratory tests, specific therapeutic interventions (thrombolysis, decompressive craniectomy, angioplasty. . .), supporting therapies, and medication. Unitary costs were obtained from national healthcare databases and the Spanish Catalogue of Medicinal Products (€, year 2011 values). **RESULTS:** A total of 322 patients were recruited from November 2010 to May 2011. Preliminary results from the first visit showed the following characteristics: 50.3% had AF, mean age of 71.95+11.57, 44.6% female, 28.6% with intravenous thrombolysis, NIH 6.72+8.11, modified Rankin Score 3.04+1.85, Barthel index 56.71+38.68. Mortality rate during stay was 6.2%. Only 257 patients were evaluable for economic purposes. Mean length of hospital stay was 9.65 days (95%CI, 8.71-10.60). Mean inpatient cost per patient was €6428 (95% confidence interval [CI], €5912-€6943). The most relevant categories of costs were inpatient hospitalization (€3960, 95%CI, €3574-€4347, 61.6% of direct hospitalization costs), specific therapeutic interventions (€984, 95%CI, €783-€1185, 15.3%), imaging tests (€951, 95%CI, €878-€1024, 14.8%), medication (€302, 95%CI, €209-€394, 4.7%), laboratory tests (€145, 95%CI, €126-€164, 2.3%), and supporting therapies (€86, 95%CI, €45-€127, 1.3%). **CONCLUSIONS:** The inpatient economic burden of stroke in Spain is substantial because of long hospital stays and other health resource utilization. Results from this study show higher costs than previously published data.

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INFLUENCE OF SMOKING ON THE USE OF HEALTH-CARE RESOURCES AND COSTS IN PATIENTS WITH CARDIOVASCULAR DISEASE

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OBJECTIVES: To determine the effect of the use of tobacco in the consumption of health care resources and their associated costs in patients who have suffered some kind of cardiovascular event (CVE) in a populational scope. **METHODS:** Multicentric observational study undertaken through the retrospective review of the medical records of patients at six primary health-care centres and two hospitals. Inclusion criteria: subjects > 30 years, who requested health care after suffering a CVE between 2003 and 2007. Follow-up: 36 months. Groups: smokers, ex-smokers and non-smokers. Variables: Main measures: sociodemographics, comorbidities, resources used and total costs (health related, [primary care settings and hospitals] and productivity losses [absenteeism days]). Statistical analysis: logistic regression model and ANCOVA (procedure: marginal means; adjustment: Bonferroni); $p<0.05$. **RESULTS:** A total of 2540 patients fulfilled the inclusion criteria (smokers: 8.4%, ex-smokers: 52.9%, non-smokers: 38.7%). Mean age: 68.1 years old; men: 60.7%. Smoking addiction was related with COPD (OR=2.4; 95%CI: 1.7-3.5) and depressive syndrome (OR=1.5; 95%CI: 1.1-2.2). Smokers patients, compared to ex-smokers and non-smokers, needed more hospitalization days (2.4 vs. 1.7 and 1.1; $p<0.001$), more specialized health care visits (2.2 vs. 1.5 and 1.3; $p<0.001$) and incurred more absenteeism days (36.7 vs. 30.7 and 10.5; $p<0.001$) respectively. Total costs: €16.8 millions (health related: 78.4%; productivity losses related: 21.6%; mean annual cost/patient: €6,309.8). Annual costs were higher among smokers in comparison with ex-smokers and non-smokers (€ 7,980.70 versus € 7,322.10 and € 5,618.90; $p < 0.001$); in terms of both health-care costs (€ 6,272.90 versus € 5,672.50 and € 4,822.90; $p < 0.001$) and losses of productivity at work (€ 1,707.70 versus € 1,649.60 and € 796.00; $p < 0.001$), respectively. **CONCLUSIONS:** In routine clinical practice, smokers patients compared to ex-smokers and non-smokers, show a higher cost from a societal perspective, both in health care related costs and in labour productivity losses.

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DIRECT HEALTH CARE COSTS OF ORAL ANTICOAGULANT TREATMENT IN PATIENTS WITH NON VALVULAR ATRIAL FIBRILLATION

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OBJECTIVES: To quantify direct health care costs of oral vitamin K antagonist anticoagulant treatment in patients diagnosed with non valvular atrial fibrillation (NVAF). We examine whether a correlation exists between poor INR control and direct health care costs. **METHODS:** We designed an observational study. We revised the clinical histories of patients diagnosed with NVAF and treated with OATs at the Fundación Jiménez Díaz (FJD) between 01/10/2009 and 30/09/2010 (N=1,257). We collected INR value, number of visits due to INR control, type of anticoagulant (warfarin or acenocoumarol), hospital admissions due to complications and other current medication. The cost of all drugs was assumed to be the official price. Expenditure in INR control was calculated using the costs of all health care resources involved in the procedure. We used DRGs for the cost of each hospitalisation. The cost of a hospital visit was calculated using four scenarios, using actual invoices or using analytical accountancy methods. All costs are expressed in 2010 euros. **RESULTS:** The monthly average number of visits per patient was 1.17. Direct health care costs are in the range of 423,695€ and 1,436,038€. The average cost per patient varies between 392€ and 1,341€. The average cost of those patients with an INR within therapeutic range in 25% of the visits was 441.70€-1,592€. When INR was within therapeutic range in 25%-50% of the visits the average cost was 512.37€-1,703.91€. INR within therapeutic range in 50%-75% of the visits represented an average cost of 400.80€-1,375.74€. When INR was within therapeutic range in over 75% of the visits the average cost decreased to 305.23€-1,049.84€. **CONCLUSIONS:** The main part of direct health care costs of treating NVAF patients with OAT are due to hospital control in a specialised area and the high frequency of the visits. There is an inverse relationship between good INR control and direct health care costs.