

## Healthcare costs associated with non-valvular atrial fibrillation: a population-based study

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**Background** The growing epidemic of non-valvular atrial fibrillation (NVAF), with its associated morbidity and mortality, makes this disease a public health crisis. The knowledge of the healthcare cost associated to the NVAF is important for decision-makers in order to improve the efficiency of care delivery for those with this particular health condition.

**Objective** To determine direct healthcare costs associated with NVAF and to estimate their predictors.

**Methods** A population-based cohort study was conducted using administrative data from a local health authority in the Campania Region (~1,000,000 inhabitants). NVAF was defined as one or more claims for atrial fibrillation (ICD-9-CM code 427.31) between January 1, 2005 and June 30, 2014, where none of the claims was associated with cardioversion or cardiac ablation and there was no evidence of valve-related diagnoses or procedures. All patients were followed from June 30, 2014 until death or end of study follow-up (December 31, 2014). The direct costs were reported as average annualized cost (per patient per month multiplied by 12). Costs were divided into hospitalizations, outpatient services and pharmacy claims. Generalised linear mixed models under gamma distribution were used to identify predictors of cumulative healthcare costs. Rate Ratios (RRs) and 95% confidence intervals (CIs) were adjusted for age, gender, incident patients, switcher, CHA2DS2-VASc and HAS-BLED clinical risk score.

**Results** Totally, 10,099 patients fulfilled our study criterions. The total annualized direct cost of NVAF patient was 1,627.9 euro  $\pm$ 1,076.6. The main cost component was the hospitalization (68.0%), followed by drug use (24.6%) and outpatient services (7.4%). The predictors of the total cost were male (RR: 1.37, CI: 1.29-1.45 versus female), incident (RR: 4.60, CI: 4.30-4.92 versus prevalent patient), switcher (RR: 1.88, CI: 1.72-2.06 versus no switcher), CHA2DS2-VASc score (RR: 6.34, CI:5.08-7.92 for score 7 versus score 0) and HAS-BLED (RR: 1.36, CI:1.25-1.48 for score >3 versus score  $\leq$ 3).

**Conclusions** NVAF places an enormous burden on health care system. Incident patients and CHA2DS2-VASc score are strong predictors of direct healthcare costs. Hospitalization as major cost driver highlights the potential cost-effectiveness of disease management targeted at reducing the risks of serious cerebrovascular events among NVAF patients.

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