The burden of stroke in Sweden
Studies on costs and quality of life based on Riks-Stroke, the Swedish stroke register.

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Akademisk avhandling

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Abstract

The costs for stroke management and reduced health related quality of life (QoL) can extend throughout life as mental and physical disabilities are common. The aim of this thesis was to quantify this stroke-related burden with data from Riks-Stroke (RS), the Swedish stroke register.

Costs for hospital and primary care, secondary drug prevention, home and residential care services, and production losses were estimated for first-ever stroke patients registered in the RS. The present value lifetime costs were estimated from the expected survival and discounted by 3%. Quality of life was estimated with the EQ-5D instrument on a subset of patients at 3 months after the index event and mapped to patient-reported outcome measures in the RS. Standard descriptive and analytic (multivariate regressions) statistical methods were used.

The life-time societal present value cost per patient in 2009 was approximately €69,000 whereof home and residential care due to stroke was 59% and indirect costs for productivity losses accounted for 21% (year 2009 prices). Women had higher costs than men in all age groups. Treatment at stroke units had a low incremental cost per life-year gained compared to patients who were not treated at such facilities. The estimated disutility from stroke was greatest for women and the oldest, and compared to 1997 the cost per patient increased after a revised assumption. Hospitalisation costs were stable while long-term costs for ADL support increased in part due to a changed age structure. Patients with atrial fibrillation (AF; 24%) had €367 higher inpatient costs compared to non-AF stroke patients €8,914 (P<0.01; year 2001 prices). As the index case fatality was higher among AF patients, the cost difference was higher for patients surviving the first 28 days. A multivariate regression showed that AF, diabetes, stroke severity, and death during the 3-year follow-up period were independent cost drivers. Three regression techniques (OLS, Tobit, CLAD) were chosen for mapping EQ-5D utilities to patient-reported outcome measures in the RS. The mean utility was overestimated with all models and had lower variance than the original data.

In conclusion, total societal lifetime cost for 22,000 first-ever stroke patients in 2009 amounted to €1.5 billion (whereof production losses were €314 million). About 56,600 QALYs were lost due to premature death and disability. Including a preference-based QoL instrument in the RS would allow cost-utility analyses, but it is important to control for confounders in comparator arms to avoid bias.

Keywords

Stroke, atrial fibrillation, cost of illness, utility, mapping, Sweden