

HEALTHCARE RESOURCE UTILIZATION AND COSTS OF CARDIOEMBOLIC STROKE IN THE REGION OF MADRID, SPAIN. CODICE STUDY: PRELIMINARY RESULTS

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OBJECTIVE

The objective of this study was to estimate the healthcare resource utilization and direct costs of cardioembolic stroke in patients treated in public hospitals of the Region of Madrid (Spain).

METHODS

An observational, prospective study was performed in 5 Neurology services from hospitals in the Region of Madrid, 2 with stroke units (SU) and 3 without stroke units (wSU).

Patients with a diagnosis of cardioembolic stroke with ≤ 48 hours were recruited in a 4-month period in 2012 and followed during hospitalisation and rehabilitation.

Table 1. List of participant centers

Participant centers	SU	Patients
HU La Princesa	Yes	14
HU Gregorio Marañón	Yes	11
HU Fundación Alcorcón	No	29
HU Príncipe de Asturias	No	16
HU Infanta Sofía	No	6

Patients' socio-demographic, clinical data: disability (modified Rankin scale, mRs), hospital length of stay and mortality; complications and healthcare resource utilization (hospitalisation, in-patient and at discharge rehabilitation, medication, laboratory tests and specific therapeutic interventions) were collected.

Unitary costs were obtained from national healthcare database and the Spanish Catalogue of Medicinal Products (€, year 2012).

RESULTS

Preliminary descriptive results from 76 patients (25 SU, 51 wSU) were shown in table 2.

Table 2. Demographic & clinical data

Variable	N	%
Age (mean, SD)	74.2	1.4
Female	36	47.4
Reside at home	73	96.1
Modified rankin scale (mean, SD)	0.38	0.1
Medical history		
Hypertension	51	67.1
Dyslipidemia	36	47.4
Diabetes Mellitus	15	19.7
Non-valvular atrial fibrillation	22	28.9
Other cardiopathy	28	37.3
Ischemic cardiopathy	13	17.1

Non-valvular atrial fibrillation was the main cause of cardioembolic stroke (28.9%).

The mean length of stay was 10.1 \pm 1.14 days; mortality, 5.3% during study's follow-up.

42 patients (68.4%) needed in-patient rehabilitation and 48 patients (63.2%) needed rehabilitation after hospital discharge.

All patients needed drug treatment at hospital, whereas 93.9% continued after discharge. Laboratory test were performed to all patients. Both complete blood count and biochemistry tests were done to all patients.

The most frequent diagnostic test were CT (97.4%), electrocardiogram (89.5%) thorax RX (86.8%) and duplex TSA (81.6%).

22 patients (28.9%) suffered hospital complications (63.6% of them suffered infections, 27.3% cardiovascular complications and 59.1% others).

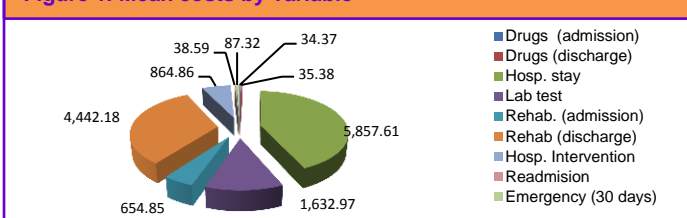
Healthcare resource utilization differences between SU and wSU hospitals were found in: length of stay (7.2 \pm 1.26 days, SU; 11.6 \pm 1.55 days, wSU; p-value=0.014) and specific therapeutic interventions (41.7%, SU; 8.0%, wSU; p-value=0.001).

Table 3. Healthcare resource utilization during admission

Variable	Mean	SD
Length of stay SU (days)	6.20	1.27
Length of stay in Neurology Service	11.22	1.44
Length of stay in ER	1.04	0.03
Variable	N	%
Rehabilitation	52	68.4
Physiotherapy	43	82.7
Speech therapist	22	28.8
Drug treatment	76	100.0
Specific therap. interventions*	14	18.4
Laboratory tests	76	100.0
Hospital complications*	22	28.9

ER: Emergency room; *Specific therapeutic interventions included intracranial neurovascular intervention, intravenous thrombolysis and other. Hospital complications included infectious and cardiovascular complications.

Figure 1. Mean costs by variable



All numbers means costs € 2012. Hosp: hospital; Lab: laboratory; Rehab: rehabilitation; Emergency room utilization after 30 days from regular hospital admission

The overall inpatient and rehabilitation cost per patient was €13,647 (49.2%, hospital stay; 24.8%, rehabilitation at discharge, see figure 1)

CONCLUSIONS

Cardioembolic stroke imposes significant economic burden for the Public Health System in the Region of Madrid.

Key cost drivers were hospital stay and patients' rehabilitation at discharge.

Patient management in SU hospitals was associated with more specific therapeutic interventions and shorter hospital stay than hospitals wSU.