

Stroke incidence in Bologna's local health area

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Objectives

The purpose of our prospective epidemiological study is to assess the annual incidence of stroke in our territory and, by determining the actual rate of thrombolysis (IVT), to optimize health care resources and improve the stroke network in Bologna's local health area (LHA).

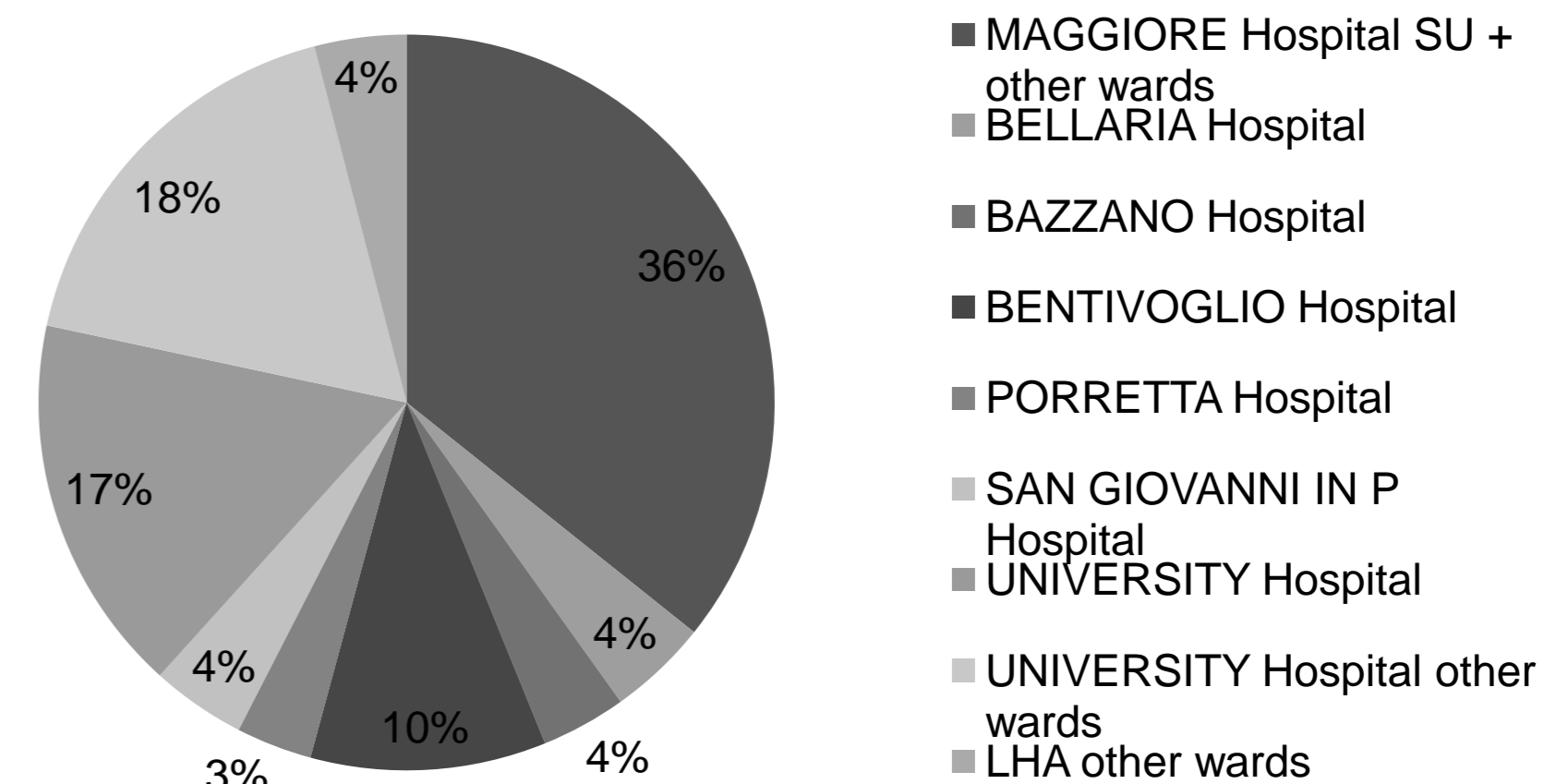
Materials and Methods

All patients admitted for acute stroke to the Emergency Departments (ED) of the LHA and to the University Hospital of Bologna from 1st October 2013 to 30th September 2014, Medical Records and Hospital Discharge Sheets (HDS). Within the study period, a neurologist trained in cerebrovascular diseases visited every patient admitted to ED for a suspected acute stroke, and recorded all the relevant clinical and radiological data. Three months after the index event the patients were followed up by a telephone interview. All the HDS recording a stroke code diagnosis during the study period were reviewed and for those patients not previously reported, we retrospectively collected all relevant information from their medical records.

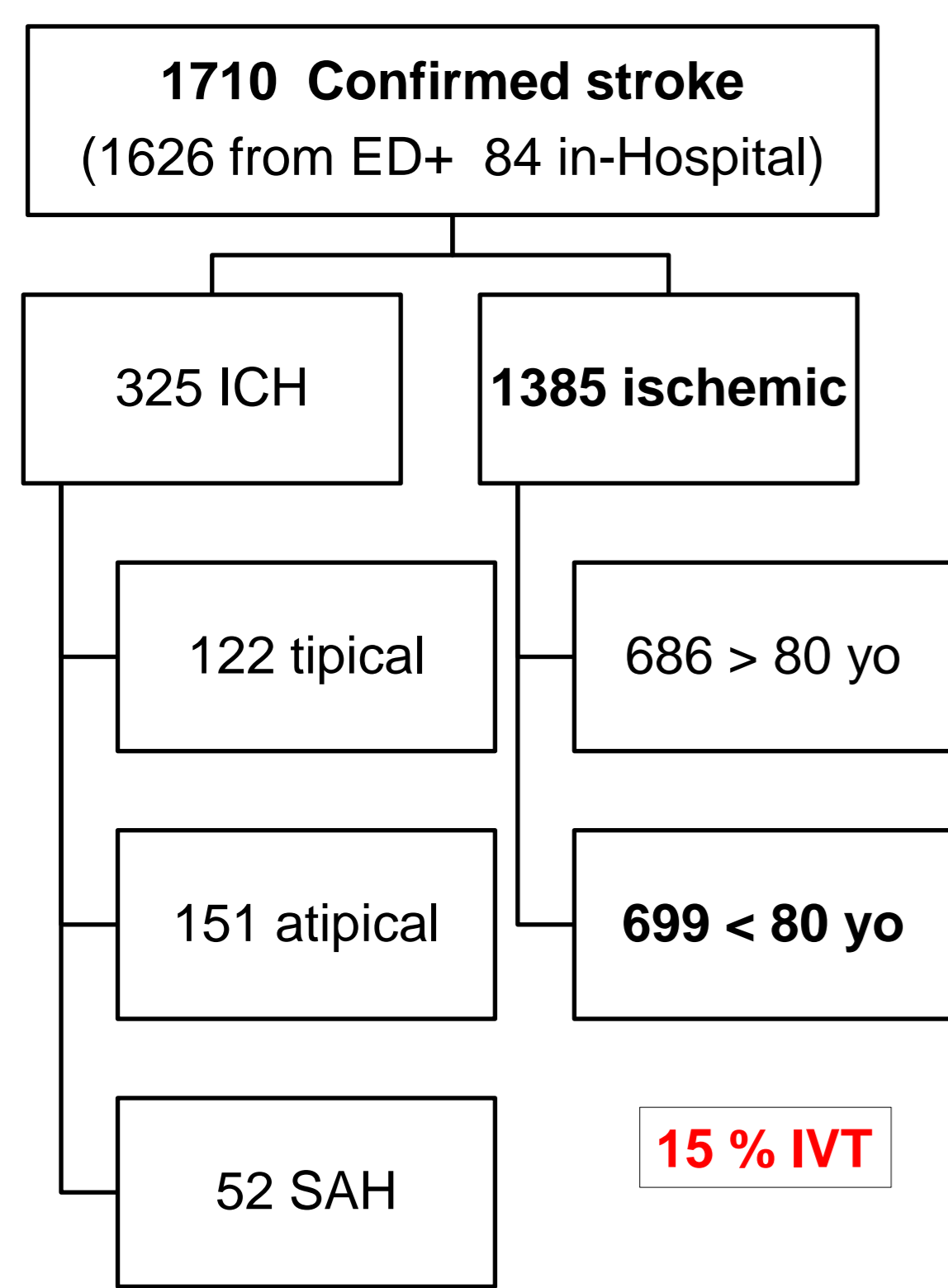
Results

Data were obtained on 1,710 patients (1,451 prospectively + 269 retrospectively). Patients' characteristics are displayed in TAB 1. IVT was performed in 106 patients (7.6%) with ischemic stroke. Considering only patients eligible for age (δ 80 yo according to inclusion criteria in the study period) the thrombolysis treatment rate increases to 15.1 %. Otherwise, if we consider only patients admitted to the ED for whom the "stroke path" was activated, thrombolysis rate is 33.5% (100 IVTs in 298 patients). The complete analysis of hospitalized stroke and HDS resulted in additional 92 candidates (patients) for whom the "stroke path" was not taken and therefore had not been treated (100 IVTs on 390 patients = 25.6%). At the moment of discharge, 40% of patients returned home fully ambulatory, 34 % underwent a rehabilitation program (intensive, extensive or as outpatient), 13% were deceased. At a three-month follow-up, 362 patients were deceased (21%), 40 had a second stroke, 1 had a TIA and 1 had a myocardial infarction. 50% of patients returned home fully ambulatory (modified Rankin score – mRS 0-2), 18% were dependent (mRS 3-4) and 11% were institutionalized.

ADMISSIONS FOR STROKE IN BOLOGNA'S LHA FROM 10/01/2013 TO 09/30/2014

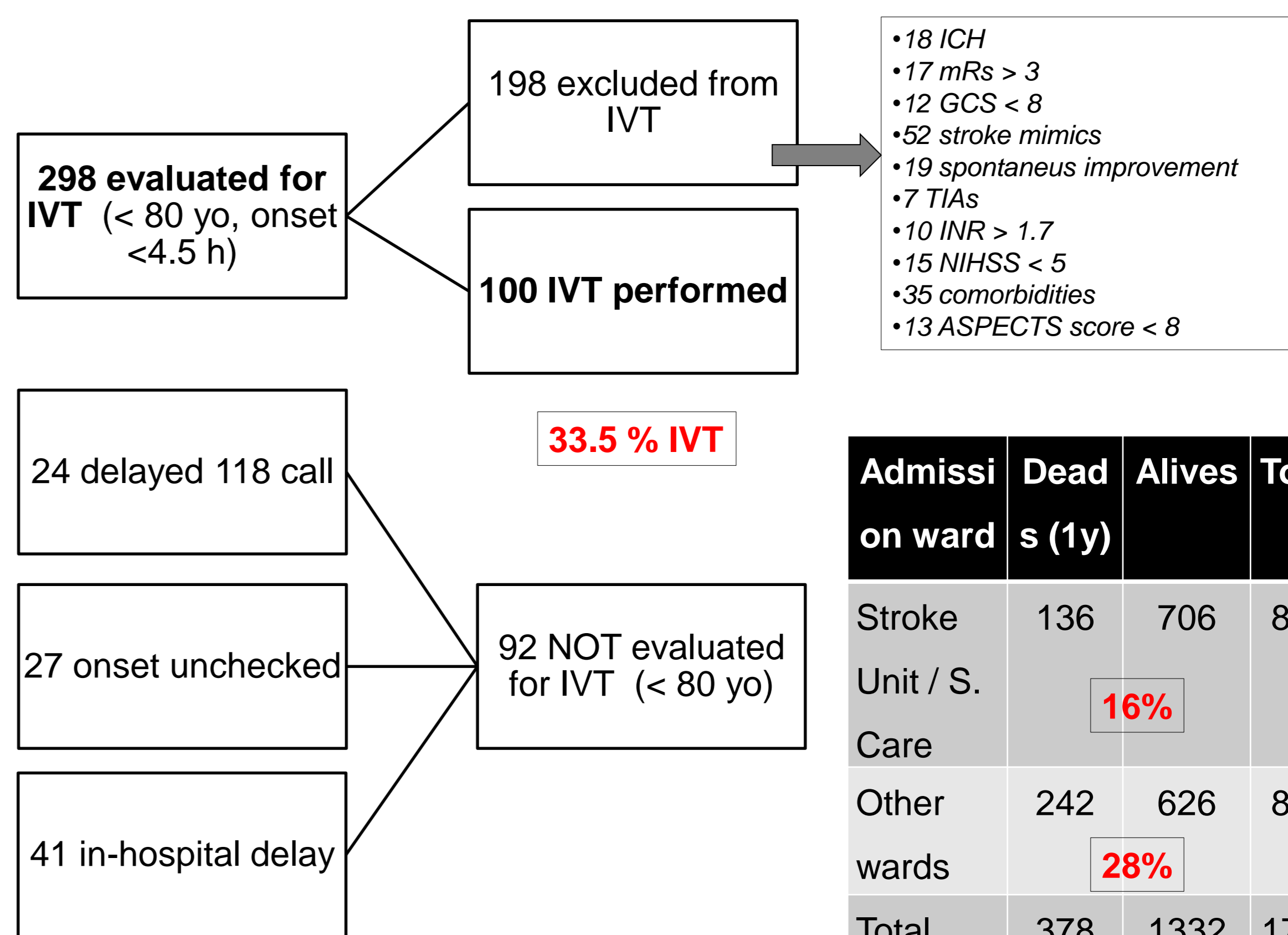


1710 patients (1451 PROSPECTIVELY + 269 RETROSPECTIVELY)



Patients	N°	%
Sex (F/M)	933 / 777	
Median age	77.4 yo	
< 50	77	4.5 %
> 90	191	11.1 %
Hypertension	1168	68.3 %
AF	372	21.7 %
Diabetes	334	19.5 %
CHD	254	14.8 %
Previous stroke/TIA	239	13.9 %

TAB 1: Patients' characteristics
 AF: atrial fibrillation, CHD: coronary heart disease



Admission ward	Dead (1y)	Alives	Total
Stroke Unit / S. Care	136	706	842
Other wards	242	626	868
Total	378	1332	1710

16% (Stroke Unit / S. Care)
28% (Other wards)

TAB 2: 1 year mortality

Discussion

Bologna's LHA, without Imola, which has its own LHA, has a population of 860,000 inhabitants. In our study period we registered 1,710 strokes, obtaining a stroke raw rate of 1.98/1,000, which is comparable to other epidemiological studies (1). IVT rate reached 15% considering only eligible patients (ischemic stroke < 80 yo), but an increase is to be expected due to the implementation of eligibility criteria in our hospitals (inclusion of people over 80 yo) and a reorganization of the stroke network leading up to the centralization of all suspected stroke patients to the Maggiore Hospital.

Our "real world" data on the population Bologna's LHA confirms what is already known in the literature: as shown in Table 2 the positive effect of stroke unit / stroke care on patient prognosis is undeniable.

Epidemiological studies on stroke are always informative because they allow us to determine the true incidence, causes and outcome of stroke in a specific geographic area. We are confident that our data represent a reliable source to drive the stroke care planning in our area.

References

1) The European Registers of Stroke (EROS) Investigators. Incidence of Stroke in Europe at the Beginning of the 21st Century. Stroke 2009;40:1557-1563



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