Burden of Post-Stroke Spasticity: A Real-World Data Analysis in Italy

Sciattella P[1], Mennini FS[1], Scortichini M[1], **Acciai V[2]**, Brigido A[2], Caglioni PM[2] , Paolucci S[3]

[1]EEHTA CEIS "Tor Vergata, Rome, Italy; [2]Ipsen, Milan, Italy; [3]IRCCS Santa Lucia Foundation, Rome, Italy,

Background

Spasticity is a common feature of many neurological disorders. Epidemiological studies have shown that up to 38% of stroke patients are affected by spasticity (1). Recent analyses have revealed significant under recording of post-stroke spasticity (PSS) in primary care data, likely reflecting under-diagnosis or under-reporting of the condition (2). Although patients with PSS usually require long-lasting care, access to treatment is limited, reflecting a significant unmet need in health and social care provision.

Objective

To estimate the occurrence of spasticity and access to hospital rehabilitation in patients with a first event of stroke, using the Hospital Information System (HIS) of Italy.

Methods

From HIS, which collects information related to all discharges from public and private hospitals in Italy, we identified the cohort of patients aged ≥18 years discharged alive from a first acute hospitalization for ischemic, haemorrhagic or subarachnoid stroke (index event) between 2015 and 2017 (Figure 1).

Post-stroke spasticity patients were defined as all the patients with diagnoses or procedures imputable to spasticity either in the index event or in all the hospitalizations occurring within 12 months from the index event discharge date.

Patients who started post-stroke hospital rehabilitation were identified by selecting all patients with at least one rehabilitation hospitalization with principal diagnosis of "Late effects of cerebrovascular disease" within 12 months from the index event.

Analyses were performed for the whole study population and stratified by type of stroke: ischemic, haemorrhagic and subarachnoid.

Figure 1. Study design schema

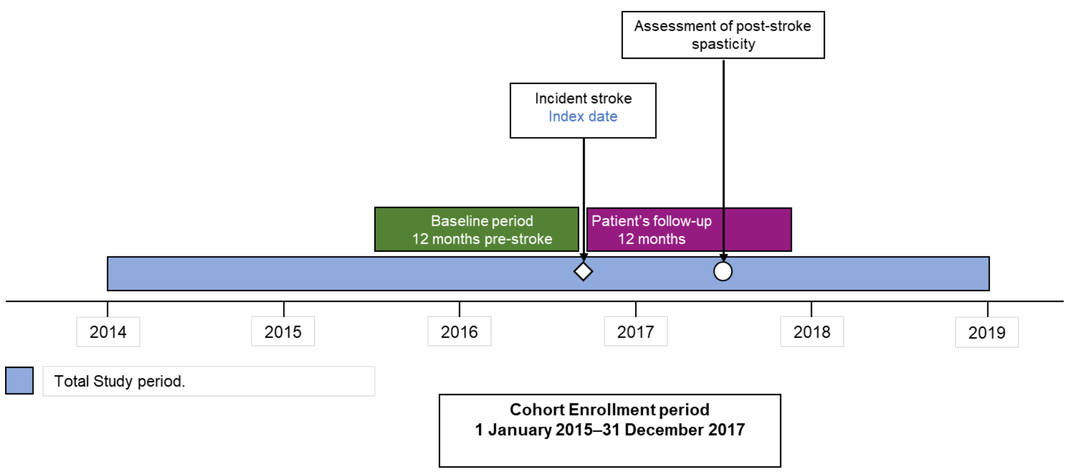
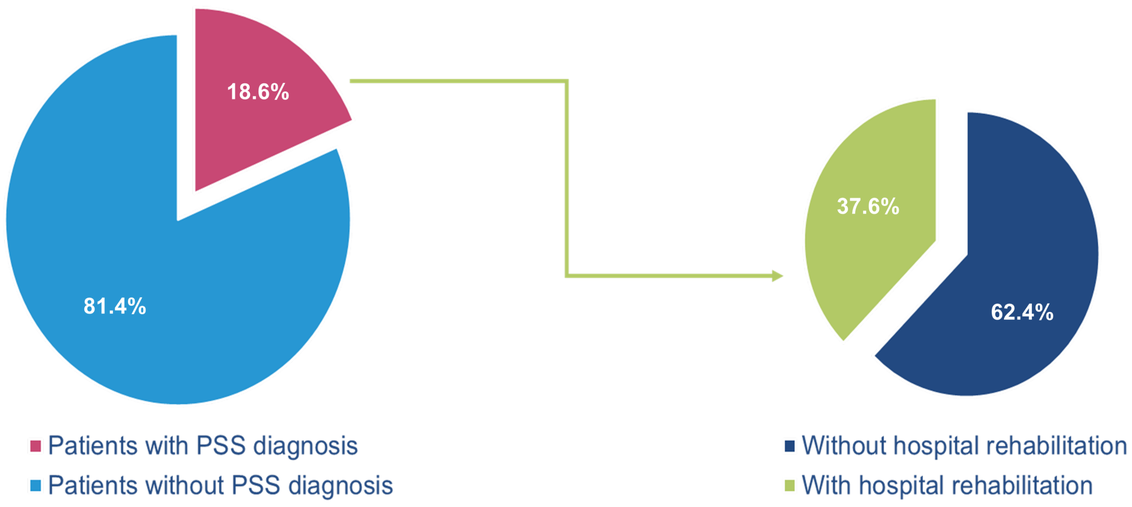


Table 1. Cohort descriptive statistics

	Ischemic	Haemorrhagic	Subarachnoid	Total
Cohort	207,371 (80.7%)	38,369 (14.9%)	11,279 (4.4%)	257,019
Sex				
Males	104,403 (50.3%)	20,437 (53.3%)	4,797 (42.5%)	129,637 (50.4%)
Females	102,968 (49.7%)	17,932 (46.7%)	6,482 (57.5%)	127,382 (49.6%)
Age				
Mean	75.4	73.0	64.2	74.5
SD	12.7	14.2	16.2	13.3

Figure 2. % of patients with a diagnosis of post-stroke spasticity having access to rehabilitation



Results

A cohort of 257,019 patients was selected (50.4% male, mean age 74.5 SD:13.3); 207,371 (80.7%) with ischemic stroke, 38,369 (14.9%) with haemorrhagic and 11,279 (4.4%) with subarachnoid stroke (Table 1).

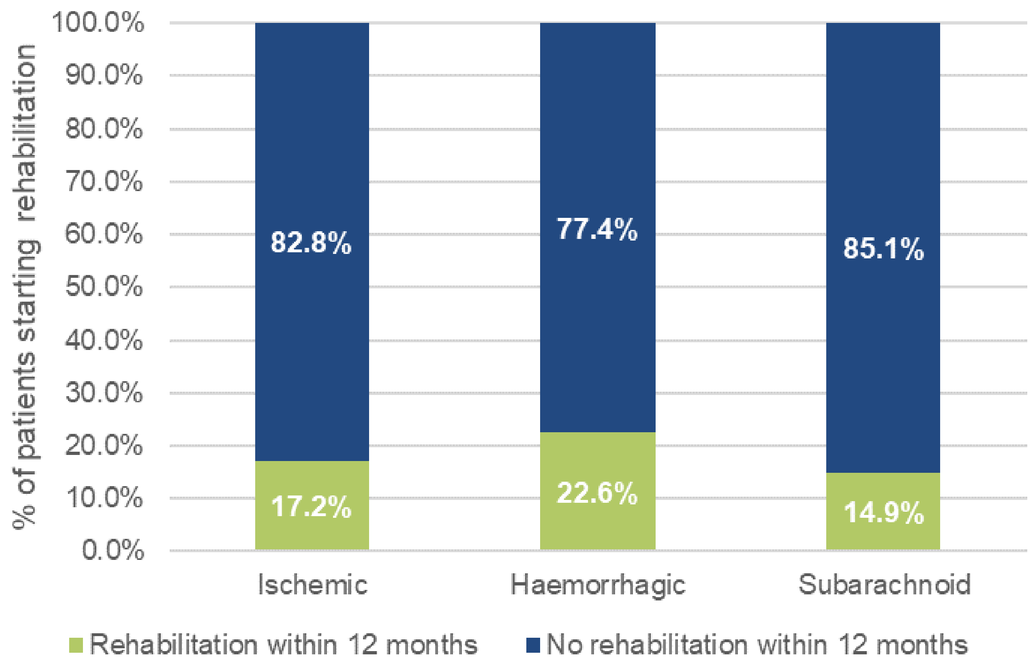
Overall, post-stroke spasticity occurred in 18.6% (Figure 2) of patients: 18.5% for ischemic, 20.5% haemorrhagic and 13.4% for subarachnoid stroke.

45,924 (17.9%) patients started hospital rehabilitation within 12 months from stroke event, the proportion was equal to 17.2%, 22.6% and 14.9% for ischemic, haemorrhagic, and subarachnoid stroke respectively (Figure 3).

Considering patients with a diagnosis of post-stroke spasticity, only 37.6% accessed rehabilitation within the follow up period (12 months) (Figure 2).

Study limitation: Due to the absence of a specific ICD9CM code for PSS diagnosis, a proxy algorithm was defined to identify PSS patients. This may have led to underestimate the occurrence of post stroke spasticity which has been reported in the literature (26.7%, Zeng, 2021) (3).

Figure 3. % of patients starting rehabilitation within 12 months from stroke event



Conclusions

The study, based on Italian administrative databases, allowed us to estimate the occurrence of spasticity in patients with a first event of stroke, highlighting a relevant proportion of patients do not access hospital rehabilitation (day hospital or inpatient) during follow-up.

Abbreviations: PSS, post-stroke spasticity ; SD: standard deviation

References 1. Watkins CL et al. Prevalence of spasticity post stroke. Clin Rehabil 2002; 16: 515-522; 2. Christofi G et al. Improving the Management of Post-Stroke Spasticity: Time for Action. J Rehabil Med Clin Commun. 2018 Sep 21;1:1000004; 3. Zeng, Huangling, et al. "Prevalence and risk factors for spasticity after stroke: A systematic review and meta-analysis." Frontiers in Neurology 11 (2021): 616097.

Author Contributions Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: [S.P., F.S.M.,P.S.,M.S.,V.A.,P.M.C, A.B]; Drafting of the publication or revising it critically for important intellectual content: [S.P., F.S.M.,P.S.,M.S.,V.A.,P.M.C, A.B.]; Final approval of the publication: [S.P., F.S.M.,P.S.,M.S.,V.A.,P.M.C, A.B].

Disclosures [P.S., M.S. F.S.M.]: None declared

[S.P.]: Research grants, speaker's or consultancy fees from Ipsen and Lundbeck

[V.A., A.B.]: Employees of Ipsen SpA

[P.M.C.]: Employee of Ipsen; Stock ownership in Ipsen

For further information, please send your question(s) to valentina.acciai@ipsen.com

paolo.sciattella@uniroma2.it

Presented at ISPOR EU | Vienna, Austria and Virtual | 6-9 November 2022

This study was sponsored by Ipsen