

Italian Health Economics Association (AIES) - 23rd Annual Conference
National Healthcare Systems and universal coverage: are they still feasible?

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TOPIC OF THE PAPER: Administrative data for health economic research

PRESENTATION FORMAT: Oral

TITLE: Determinants and pathways of rehabilitation after surgical aortic valve replacement: a population-based, retrospective study with administrative data.

BACKGROUND: Aortic stenosis (AS) is one of the most common valvular heart diseases in developed countries and its severe form affects 3.4% of general elderly population (Nkomo et al, 2016; Osnabrugge et al, 2013). Surgical aortic valve replacement (sAVR) is a consolidated therapeutic option that improves long-term survival of patients with symptomatic AS (Schwarz et al, 1982). Rehabilitation after sAVR positively impacts on patients functional capacity and quality of life (Ribeiro et al, 2017). To the best of our knowledge, no published studies ever investigated the factors influencing the decision to undergo rehabilitation and its pathway.

OBJECTIVES: We conducted a population-based, retrospective study to determine the factors influencing the probability to start rehabilitation and to identify the factors affecting index hospitalization and rehabilitation length of stay (LOS). The final aim was to provide a comprehensive overview of care process for sAVR patients.

METHODS: We retrospectively analysed data of all patients who underwent sAVR between 2009 and 2015 in Italy (n=97,571) as reported in the Italian National Hospital Discharges. Patient-level data on both index hospitalization (ICD-9-CM codes 35.21 or 35.22 and code 39.61) and successive rehabilitation were extracted. The unique patient ID allowed to merge sAVR hospitalization and subsequent rehabilitation. Logistic regression analysis was performed to identify the main factors affecting the probability of undergoing a rehabilitation programme. Negative binomial regressions were carried out to investigate the determinants of LOS (event index and rehabilitation).

RESULTS: On average, 64.3% patients started a rehabilitation program after sAVR. At the patient level, the probability of starting rehabilitation was significantly ($p<.05$) higher in older and female patients who were hospitalised in their region of residence. The probability was higher when index hospitalisation occurred in private-teaching hospitals and in specialty cardiac hospitals. The presence of a long-term facility in the index event hospital did not significantly influence the probability of undergoing rehabilitation. Overall, results suggest that the probability to start rehabilitation was higher for patients who underwent sAVR in regions with higher GDP and with more long-term care beds per inhabitant.

The average index hospitalization and rehabilitation LOS in the sample was 15.7 (SD=12.4) and 18.9 days (SD=11.0) respectively, with a decreasing trend over time. At the individual level, index hospitalization LOS significantly increased with age, female gender, patient severity (proxied by Charlson Comorbidity Index) and extra-regional residence (i.e. sAVR performed out of residence region). Moreover, LOS was higher when hospitalisation occurred in public hospitals, both teaching and non-teaching, in general hospitals and with a long-term care facility. The latter might be due to rehabilitation pathway starting during the index hospitalization. Northern regions hospitals tended to discharge patients earlier. The rehabilitation LOS was significantly higher in older, female and more severe patients, and was negatively influenced by extra-regional residence. The rehabilitation LOS was shorter in teaching hospitals and in southern regions.

CONCLUSIONS: Rehabilitation is widely recognized as a key factor in facilitating sAVR patients recovery, however one third of patients in Italy do not undergo rehab, with possible negative consequences on health outcomes and quality of life. Results showed that access to rehabilitation programmes, index hospitalization and rehabilitation LOS vary substantially between regions and between hospital types. Regional planning departments should consider these results in order to design evidence-based policies aimed at encouraging the most appropriate clinical pathway, reducing uneven access to care across different areas.