USE OF DRG 409 IN NUCLEAR MEDICINE IN PATIENTS WITH GASTROENTEROPANCREATIC NEUROENDOCRINE TUMORS (GEP-NET) IN ITALY: A REAL WORLD DATA ANALYSIS

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BACKGROUND

Gastroenteropancreatic neuroendocrine tumors (GEP-NETs) are an heterogeneous group of malignancies derived from neuroendocrine cells that can occur anywhere along the gastrointestinal tract. GEP-NETs are quite rare, according to the SEER program the annual incidence between 2000-2012 was 3.56 per 100,000, nevertheless over the last four decades the trend of incidence increased steadily[1].

For patients with localized gastroenteropancreatic neuroendocrine tumors, curative surgery remains the primary method of treatment, whereas in patients with non-resectable tumors different treatments are considered. Chemotherapy (especially in poorly differentiated or rapidly progressive tumors), Somatostatin analogues (SSAs), radioligand therapy (RLT) and other pharmacological treatments have become standard treatments in patients with low or intermediate-grade GEP-NETs[2].

OBJECTIVE

To describe the hospital activity and mobility for radiotherapy, with particular focus on GEP-NETs patients, using real world data of Italy.

METHOD

This study was conducted using the Italian Hospital Information System (HIS), available for the period 2013-2019. The HIS records all hospital discharges (HD), both ordinary and day-hospital, from public and accredited hospitals. Each record contains, together with a patient specific anonymous code, patient's demographic (age, sex, residence) and clinical information (primary and up to five secondary diagnoses and procedures, Diagnosis-Related Group - DRG).

From HIS, all radiotherapy hospitalizations (DRG 409, used also for radioligand therapy because a dedicated DRG for it doesn't exist) with discharge date between 2013 and 2019 were selected.

Since there are no ICD-9-CM codes for GEP-NET, patients were identified by the presence of one of the following diagnoses in the primary or secondary diagnosis fields:

- primary malignant neoplasm of liver (ICD-9-CM 155.0)
- malignant neoplasm of pancreas (157.x)
- malignant neoplasm of endocrine gland, site unspecified (194.9)
- secondary malignant neoplasm of liver (197.7)

The number of patients and volume of hospitalization were estimated by year, region and regimen:

- ordinary with length of stay ≤ 1 day (0-1)
- ordinary with length of stay ≥ 2 (2+)
- day hospital (DH)

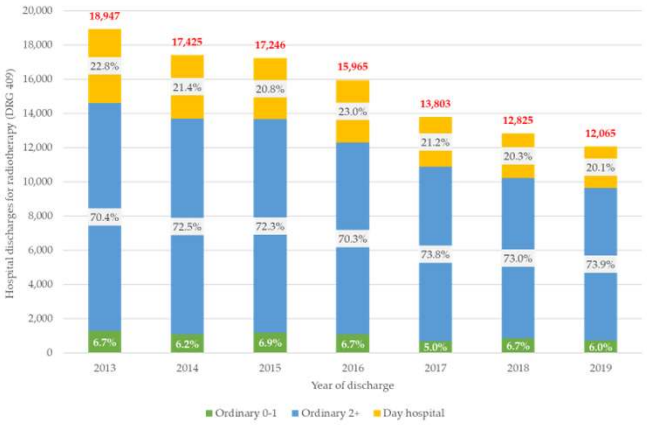
Finally, an analysis of the interregional healthcare mobility has been conducted by estimating, for each region, the attraction and escape mobility indexes were calculated as follows.

- *Attraction Mobility Index (AMI) for region j*: proportion between the number of non-residents in region j hospital discharges and the total number of region j hospitalizations.
- *Escape Mobility Index (EMI) for region j*: proportion between the number of out-of-region hospital discharge of residents in region j and the total number of hospitalizations of residents in region j.

RESULTS

13,500 patients per year were hospitalized for radiotherapy between 2013 and 2019: 72.2% of the hospitalizations in ordinary 2+ regimen, 6.3% in ordinary 0-1 and 21.5% in day hospital. A progressive reduction in the volume of hospitalizations was observed during the study period, both in ordinary regimes and in day hospital.

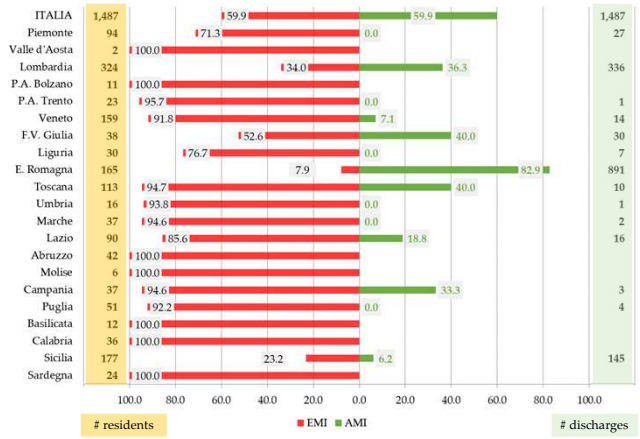
Figure 1. Hospital discharges for radiotherapy by year and regimen



GEP-NETs patients with radiotherapy hospitalizations were 776 per year, for a total of 1,462 discharges: 93.5% in ordinary 2+ regimen and 3.3% both in ordinary 0-1 and DH.

Overall, the proportion of out-of-region GEP-NET hospitalizations for radiotherapy was equal to 57.4%, notably higher than mobility observed on average for acute admissions (8-10%).

Figure 2. Radiotherapy hospital mobility for GEP-NET. Italy 2019



CONCLUSIONS

The analysis shows a reduction of radiotherapy hospitalization during the study period, underlining a still predominant use of ordinary regimes admission and a very high mobility. Moreover, the study wonders about the congruence of the coding system of HIS and the current/future technologies, also to evaluate the adequacy of reimbursement and hospital setting.

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