Hospital incidence and medical costs of polycythemia vera in Spain:

A retrospective database analysis

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Background

Polycythemia vera (PV) is the most common form of chronic myeloproliferative neoplasm (MPN), with an incidence of 2.3-2.8 per 100,000 persons/year [1,2].

One of the main concerns in patients with PV is the presence of complications related to thrombosis, progression to myelofibrosis or leukemia, and treatment varies depending on age and patient's history [3]. Despite the emerging treatments for PV, these patients still present numerous unmet clinical needs [4].

This study aimed to evaluate the hospital incidence and mortality rate of PV in Spain, and to estimate hospital medical costs.

Methods

Hospital admission records of patients with PV were obtained from a Spanish hospital discharge database. Records registered between 2005 and 2019 were included.

ICD-9 and ICD-10 codes corresponding to PV were used to identify patients (238.4 and D45, respectively).

Hospital incidence was calculated as the annual number of patients with PV within the total number of admission files in the database. Hospital mortality was measured as the number of patients deceased during the hospitalization by the total patients admitted with the disease. Direct medical costs included all expenses related to the admission.

Results

Patient characteristics

Data of 490 patients was obtained (Table 1).

Numerous secondary conditions were associated to age, including diabetes mellitus, anemia and hypertension.

Table 1. Characteristics of admissions and secondary conditions >10% of admissions.

	Total	≤ 60 years	> 60 years
Males, %	51.0	46.6	52.0
Hospital mortality rate, %	13.2	1.0	15.9 *
Secondary conditions, %	-	-	-
Diabetes mellitus	10.3	1.0	12.4 *
Anemia	18.2	7.8	20.6 *
Essential hypertension	34.8	22.3	37.6 *
Atrial fibrillation	9.2	0.0	7.3 *
Venous embolism, thrombosis	5.9	11.7	4.6 *
Chronic obstructive pulmonary disease	10.3	4.9	11.5 *
Other respiratory diseases	15.7	6.8	17.7 *
Disorders of the liver	11.9	14.6	11.3
Chronic kidney disease	9.2	1.0	11.1 *

* p-value age <0.05.

Hospital incidence was 0.7 per 100,000 persons the year 2019 and decreased significantly over the study period in patients over 60 years (p<0.0001) (Figure 1).

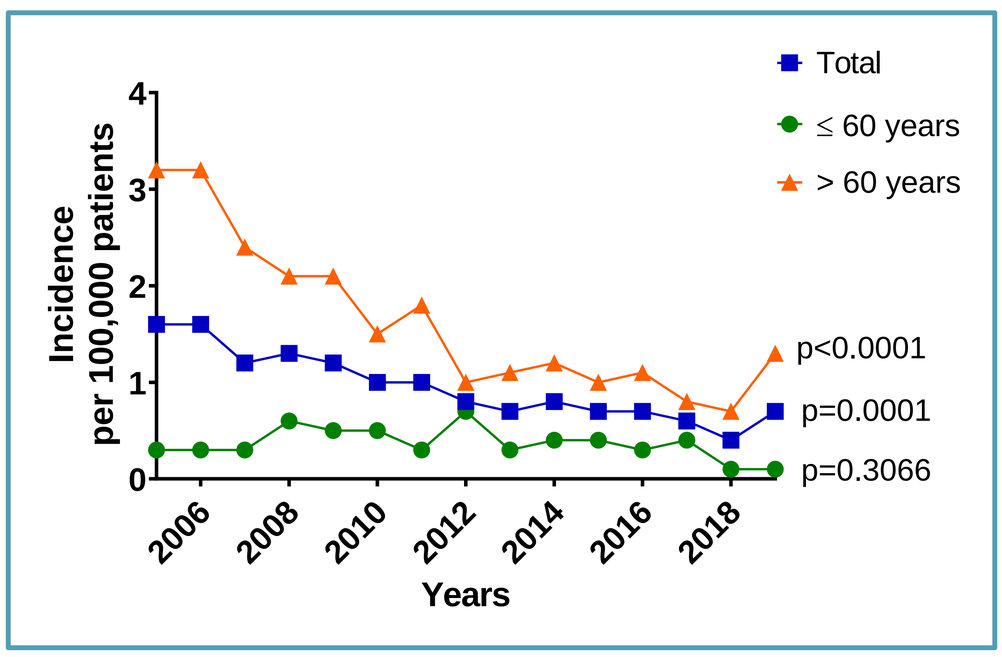

Figure 1. Hospital incidence of PV per age groups with total trend p values.

Hospital mortality rate was 13.2% over the study period and it was associated to pulmonary heart disease, respiratory conditions and kidney disease.

No significant trends were identified in the mortality rate over time.

Use of healthcare resources and direct medical costs

Most of the admissions were inpatient and urgent admissions (Table 2).

The most frequent procedures registered were diagnostic ultrasounds of the abdomen and vascular system (37.7%), followed by transfusion of packed cell (26.3%) and bone marrow biopsies (15.0%).

Table 2. Characteristics of admissions.

	Total	≤ 60 years	> 60 years
Admissions, N	555	103	452
Urgent admissions, %	75.0	66.0	77.0 *
Readmission rate, %	10.6	5.7	9.7
Median length of stay, days (95%CI)	7 (6-7)	5 (4-7)	7 (7-8)
Hematology department, %	42.7	31.1	45.4 *
Internal medicine, %	33.3	32.0	33.6

* p-value age <0.05.

Median admission cost was €5580, increasing to €7865 in patients deceased during the hospitalization. Length of hospital stay influenced admission cost for all patients, except for deceased patients.

Admission cost increased significantly between 2006 and 2011 in patients over 60 years of age, however, it decreased in patients aged 60 years and younger (Figure 2).

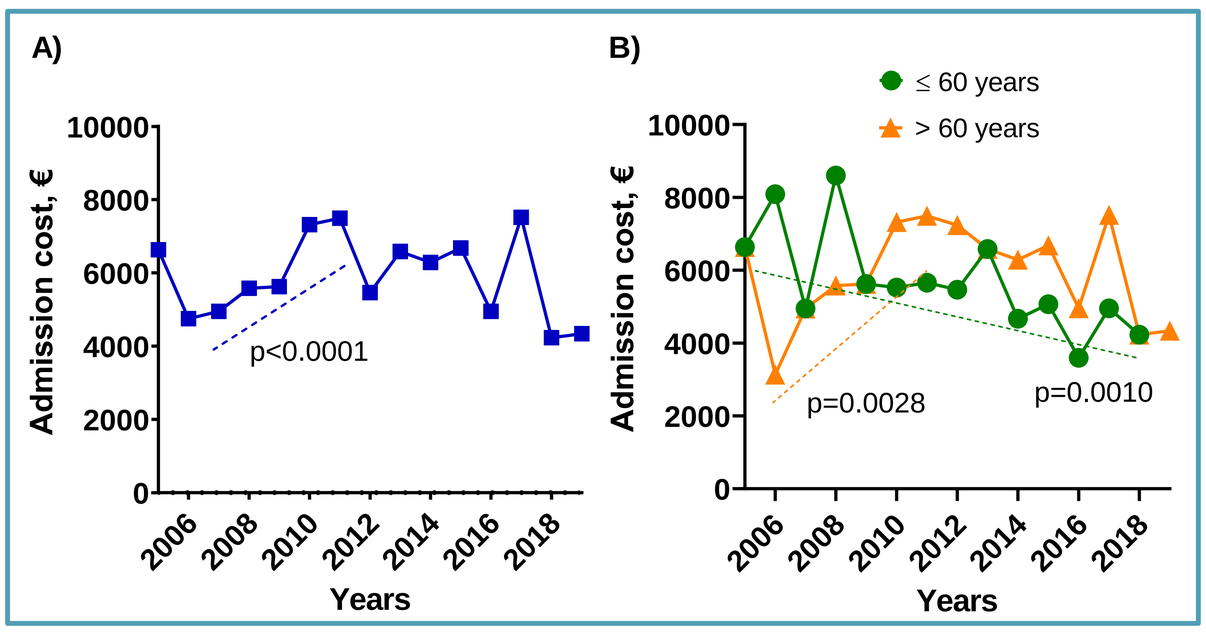

Figure 2. Median admission cost of PV in all patients (A) and per age groups (B) with significant trend p values.

Conclusions

This study provides an evaluation of hospital management and costs of PV in Spain. Future studies should focus on the revision of disease management in the country and measuring total medical costs, which could be higher than global estimations.

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