Healthcare Resource Consumption of Patients with Cardiovascular Events after Exacerbations of Chronic Obstructive Pulmonary Disease in Italy: Results from the EXACOS-CV Study

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ISPOR Europe 2023.
12-15 November 2023.
Copenhagen, Denmark

BACKGROUND AND AIMS

Chronic obstructive pulmonary disease **(COPD)** is associated with high global morbidity and mortality. COPD patients can experience a worsening of respiratory symptoms, also called **exacerbations**, characterized by increased dyspnea, cough and sputum production. Patients with COPD exacerbation are more likely to experience severe cardiovascular **(CV)** events.

AIMS. To assess the healthcare resource consumption of patients experiencing a severe CV event after a COPD exacerbation by analyzing data from the Italian National Health Service (SSN).

METHODS

Observational retrospective analysis, performed through the **Fondazione Ricerca e Salute (ReS) database**

Study Design

- Accrual period: **from 1st January 2015 to 31st December 2018**
- Index date: identification of COPD by at least one of the inclusion criteria
- Follow-up: up to 1 year from the index date (until 31 December 2019 or loss to follow-up)
- Exposure to exacerbation: from first systemic antibiotic/corticosteroid dispensation (**moderate exacerbation**) or from overnight hospitalization (**severe exacerbation**) to max 365 days
- Occurrence of the first CV event within one year following a COPD exacerbation:
  - a **severe acute non-fatal CV event** is defined by ≥ 1 overnight hospitalization with primary or secondary diagnosis or procedure of interest
  - a **fatal CV event** could occur out of hospital (cause is unknown) or in-hospital (cause is available)

Inclusion criteria

- Adults aged ≥45 y.o.
- At least one of the following criteria during the accrual period:
  - ≥1 hospitalization with a primary or secondary diagnosis of COPD (ICD-9-CM code);
  - disease waiver claim code for COPD;
  - ≥4 reimbursed supplies of drugs for obstructive airway diseases within a same 12-month period (ATC code).

Analyses

During one year before and after the first CV event, the following healthcare outcomes were assessed:

- all-cause and CV-related hospitalizations;
- key in-hospital procedures;
- reimbursed dispensations of inhaled corticosteroids (ICS)

Analyses were descriptive in nature were not adjusted for mortality.

RESULTS

Patients with a first severe acute CV event following a COPD exacerbation

ReS population from 2015 to 2018: **5,111,908 inhabitants**

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Patients aged ≥45 with **COPD: 217,564** (4.3% of inhabitants)

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Patients with **≥1 exacerbation** during follow-up: **69,620** (32.1% of COPD patients)

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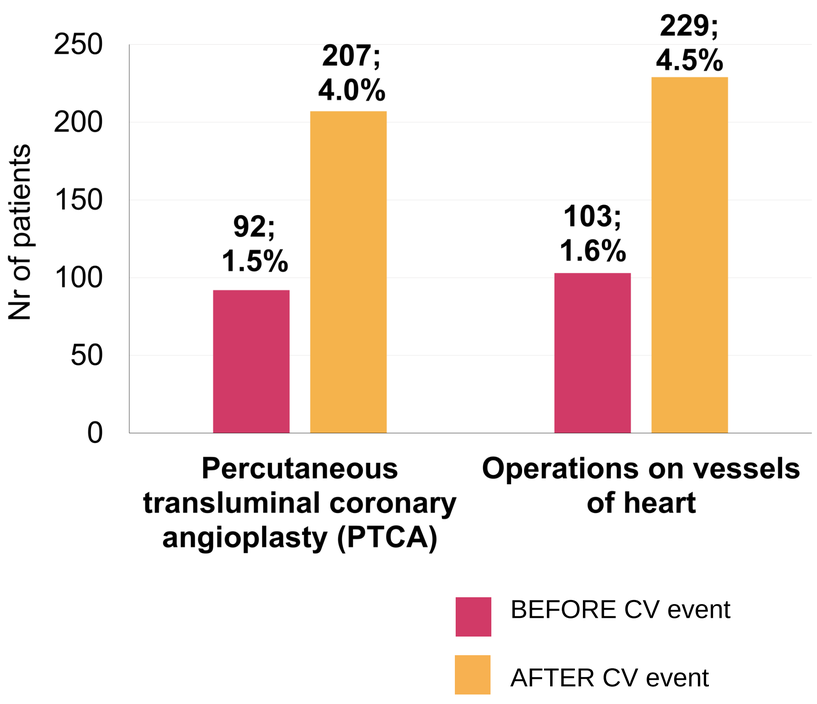
Patients experiencing a **severe acute fatal or nonfatal CV event** within one year following an exacerbation: **10,269** (14.7% of COPD patients with ≥1 exacerbation)

Hospitalizations
1 year before and after the CV event

Patients experiencing a CV event within 1 year following a COPD exacerbation: **10,269**

	1 year BEFORE the CV event	1 year AFTER the CV event
ALL-CAUSE hospitalizations		
Number of patients admitted to hospital	6,265	5,192
Number of hospital admissions	11,945	10,415
CV-related hospitalizations		
Number of patients admitted to hospital	1,595	2,185
Number of hospital admissions	2,107	3,245

Key in-hospital procedures
1 year before and after the CV event



Supplies of ICS reimbursed by the SSN

	1 year **before exacerbation** N=10,269	1-3 months **after exacerbation** N=8,399	3-12 months **after exacerbation** N=7,262
Patients receiving ICS (n; %)	**6,616; 64.4%**	**2,685; 32.0%**	**3,722; 51.3%**
Dual closed therapy (ICS+LABA)	5,103; 77.1%	2,320; 86.4%	3,011; 80.9%
Triple closed therapy (ICS+LABA+LAMA)	152; 2.3%	140; 5.2%	225; 6.0%
ICS dispensation (n)	**35,151**	**4,441**	**16,010**
Mean number (SD) per patient	5.3 (5.0)	1.7 (1.0)	4.3 (3.9)

CONCLUSIONS

This study of Italian administrative healthcare data shows the high burden on the SSN of severe CV events following a COPD exacerbation and sustained up to 12 months and emphasizes the need of a multidisciplinary disease management approach to prevent COPD exacerbations, their severe fatal and non-fatal CV consequences, and related high resource consumptions.

Conflict of interest: Calabria S is employee of Fondazione ReS.

Funding: This study has received an unconditional funding by AstraZeneca SpA.