

SUPPLEMENTARY MATERIAL

Search strategy: (chronic obstructive pulmonary disease OR chronic obstructive airways disease OR COPD OR emphysema OR bronchitis OR airways obstruction OR obstructive lung disease) AND (mortality OR prognosis OR survival rate OR survival analysis OR survival prediction OR survival OR prognostic factor OR death) AND (palliative care). Common prognostic factors for COPD were searched for using terms such as “performance status” or “weight loss.” The search was augmented by scanning references of identified articles and reviews. Potentially relevant studies were retrieved and evaluated if they reported a disease presentation with a median survival of ≤ 1 year.

Methods

Measurement of variables in cohort study.

The present study is a pooled-analysis of individual patient-data from four Spanish patient cohorts, hospitalized for acute exacerbation of COPD. All cohorts were previously published. (1-4) Out of a total of 1.001 patients initially evaluated, 267 (27%) were excluded for lack of data of the most important variables analysed and 67 (6.7%) for incomplete 1-year follow-up. Figure E1. Excluded patients were similar to studied population, without statistical differences in age, gender, dyspnoea scale or number of hospitalizations for COPD exacerbations in the previous year, but with differences in FEV1 (%) (42.8% vs.46%; $p=0.01$) and Charlson index (2.6 vs. 2.9; $p=0.04$)

Blood gas, serum albumin, chronic use of home oxygen therapy, smoking history and body mass index were determined during hospitalization. Cor pulmonale diagnosis was based on clinical criteria. Quality of life was assessed using the

validated Spanish version of the Saint George's Respiratory Questionnaire (SGRQ), while for the assessment of dyspnoea a modified version of the Medical Research Council version was used. Comorbidity was assessed with the Charlson index, unadjusted for age and including COPD as comorbidity. Functional status was assessed using the Katz index in stable phase. Finally, the presence of depression was calculated with the 15-point Yesavage scale. (6-10) Previous severe exacerbations were defined as those requiring hospitalization during the previous year. Post-bronchodilator forced spirometry was performed in stable phase one month after discharge according to the guidelines of the American Thoracic Society/European Respiratory Society consensus. (11)

All participants gave their informed written consent to participate, and the Ethics Committee of University Hospital Mutua de Terrassa approved all previous studies.

Table E-1

Variables and thresholds to estimate BODE, BODEX and CODEX index.

INDEX	VARIABLES	SCORING			
		0	1	2	3
BODE					
	BMI (Kg/m ²)	>21	≤21		
	FEV1 (%)	≥65	50-64	36-49	≤35
	Dyspnoea (mMRC)	0-1	2	3	4
	6' walking test (m)	≥350	250-349	150-249	≤ 149
BODEX					
	BMI (Kg/m ²)	>21	≤21		
	FEV1 (%)	≥65	50-64	36-49	≤35
	Dyspnoea (mMRC)	0-1	2	3	4
	Severe exacerbations	0	1-2	≥3	
CODEX					
	Charlson index	0-4	5-7	≥8	
	FEV1 (%)	≥65	50-64	36-49	≤35
	Dyspnoea (mMRC)	0-1	2	3	4
	Severe exacerbations	0	1-2	≥3	

Table E-2. Supplementary material.

COPD GUIDELINES	Year	PC	Criterion
Australian and New Zealand Guidelines for the management of COPD	2015	Yes	Yes (12)
Guía Española de la EPOC (GesEPOC)	2012	Yes	Yes (13)
Asociación Argentina De Medicina Respiratoria	2012	Yes	Yes (14)
Lincolnshire Respiratory Network (Great Britain)	2011	Yes	Yes (15)
ATS End-of-life Care Task Force	2008	Yes	Yes (16)
Canadian Thoracic Society	2008	Yes	Yes (17)
Global Obstructive Lung Disease (GOLD)	2016	Yes	No (18)
National Institute for Health and Care Excellence (NICE)	2016	Yes	No (19)
ATS/ERS Task Force for COPD Research	2015	Yes	No (20)
Interdisciplinary Association for Research in Lung Disease (Italy)	2014	Yes	No (21)
The Czech Pneumological and Physiological Society	2013	Yes	No (22)
Polish Society of Lung Diseases	2012	Yes	No (23)
Royal Society of Medicine (Great Britain)	2007	Yes	No (24)
Clinical Practice Guidelines (Malaysia)	2016	No	No (25)
Finnish guidelines	2015	No	No (26)
Asociación Latino Americana del Tórax	2015	No	No (27)
National College of Chest Physicians (India)	2014	No	No (28)
Saudi Guidelines for the Diagnosis and Management of COPD	2014	No	No (29)
French Pulmonary Medicine Society	2014	No	No (30)
Swiss Respiratory Society	2013	No	No (31)
Diagnosis and Treatment of COPD (Portugal)	2013	No	No (32)
American College of Physicians (USA)	2011	No	No (33)
COPD Working Group/South Africa	2011	No	No (34)
Guidelines for the diagnosis and therapy of COPD (Germany)	2007	No	No (35)
International Primary Care Respiratory Group	2006	No	No (36)
Russian Respiratory Guidelines	2015	No	No (37)
GLOBO - Ghid local de management al BPOC (Romania)	2010	No	No (38)
Guidelines for the diagnosis and treatment of COPD. Japan	2010	No	No (39)
NECPAL CCOMS-ICO. Instituto Catalán de Oncología	2011	Yes	Yes (40)
The National Hospice and Palliative Care Organization (USA)	2016	Yes	Yes (41)

COPD Guidelines and year of publication. PC =The guidelines have a chapter on palliative care. Criteria = The guidelines suggest poor prognosis criteria for considering starting PC.

Table E-3. Supplementary material

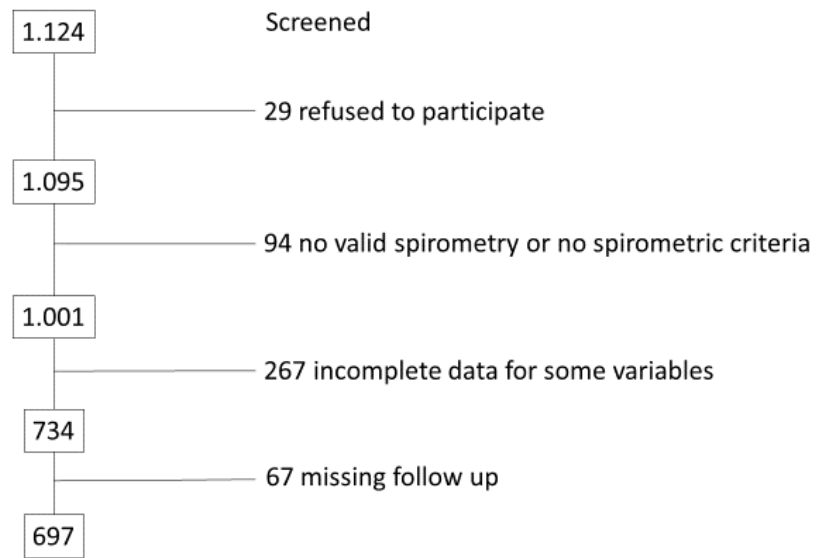
Variables	N	References
Age ≥ 70 years	3	42S- 44S
Non-married	1	45S
Physical dependence	1	42S
Poor quality of life	6	44S, 46S-50S
BMI ≤21 Kg/m ²	4	42S, 51S- 53S
Serum albumin <25 mg/dl	0	No data
Comorbidities	2	53S, 54S
Depression	4	55S, 56S, 57S, 58S
Anaemia	1	59S
Cor pulmonale/PH	3	60S-62S
Previous hospitalization	9	58S, 63S-70S
FEV1 ≤30%	9	49S-51S,70-76S
Dyspnoea (mMRC)	2	71S, 73S
Hypoxemia	4	44S,51S,77S,78S
Hypercapnia	3	79S-81S
Invasive ventilation	4	82S-85S
NIV	4	64S, 82S, 86S, 87S
BODE	5	50S,72S, 88S-90S

Published articles with percentage of 1-year mortality. N= number of studies retrieved. References of original articles, (S) are displayed in Supplementary Material.

PH=Pulmonary Hypertension

BMI=Body mass index. mMRC= modified Dyspnoea Medical Research Council scale. NIV=Non-invasive ventilation.

Figure E1.



Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)

References supplementary material

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