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Introduction

During the last decade, the GOLD classification of COPD underwent notable evolution. There is limited evidence how the latest classification approach affects the distribution of COPD patients across the A-D groups.

Aims

Our aim was to assess predictive value of the last three GOLD classification systems – I-IV (pre 2011)¹, A-D (2011–2016)² and A-D (2017–present)³ in relation to the long-term mortality of COPD patients from the CMRD (Czech multicenter research database of severe COPD) cohort⁴.

Methods

CMRD is a multicenter, prospective, observational and non-interventional study of non-selected group of patients with severe COPD (post-bronchodilator FEV1 ≤ 60%). We have analysed the data of 784 patients at 4-year follow-up. Kaplan-Meier survival analysis was performed for the 3 above mentioned GOLD classification systems.

Results

Application of the GOLD I–IV system showed gradual and significant increase in 4-year mortality across the stages (GOLD II 18.7%, GOLD III 28.5%, GOLD IV 38.7%) (p=0.001). Application of the GOLD A-D system (2011–2016) showed group D being the most populous category (N = 523, 66.7%) with the highest rate of 4-year mortality (N = 157, 30%). Group C patients had lower mortality (N = 39, 17.9%) than group B patients (N = 150, 18.7%) (p=0.01). Finally, using the GOLD A-D 2017 classification approach resulted in major shifts of patients across groups A-D, with group B being the largest (N = 412, 52.5%) compared to group D (N = 293, 37.5%). Similarly, mortality in group B patients was significantly higher (N = 103, 25%) than in group C (N = 13, 23.1%).

Conclusion

Our results show that the current GOLD classification possesses gradual predictive value for long-term mortality. Another important finding is that the adaptation of the 2017 GOLD Update resulted in major shift from group D to B of ca 40% of former group D COPD patients, and also from group C to A. This results are in agreement with Cabrera's study⁵.

Demographic data		
Men		572 (73.0%)
Age at inclusion		N=784; 66,6 (9,2); 66,9 (50,9; 81,1)
Age at COPD diagnosis		N=745; 58,7 (11,0); 59,4 (39,7; 74,5)
BMI		N=784; 27,4 (6,2); 26,9 (18,4; 38,0)
Smoking	Ex-smoker	538 (68.6%)
	Non-smoker	86 (11.0%)
	Smoker	160 (20.4%)

Symptoms		
Dyspnoea – mMRC score	0	38 (4.8%)
	1	145 (18.5%)
	2	310 (39.5%)
	3	165 (21.0%)
	4	126 (16.1%)
CAT score		N=775; 16,0 (7,8); 16,0 (4,0; 29,0)
Fatigue		369 (47.6%)
Cough		563 (71.8%)
Expectoration		455 (58.0%)
Purulent sputum		46 (5.9%)
Haemoptysis		42 (5.4%)
Atopy		94 (12.0%)
Asthma		81 (10.3%)

Exacerbation history – previous 12 months		
Treated at home		N=784; 0,8 (1,3); 0,0 (0,0; 3,0)
> 0		317 (40.4%)
Requiring hospital care		N=784; 0,4 (0,8); 0,0 (0,0; 2,0)
> 0		203 (25.9%)
Total		N=784; 1,2 (1,6); 1,0 (0,0; 4,0)
> 0		412 (52.6%)

Pulmonary function tests		
FEV1 (% PV)		N=784; 45,0 (11,6); 46,1 (25,2; 60,0)
FVC (% PV)		N=784; 68,7 (17,6); 67,9 (40,0; 100,1)
VCmax (% PV)		N=784; 72,2 (17,5); 71,0 (45,0; 100,0)
FEV1/FVC (%)		N=784; 0,5 (0,1); 0,5 (0,3; 0,7)
FEV1/VCmax (%)		N=784; 0,5 (0,1); 0,5 (0,3; 0,7)
RV (% PV)		N=632; 186,7 (60,4); 183,8 (99,0; 291,0)
TLC (% PV)		N=629; 110,8 (26,4); 111,0 (68,0; 155,0)
RV/TLC (%)		N=589; 66,5 (20,5); 64,0 (44,0; 104,0)
IC/TLC (%)		N=457; 42,1 (24,1); 33,0 (17,0; 83,3)
TLCO (% PV)		N=509; 52,4 (21,9); 51,0 (22,0; 96,0)
KCO (%)		N=474; 68,7 (26,4); 67,0 (31,0; 115,0)
FeNO (ppb)		N=285; 18,5 (18,9); 13,0 (3,0; 52,0)
6MWD (m)		N=598; 331,3 (131,7); 351,5 (110,0; 530,0)

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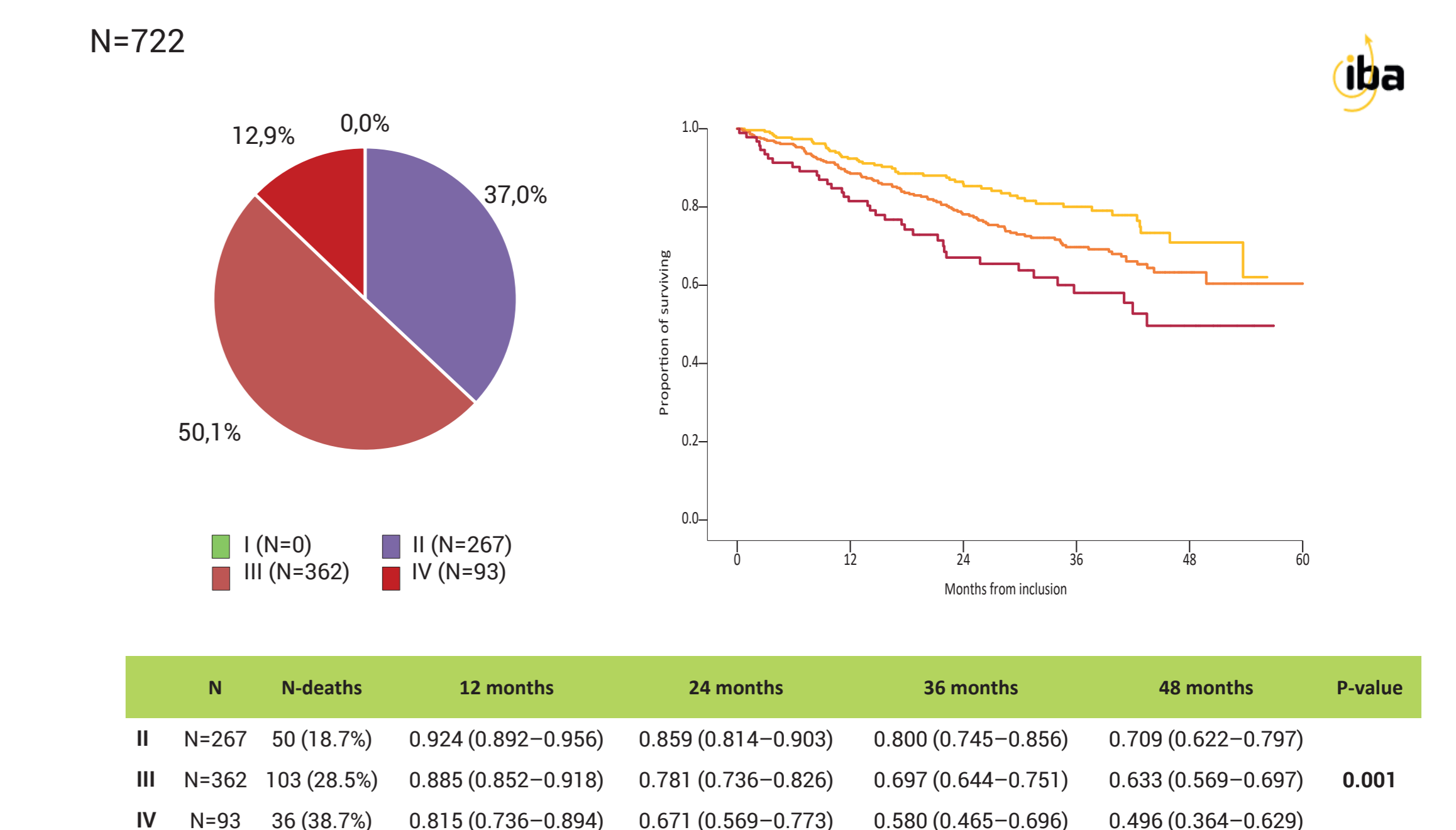
Phenotypes		
Czech	Bronchitic	455 (58.0%)
	Emphysematous	278 (76.0%)
	BCO	112 (31.3%)
	ACO	23 (3.8%)
Spanish	Frequent exacerbator	245 (31.3%)
	Cachexia	111 (14.2%)
	ACO	92 (11.7%)
	NON-AE	485 (61.9%)
AE CB		143 (18.2%)
	AE NON-CB	64 (8.2%)

GOLD		
GOLD (1–4)	1	0 (0.0%)
	2	267 (37.0%)
	3	362 (50.1%)
	4	93 (12.9%)
GOLD 2016 (A–D)	A	35 (4.7%)
	B	150 (20.1%)
	C	39 (5.2%)
	D	523 (70.0%)
GOLD 2017 (A–D)	A	64 (8.2%)
	B	412 (52.7%)
	C	13 (1.7%)
	D	293 (37.5%)

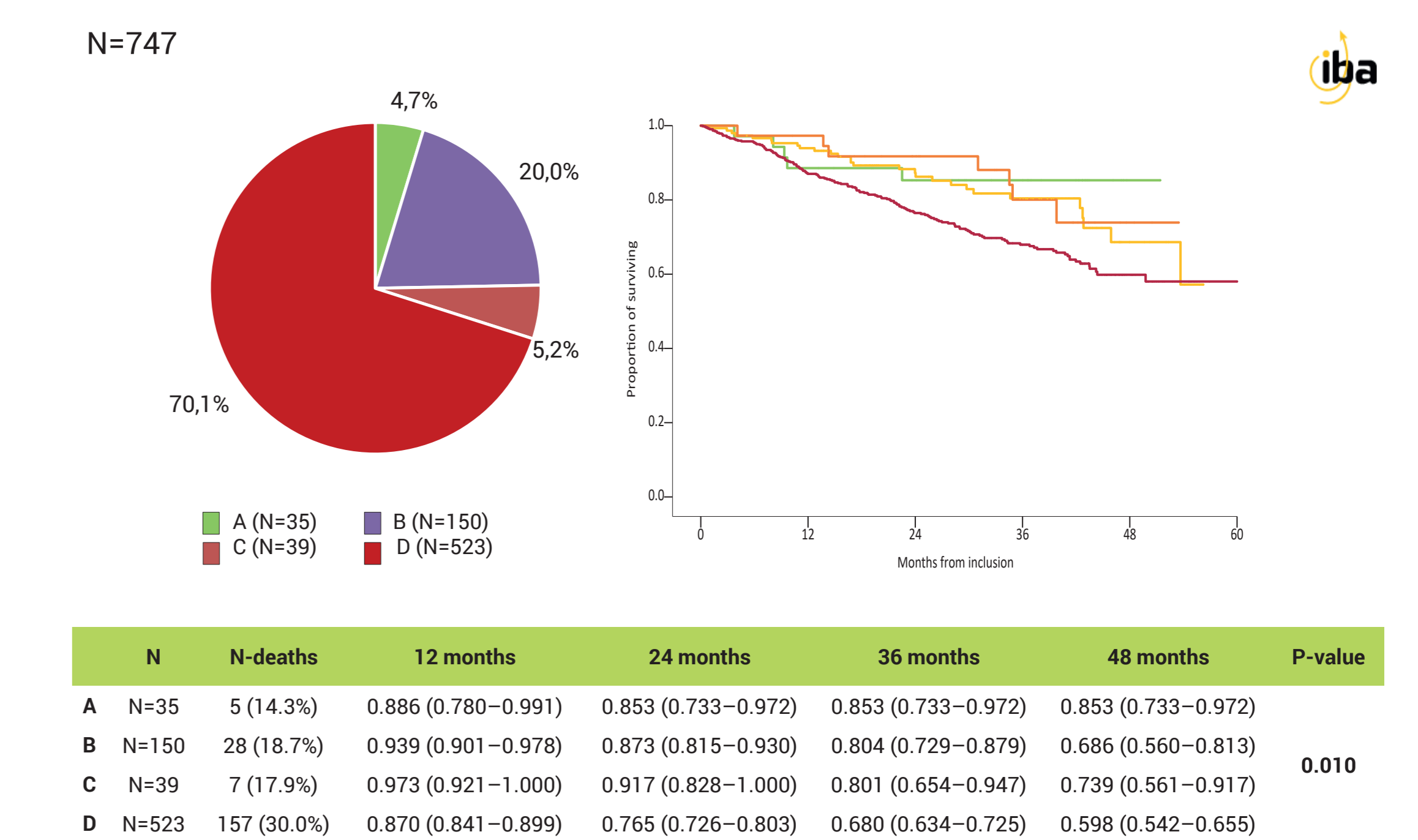
Predictive indices		
BODE		N=598; 4,2 (2,1); 4,0 (1,0; 8,0)
ADO		N=774; 4,7 (1,6); 5,0 (2,0; 7,0)
CPS		N=565; 6,7 (2,4); 7,0 (3,0; 11,0)

Categorical variables are presented as absolute or relative frequencies. Continuous parameters are presented as valid N, mean value (SO) and median (5th; 95th percentile).

Long term survival according to GOLD I–IV



Long term survival according to GOLD 2011–2016 (A–D)



Long term survival according to GOLD 2017 (A–D)

