

NUTRITION STATUS AND COMORBIDITIES IN REAL-LIFE PATIENTS WITH NON-MILD COPD

Czech Multicentre Research Database of COPD

11 (3.2%)

58 (16.9%)

38 (11.1%)

N=343; 0.8 (1.3); 0.0 (0.0; 3.0)

146 (42.6%)

N=343; 0.4 (0.8); 0.0 (0.0; 2.0)

91 (26.5%)

N=343; 1.2 (1.6); 1.0 (0.0; 4.0)

184 (53.6%)

N=343; 44.9 (11.7); 45.9 (25.7; 60.3)

N=343; 72.8 (18.0); 72.8 (44.1; 103.9)

N=343; 76.3 (18.4); 76.0 (50.6; 109.0)

N=343; 0.5 (0.1); 0.5 (0.3; 0.7)

N=343; 0.5 (0.1); 0.5 (0.3; 0.7)

N=308; 197.2 (57.0); 197.0 (112.0; 284.0)

N=307; 116.8 (26.5); 119.0 (70.0; 158.0)

N=307; 65.2 (20.4); 63.0 (44.0; 82.4)

N=283; 42.4 (25.7); 33.0 (17.0; 87.0)

N=251; 49.6 (21.3); 47.0 (23.0; 89.0)

N=244; 65.2 (26.9); 63.0 (26.0; 114.0)

N=252; 322.9 (111.4); 360.0 (120.0; 480.0)

Bronchitic

Emphysematous

Frequent Exacerbato

Pulmonary Cachexy

NON-AE

AE NON-CB

N=179; 21.0 (20.6); 16.0 (4.0; 61.0)

206 (60.1%)

200 (74.3%)

78 (29.4%)

11 (3.9%)

107 (31.2%)

57 (16.6%)

46 (13.4%)

208 (60.6%)

65 (19.0%)

24 (7.0%)

Exacerbations – previous 12 months

E. Voláková¹, J. Zatloukal¹, V. Koblizek², M. Svoboda³, P. Popelkova⁴, M. Plutinsky⁵, K. Brat⁵, B. Novotna⁶, Z. Liptakova¹¹, K.Neumannova¹⁶, Z. Liptakova¹¹, K.Neumannova¹⁶, Z. Liptakova¹¹, K.Neumannova¹⁷, K. Brat⁵, B. Novotna⁶, P. Safranek⁷, T. Dvorak⁷, L. Heribanova¹⊸, B. Snelerova¹⁶, Z. Liptakova¹ゥ, K.Neumannova¹⁷, K.Neumannova¹⁷, R. Z. Zbozinkova³ and the state of the state of

¹Pulmonary Department, University Hospital, Faculty of Medicine, Charles University – Brno (Czech Republic), ⁴Pulmonary Department, University Hospital, Faculty of Medicine, Charles University – Brno (Czech Republic), ⁴Pulmonary Department, University Hospital – Ostrava (Czech Republic), Department of Respiratory Diseases, University Hospital – Praha (Czech Republic), Pulmonary Department, Klaudian's Hospital – Masaryk University Hospital – Praha (Czech Republic), Pulmonary Department, Klaudian's Hospital – Masaryk University Hospital – Praha (Czech Republic), Pulmonary Department, Klaudian's Hospital – Praha (Czech Republic), Pulmonary Department, Klaudian's Hospital – Masaryk University – Plzen (Czech Republic), Pulmonary Department, Klaudian's Hospital – Masaryk University – Plzen (Czech Republic), Pulmonary Department, Klaudian's Hospital – Praha (Czech Republic), Pulmonary Department, Masary Pulmonary Department, Klaudian's Hospital – Praha (Czech Republic), Pulmonary Department, Masary Pulmonary Departmen]] Hospital—Ceske Budejovice (Czech Republic), ¹⁸Faculty of Physical Culture, Palacky University—Olomouc (Czech Republic)

Background

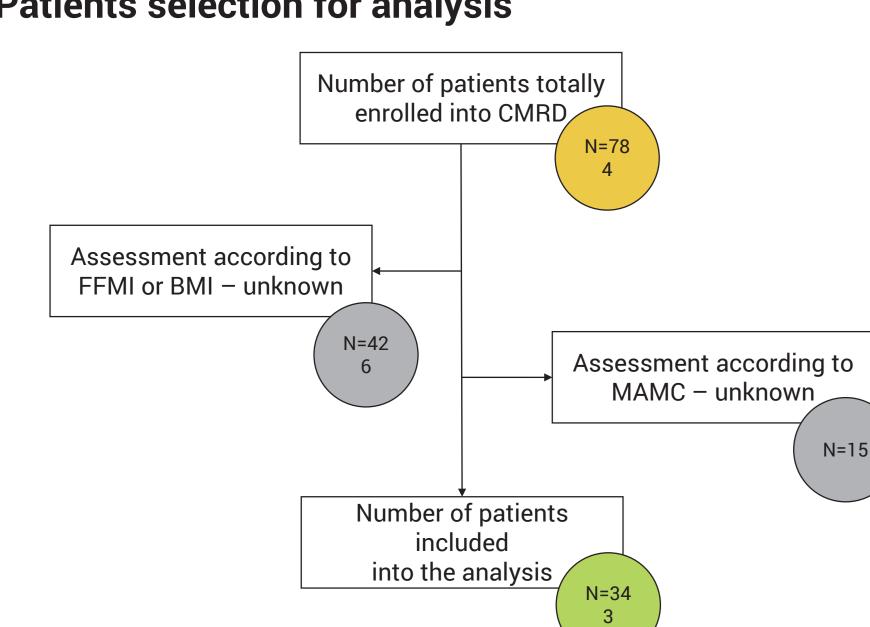
Malnourishment and sceletal muscle wasting are significant extrapulmonary manifestations of COPD, affects its morbidity and mortality [1,2,3]. Associates comorbidities are another important factor affecting prognosis of COPD patients.

The aim of this study is to evaluate the nutritional status, comorbidities according to nutritional status and their impact to the other parameters — pulmonary function tests (PFTs), symptoms, frequency of exacerbations and survival in COPD patients from the Czech Multicentre Research Database (CMRD) of COPD.

Methods

CMRD is a prospective study focused on long-term mortality and on disease evolution in a real-life COPD patient cohort [4]. We analysed baseline data of 343 patients from the CMRD in this study.

Figure 1 - Patients selection for analysis



Patients characteristics

Haemoptysis

At home treated

Requiring hospitalizatio

FEV1 (% PV)

FVC (% PV)

VCmax (% PV)

FEV1/FVC (%)

FEV1/VCmax (%)

FeNO (ppb)

Czech (objective)

Spanish

				GOLD (1-4)	1	0 (0.0%)			
	Demo	grphy			2	115 (35.8%)			
Men		253 (73.8%)			3	166 (51.7%)			
at inclusion		N=343; 66.6 (8.4); 66.7 (54.0; 79.8)			4	40 (12.5%)			
COPD diagnosis		N=327; 58.0 (11.4); 59.0 (37.7; 74.4)		GOLD 2016 (A-D)	Α	18 (5.4%)			
BMI		N=343; 27.3 (6.0); 27.2 (18.0; 37.4)			В	58 (17.4%)			
king status	Ex-smoker	252 (73.5%)			С	18 (5.4%)			
	Never smoker	24 (7.0%)			D	239 (71.8%)			
	Smoker	160 (20.4%)		GOLD 2017 (A-D)	А	32 (9.4%)			
	Symp	toms			В	178 (52.0%)			
Dyspnea Score		23 (6.7%)			С	5 (1.5%)			
	1	86 (25.1%)			D	127 (37.1%)			
	2	135 (39.4%)							
	3	52 (15.2%)		Р	Predictive Index				
	4	47 (13.7%)		BODE	N=252; 4.0 (2.2); 3.0 (1.0; 8.0)				
AT score	4	N=338; 16.8 (7.5); 17.0 (4.0; 29.0)		ADO	N=338; 4.6	5 (1.6); 4.0 (3.0; 7.0)			
Fatigue		153 (44.6%)		CPS	N=239; 6.3 (2.4); 6.0 (3.0; 11.0)				
		` '	004		accusted ac abac	luta (valativa) francus			
Cough		227 (66.2%)		egorial parameters are pr		_			
pectoration		206 (60.1%)		continuous parameters are presented as valid N, mean value (SO) a nedian (5th; 95th percentile).					
lent sputum		24 (7.0%)	me						

GOLD

Fat free mass index (FFMI) measured by skinfold anthropometry (SFA) [5] and Mid-Arm Muscle Circumference (MAMC) in non-dominant upper arm were used to evaluate the nutritional status and muscle mass loss. Medical history and data from the healthcare reports were used to asses the comorbidies. Kaplan-Meier survival analyses in the 48-month follow-up

Figure 2 - Patients assessment according to FFMI and BMI

were performed.

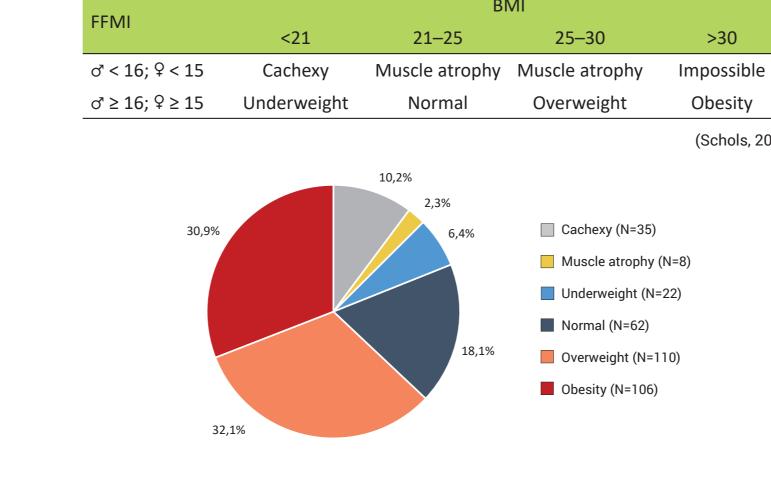


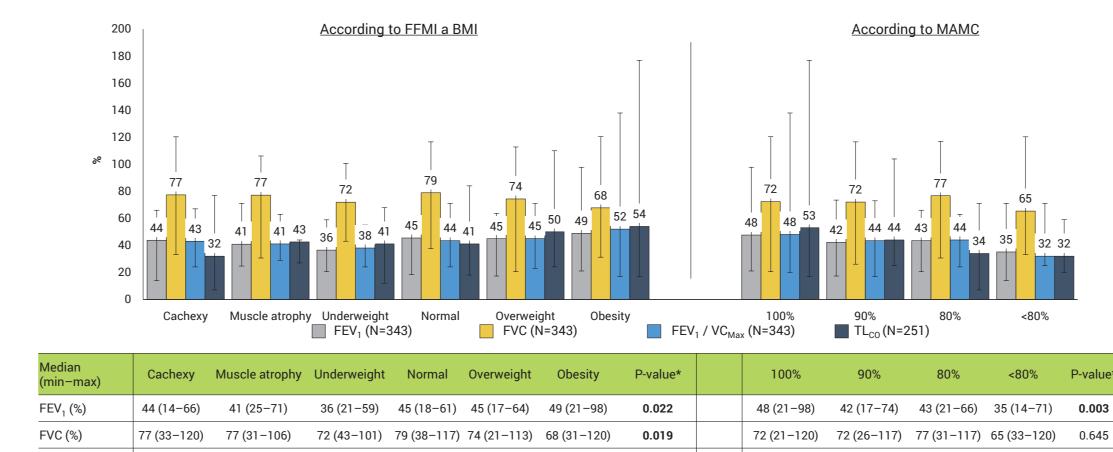
Figure 3 - Patients assessment according to MAMC

FFMI		Status							
		Physiological		Muscle	Muscle loss		Significant muscle loss		
% of the Standard	d	100	90	80	70	60	50	40	
MAMC	♂	25.5	23.0	20.0	18.0	15.0	12.5	10.0	
	Q	23.0	21.0	18.5	16.0	14.0	11.5	9.0	
16	5,0%					(Hronek, 2011)			
					Physiological – 90% (N=86) Muscle loss – 80% (N=55)				
				54,2%		Muscle loss -	, ,		
25,1%					Significant muscle loss – 40–60% (N=2)				

Results

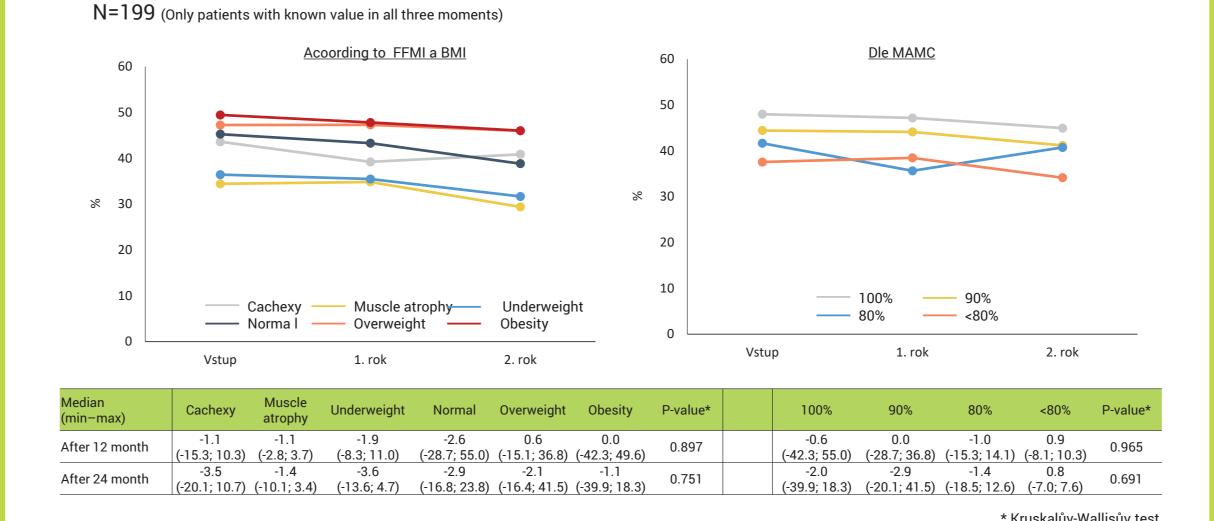
We found significant differences of nutritional status among patients with different Czech COPD phenotypes [6], but not in GOLD groups (GOLD 2016 neither GOLD 2017). In the group of the underweight patients, there was lower FEV1, lower FEV1/VCmax and lower TLCO at baseline than in the group of the obese patients, but there were no significant differences among the groups in declination of PFTs during 24 month follow- up.

Figure 4 - PFTs according to FFMI and BMI and according to MAMC



TL_{CO} (%) 32 (7-77) 43 (27-44) 41 (12-68) 41 (18-84) 50 (24-110) 54 (17-177) **<0.001** 53 (17-177) 44 (25-104) 34 (7-71) 32 (20-59) **<0.001**

Figure 5 - Declination of FEV₁ - 24-month follow-up



Associates comorbidities were different too. Obesity was associated with higher frequency of diabetes mellitus, heart failure and other cardiovascular comorbidities. Cachexy was associated with osteoporosis and depression.

Figure 6 - Comorbidities in the groups of the patients according to FFMI and BMI

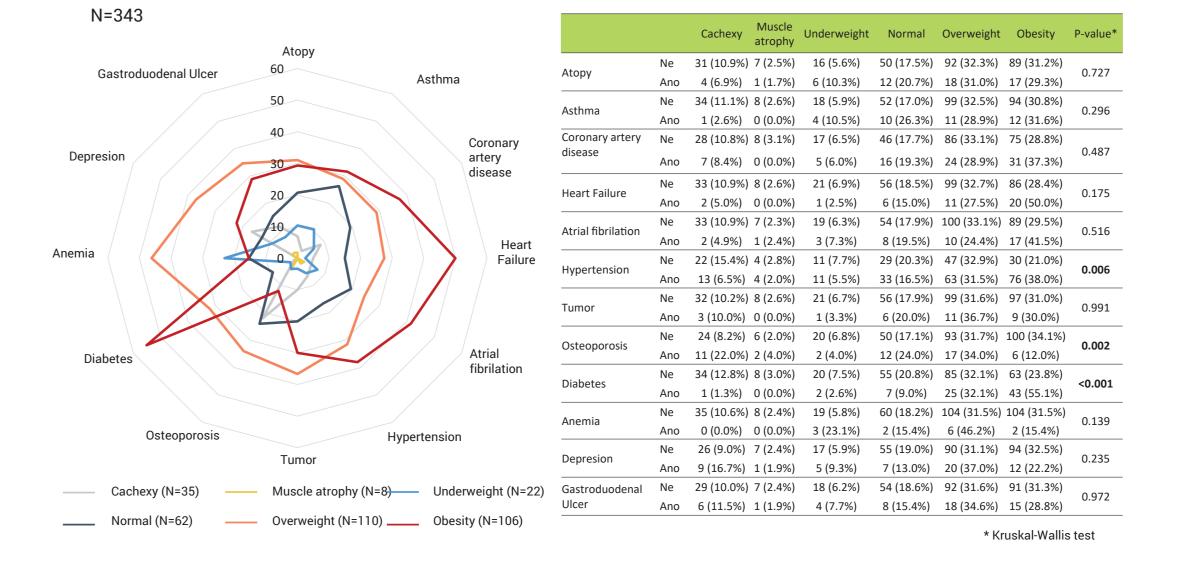
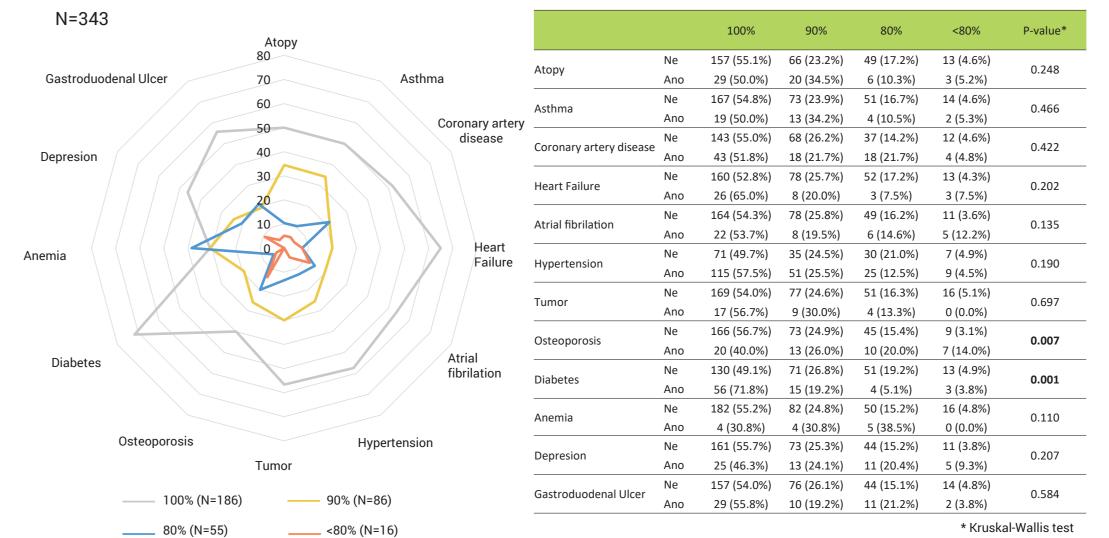
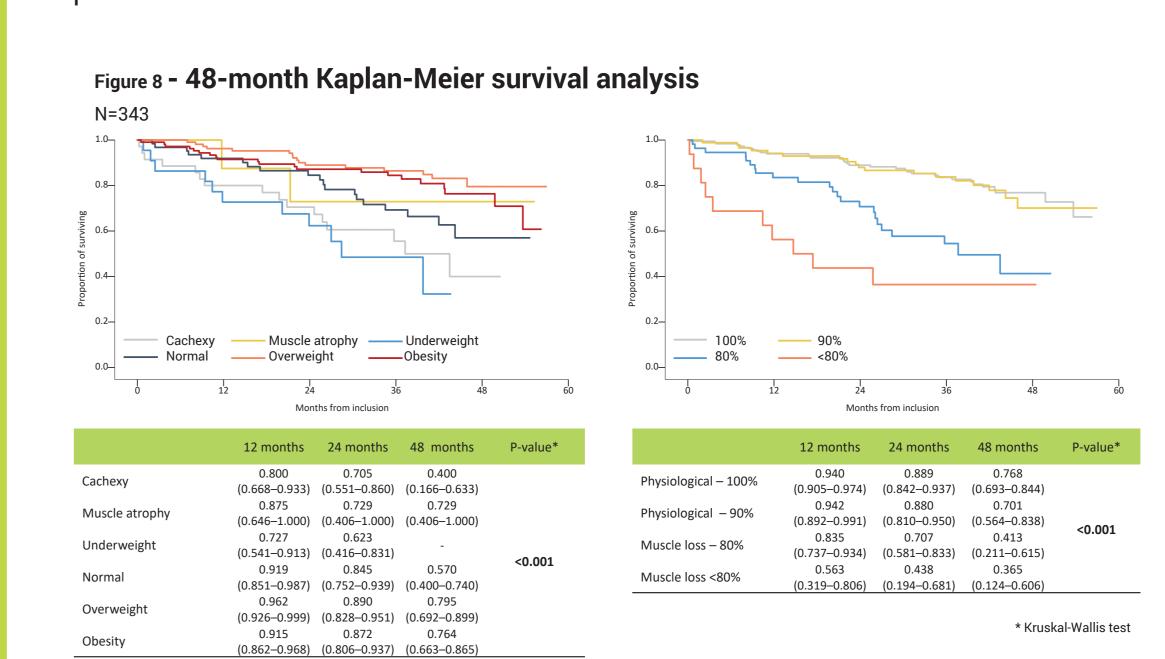


Figure 7 - Comorbidities in the groups of the patients according to MAMC



We found significant differences in mortality. The highest mortality in 48 month follow- up was in underweight patient and the lowest was in overweight patients.



Conclusion

Poor nutrition and non-physiological muscle mass loss are associated primarily with emphysematous COPD phenotype, They are associated with worse PFTs, higher frequency of symptoms and exacerbations and worse survival. Poor nutritional status was not associated with faster declination of lung function. Comorbidity patterns differ in cachectic and obese COPD population. The underweight and cachectic COPD patients had the lowest life-expectancy, the overweight patients had the best. The prognosis of the obese and overweight COPD patients mainly depends on metabolic and cardiovascular comorbidi-

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