ABSTRACTS

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13–16 January 2021

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8th INTERNATIONAL WORKSHOP ON LUNG HEALTH

Treatable Traits: a look forward

Presidents:

Francesco Blasi
G. Walter Canonica

Chairmen:

Stefano Aliberti
Stefano Centanni
Johann Christian Virchow
Tobias Welte

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ABSTRACTS

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Important note:
The abstracts in this book are listed in alphabetical order (first author, last name).

The aim of this study was to investigate the prevalence of small fiber neuropathy (SFN)-related symptoms in patients with sarcoidosis.

Methods: The © SFNSL (Small Fiber Neuropathy Screening List): ild care foundation (www.ildcare.nl) was administered during follow-up visits. The study was conducted between March 2020 and September 2020. Demographics, clinical and radiologic data were also retrospectively collected. The study was approved by the Ethics Committee of the University Hospital of Padova (4280/AO/17).

Results: 42 adult outpatients were enrolled. 26 patients (62%) obtained a score above 11, indicative of probable or highly probable SFN, and 16 did not (38%). SFN was significantly associated with female gender (p=0.0037), symptoms at onset (p=0.01), presence of fatigue or muscle dizziness (p=0.007) and dyspnea (p=0.005). In addition, patients with SFN symptoms were younger, although this difference only trended toward statistical significance (p=0.053). Conversely, patients with hypercalcemia/hypercalciuria were less likely to have SFN-related symptoms (p=0.017). In univariate and multivariate analysis, the presence of symptoms at onset increased significantly the risk of SFN-related symptoms (p =0.013, OR:10.7, 95%IC 1.64 – 69.8).

Conclusion: Symptoms of SFN are highly prevalent in patients with sarcoidosis and are associated with reduced quality of life. Early recognition and appropriate management of SFN may improve patients quality of life. ❑

Table 1:

Table 1 Clinical and radiological features of the overall population and of the two subgroups

	Total: 42	SFNSL < 11 (16)	SFNSL > 11 (26)	p
Sex (male)	25 (60%)	14 (87%)	11 (42%)	**0.0037**
Age (years)	52.9 ± 10.85	54 ± 10.7	52 ±11.1	0.71
BMI (Kg/m^2)	25.9 (18.4 – 38.7)	25 (21 – 31)	26 (18 – 39)	0.81
Age at diagnosis (years)	45 ± 11.2	49.2 ± 9.8	42 ± 11.3	0.053
Smoke history (yes)	24 (57%)	9 (56%)	15 (58%)	0.92
P/y (pack/years)	2.5 (0 – 40)	2.7 (0 – 25)	2.5 (0 – 40)	0.98
ACE (U/l)	40 (8 – 195)	40 (8 – 119)	43 (8 – 195)	0.6
TLC (L)	5.2 (3.1 – 8.4)	6.3 (3.1 – 8.4)	4.9 (3.1 – 7.3)	0.061
TLC (%)	90 (44 – 119)	88 (44 – 119)	93 (55 – 113)	0.45
DLCO (%)	82 (32 – 115)	86 (32 – 115)	82 (53 – 108)	0.69
FVC (L)	3.8 (1.6 – 6.3)	4.3 (2.5 – 6.3)	3.5 (1.6 – 5.7)	0.17
FVC (%)	102 (47 – 132)	97 (52 – 132)	102 (47 – 128)	0.54
mMRC >2	13 (31%)	1 (6%)	12 (46%)	**0.005**
Fatigue/muscle dizziness (yes)	19 (45%)	3 (19%)	16 (61%)	**0.007**
Symptoms at onset (yes)	26 (62%)	6 (37.5%)	20 (77%)	**0.01**
Comorbidities				
• DM / dyslipidaemia	4 (9.5%)	1 (6%)	3 (11%)	0.57
• Cardiovascular	16 (38%)	7 (47%)	9 (35%)	0.55
• Cancer	7 (17%)	2 (12%)	5 (19%)	0.57
• Thyroid	7 (17%)	1 (6%)	6 (23%)	0.15
• GERD	9 (21%)	1 (6%)	8 (31%)	0.06
Extra-pulmonary localizations				
• Cardiac	3 (7%)	1 (6%)	2 (7.7%)	0.86
• Bone	2 (5%)	2 (12.5%)	0 (0%)	0.29
• Nervous	1 (2,5%)	0 (0%)	1 (4%)	0.72
• Ocular	4 (9%)	1 (6%)	3 (11%)	0.57
• Liver	4 (9,5%)	2 (12.5%)	2 (7.7%)	0.61
• Spleen	5 (12%)	2 (12.5%)	3 (11%)	0.92
• Hypercalcemia/ hypercalciuria	8 (20%)	6 (37%)	2 (7.7%)	**0.017**
1 line therapy (yes)	19 (45%)	7 (43.7%)	12 (46%)	0.47
2 lines therapy (yes)	10 (24%)	2 (12.5%)	8 (31%)	0.17
Scadding 0	6 (14%)	1 (6%)	5 (19%)	0.24
Scadding 1	12 (28%)	4 (25%)	8 (31%)	0.68
Scadding 2	13 (31%)	7 (44%)	6 (23%)	0.16
Scadding 3	9 (21%)	4 (25%)	5 (19%)	0.66
Scadding 4	2 (5%)	0 (0%)	2 (8%)	0.86

GERD: gastroesophageal reflux disease, DM: diabetes mellitus, ACE: angiotensin converting enzyme.

RISING STAR

The Prognostic role of MUC5B rs35705950 genotype in patients with Idiopathic Pulmonary Fibrosis (IPF) on antifibrotic treatment

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Background and aim: A common variant located in the promoter region of MUC5B (rs35705950) is the strongest risk factor for sporadic and familiar IPF, as well as a predictor of outcome. However, there are no data on the effect of MUC5B rs35705950 genotype on the prognosis of IPF patients on antifibrotic treatment. The aim of this study is to determine, in a phenotypically well-characterized population of patients with IPF treated with antifibrotics, the impact of MUC5B rs35705950 genotype on disease progression and survival.

Methods: 88 IPF patients on antifibrotic treatment were followed-up from 2014 until transplantation, death or end of follow-up (December 2019). Disease progression was defined as a forced vital capacity (FVC) loss ≥5% per year. All patients were genotyped for MUC5B rs35705950 by PCR amplification and Sanger sequencing.

Results: Out of 88 patients, 61 (69%) carried the mutant T allele (TT or TG) and 27 (31%) did not (GG). Patients carrying the GG genotype had higher smoking history (30 vs. 10 PY; p<0.001) and lower FVC at treatment start (2.32 vs. 2.86L, p=0.02; 68 vs. 78%, p=0.05) compared to TT/TG genotype. Respiratory failure (RF) at rest occurred later in patients with the TT/TG genotype (31 vs. 24 months, p=0.04). Moreover, carriage of the MUC5B rs35705950 T allele was not associated with a faster decline in FVC. Conversely, at the end of the follow-up, overall survival in carriers of the TT/TG genotype was longer compared to that of the GG genotype carriers (HR 0.40, 95% CI 0.18–0.91; p=0.006). FVC (L) at baseline and time to occurrence of respiratory failure at rest were independent predictors of worse prognosis.

Conclusions: In IPF patients on antifibrotic treatment, carriage of the MUC5B rs35705950 T allele is associated with longer survival, highlighting the usefulness of MUC5B genetic data in clinical decision making. ❑

The effect of smoking on nutritional status and the severity of the disease in patients with COPD

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Introduction: Chronic obstructive pulmonary disease (COPD) is an urgent problem of modern pulmonology. Patients with more severe bronchial obstruction and body mass index (BMI)<25 kg / m2 have a higher risk of death compared with patients with COPD who are overweight and even obese.

The aim: To determine the effect of smoking on indicators of nutritional status in patients with COPD.

Materials and methods: A study included 95 patients with COPD. Patients were divided into two groups depending on the status of smoking: smokers and non-smokers.Criteria for inclusion in the study: verified diagnosis of COPD in clinical groups B and C, stable phase. The exclusion criteria from the study were: patients over 80 years old, history of acute cardiovascular events, clinically significant heart rhythm disturbances, previously diagnosed diabetes mellitus, kidney diseases, cancer, surgical operations during the last year.The program Statistica 10.0 was used.Everyone underwent an assessment of the severity of COPD and a study of nutritional status.

Results.

Table. 1. Clinical characteristics of control groups

Characteristics	Group I (non-smokers)	Group II (smokers)	p
Age, y M (SD)	55,8 (6,7)	58,3 (8,1)	0,1
Dyspnea severity mMRS, M (SD)	2(1;3)	3(2;4)	0,047
Exacerbation rate (SD)	1(1;2)	1(1,3)	0,6

Table. 2. Spirometry indices in the examined patients.

Characteristics	Group I (non-smokers)	Group II (smokers)	p
FVC, % Me [25 %-75 %]	85,0 (77,0-92,0)	87,5(70,0-96,0)	0,8
FEV1, % Me [25 %-75 %]	51,0 (44,0 -62,0)	45,0 (34,0 -59,0)	0,04
FEV1%M Me [25 %-75 %]	54,5 (37,0-65,0)	48,0(54,0- 62,0)	0,3
MEF 75, % Me [25 %-75 %]	53,0 (41,6-68,6)	43,0 (31,3-56,4)	0,6
MEF 50, % Me [25 %-75 %]	19,5 (25,5-51,5)	40,0 (18,7-55,2)	0,2
MEF 25, % Me [25 %-75 %]	22,0 (23,8-48,0)	31,0 (15,4-34,7)	0,6
PEF, % Me [25 %-75 %]	54,5 (37,0-65,0)	50,5 (30,7,0-65,0)	0,5
IC_F, % Me [25 %-75 %]	57,5 (47,2-69,6)	52,5 (17,7-65,0)	0,8

Table. 3. Indicators of nutritional status in the examined patients with COPD.

Characteristics	Group I (non-smokers)	Group II (smokers)	p
Age, y M(SD)	55,8 (6,7)	58,3 (8,1)	0,1
Body mass , kg Me [25 %-75 %]	87,0 (82,0-88,0)	78,0(71,7-93,3)	0,7
BMI, Me [25 %-75 %]	26,3(25,0-30,0)	26,6(23,9-30,3)	0,9
Fat tissue, % Me [25 %-75 %]	25,05(24,6- 25,1)	35,1(31,1-37,5)	0,001
Muscle tissue , % Me [25 %-75 %]	39,9(34,5-44,9)	20,8 (16,8-29,7)	0,002
Visceral fat , % Me [25 %-75 %]	10,5 (8,0-12,0)	8,0 (5,5-11,0)	0,2
Waist circumference , sm M(SD)	95,5 (1,5)	91,5 (1,7)	0,3

Conclusions: Patients suffering from COPD have a violation of nutritional status. Smoking patients develop sarcopenic obesity, which progresses with an increase in the degree of nicotine addiction, correlates with the "pack / year" index and is a predictor of increased mortality in this category of patients.Increased bronchial obstruction in smokers with COPD is observed with an increase in smoking history, the number of cigarettes smoked and with a decrease in body weight.Reducing the pool of muscle tissue can be considered as an early predictor of more frequent exacerbations in smoking patients with COPD. ❑

The features of frequent exacerbators phenotype in patients with bronchiectasis in Ukraine

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Background: Exacerbations are the key predictors of the progression of bronchiectasis and mortality rising. Traditionally, the presence of *Pseudomonas aeruginosa* in sputum, underweight, low pulmonary function and previous hospitalizations are predictors of more frequent exacerbations. The objective was to determine if there are other factors of more frequent exacerbations in patients with bronchiectasis in Dnipro region of Ukraine.

Materials and methods: 76 patients with confirmed bronchiectasis by HRCT were included. Exacerbations frequency during the previous year was calculated by medical documentation analyzing. Microbiological detection of sputum samples was conducted by conventional bacteriological methods. Weight and visceral fat (VF) were measured by «Body composition monitor Omron BF511» for the static weighing and body mass index (BMI) was calculated. The methods of descriptive and non-parametric statistics were used to process the results.

Results: The median age was 56(38.5:65.5) years, 25 were men (32.9%). 39 patients (51.3%) had 0-2 exacerbations in previous year and were included in G1. 37 patients (48.7%) had 3 and more exacerbations per previous year (frequent exacerbators) and were included in G2 for analysis. The median BMI in G1 was 22.3(20.4;25.1)kg/m^2, in G2 – 26(21.6;28.4)kg/m^2, p=0.028. According to the results of the BMI calculation, the patients in were distributed as follows: in G1 underweight (≤18.5 kg/m^2) – 2 (5.1%) patients, in G2 – 4 (10.8%), p=0.56; normal weight (18.5-25 kg/m^2) in G1 – 26 (66.7%), in G2 – 12 (32.4%), p=0.006; overweight (25<BMI≤30 kg/m^2) in G1 – 11 (28.2%), in G2 – 21 (56.8%), p=0.012; obesity class I (30<BMI≤35 kg/m^2) in G1 had 3 (7.7%) patients, in G2 – 7 (18.9%), p=0.06. The median VF in G1 was 5(4;9)%, in G2 – 9(5;13)%, p=0.039. Asthma was a comorbid condition in 12 patients in the group of frequent exacerbators (32.4%), while no one patient from G1 had comorbid asthma, p=0.0001. 8 patients from 12 (66.7%) with asthma in G2 also had an overweight, the median BMI was 26(22;30.5) kg/m^2, the median exacerbation frequency was 4(3;7.5) per year.

Conclusions: Almost half of patients with bronchiectasis in Ukraine are frequent exacerbators. Based on the data received it is possible to assume that high percentage of VF and overweight in general could be factors which lead to more frequent exacerbation in patients with bronchiectasis in Ukraine even more then underweight. In turn, the presence of comorbid asthma also is one of the predictor of more frequent exacerbations. This indicates the need for lifestyle modifications to correct BMI in order to reduce the number of exacerbations. Patients with comorbid asthma and overweight require special attention to predict further high exacerbations frequency. ❑

COPD: Alfa-1 antitrypsin (AAT) serum concentration and the airway obstruction

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AAT hereditary deficiency is proved risk factor for COPD. However, only 1 % of patients (pts) with COPD have genetically determined AAT deficiency.

Aim: to evaluate serum AAT in pts with stable COPD and study whether severity of airway obstruction depends on the serum AAT concentration. Study population. Stable pts with confirmed COPD (GOLD I-IV). Exclusion criteria were gastrointestinal comorbidity, malignancy, systemic connective tissue diseases and any signs of acute inflammation.

Methods: AE history during past year, post-bronchodilator spirometry (by Masterlab, Viasis), serum AAT (by kinetic immune turbodimetry) were evaluated in all pts.

Results: 45 stable patients (pts) with COPD (GOLD I-IV) (41 (91%) men) made the study sample. Medium AAT serum concentration were within normal ranges (189,54 [147.60-209.24] mg/dl). However, in 9 pts (20 %) AAT concentration was low (under 150 mg/dl) and in 6 pts (13 %) it was borderline (150-160 mg/dl).

The difference in AAT was statistically significant in groups with different GOLD stages (p = 0.009). FEV1 positively moderately correlate with serum AAT concentration (R = 0.415, p = 0.006).

Conclusion:

1. 20 % of pts with stable COPD have low serum AAT concentration despite normal genetic profile.
2. Serum AAT concentration negatively correlate with severity of airflow limitation ❑

Hypodiagnosis of Primary antibody deficiencies in patients with COPD, Sarcoidosis and Chronic Rhinosinusitis

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