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Abstracts Book

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9TH INTERNATIONAL WORKSHOP ON LUNG HELATH

Milan

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ABSTRACTS

Presidents

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Stefano Aliberti, Italy
Stefani Centanni, Italy
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Important note:

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

P.01 Inhaled bacteriophage therapy for treating respiratory infections caused by multidrug resistant Pseudomonas aeruginosa

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Background:

Emergence of multidrug resistant (MDR) bacteria is causing a global medical challenge for treatment of respiratory infections. Inhaled bacteriophage (or phage) therapy is a promising alternative treatment option that is gaining a renewed and increasing amount of attention for its ability to eradicate MDR bacteria.

Aim:

The purpose of this project is to develop novel therapeutics using phages to address the major clinical problem associated with infections caused by MDR pathogens.

Methods:

Pseudomonas-targeting phage PEV20 was co-spray dried with lactose and L-leucine (with and without ciprofloxacin) using a Büchi 290 spray dryer. The biological activity of phages in the powder formulation was assessed using standard plaque assay. Physicochemical properties and dispersibility of the phage powder were assessed to determine the suitability of formulations for inhaled delivery. The safety of the formulations was assessed *in vitro* and *in vivo*. The *in vivo* efficacy was studied using a neutropenic mouse lung infection model (n=4) using a MDR *P. aeruginosa* clinical isolate. The bacterial suspension was administered via intratracheal instillation, followed by delivery of phage and phage-ciprofloxacin combination powders using the same route of administration. Bacterial and phage concentrations in the lung homogenates and plasma samples were determined at 4 h and 24 h post-treatment

Results:

We have produced novel anti-*Pseudomonal* phage-containing powders that provide biological and physicochemical stability, and are suitable for inhalation delivery. Efficacy study showed extremely efficacious and safe properties of our novel formulations in murine lung infection model. Phage and antibiotic combination formulation further enhanced the antibacterial activity against planktonic cells and biofilms, and supressed bacterial regrowth. Moreover, the combination formulation was efficacious *in vivo* and exhibited biological and physicochemical stability over storage.

Conclusions:

This project will lead to an economic and efficient technology to produce phage aerosols for novel treatment strategies of infections by inhalation.

RISING STARS

P.02 Post-COVID-19 lung fibrosis: Effect of hyperglycemia, radiological phenotypes, & response to antifibrotics; Study of 600 cases in tertiary care setting in India

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Introduction: Although Lung is the primary target organ involvement in corona virus disease-19 (COVID-19), post-covid lung pathology is still uncertain. Post covid 19 lung fibrosis is known to occur documented as outcome in majority of cases and its course is unpredictable.

Methods: multicentric observational study, included 600 COVID-19 cases with lung involvement documented and categorized on HRCT thorax at entry point and at six weeks post discharge, 3 months and six months of discharge from hospital. Age, gender, Comorbidity and use BIPAP/NIV in COVID-19 cases and outcome as with or without lung fibrosis as per CT severity were key observations. We have used conventional lung antifibrotics during entire study for treatment of pulmonary post covid fibrosis as Pirfenidone 267 mg three times, Nintedanib 100 mg three times and Deflazacort 6 mg in tapering order from three times to one time daily during period of 12 weeks. Final assessment done at 3 months and six months interval for resolution of residual lung fibrosis. Radiological phenotypes were categorized as resolving, persistent and progressive lung fibrosis as per CT Thorax follow up at 3 and 6 months. Statistical analysis is done by using Chi square test.

Observations and analysis: We observed lung fibrosis in 13.66% post covid-19 pneumonia cases, and statistically significant association in males (70/82) versus females (12/82) [p<0.00004]; similar observation in below 50 years (16/82) versus above 50 years (66/82) [p<0.0003]. Diabetes Mellitus (DM) was present in 194/600 cases versus non-Diabetes (62/82) [p<0.00001]. Diabetes Mellitus (DM) was present in 194/600 cases and shown significant impact on lung fibrosis (62/82) as compared to non-diabetes cases [p<0.00001].

Hyperglycemia was documented in 410/600 cases, and transient hyperglycemia 216/600, newly diagnosed DM and cases with known DM 194/600 [p<0.00001].

Duration of illness has associated negative impact on lung fibrosis; <7 days, 8-15 days and >15 days of onset of symptoms documented post covid 19 fibrosis in (16/240) 6.66%, (22/190) 11.57% and (44/170) 25.88% cases respectively [p<0.00001]. Use of BIPAP/NIV at entry point i.e <1 day, 3-7 days and after 7 days of hospitalization were documented lung fibrosis in 7.77, 37.33 and 72.72 cases respectively [p<0.00001].

Hyperglycemia plays important role in resolution of post covid-19 lung fibrosis, transient hyperglycemia cases were showing significant resolution in fibrosis in <12 weeks versus >24 weeks' time to show significant resolution in previously known diabetes mellitus cases (P<0.044).

During course of convectional antifibrotics available to treat (pirfenidone, Nintedanib and Steroids Deflazacort) we have documented 60 cases were showing significant and near total recovery in residual post covid-19 lung fibrosis (reversible phenotype), 19 cases were showing persistent type and documented very slow improvement in lung fibrosis (persistent phenotype) and only three cases were required follow up till one year and now they are in protocol of undifferentiated fibrosing lung disease (progressive phenotype) and getting same antifibrotics in same dose with

good quality of life and lung functions in these 3 cases (p<0.00001).

Conclusion:

1. Lung fibrosis in Post-covid 19 cases is documented and should be assessed cautiously to have successful treatment outcome. Age above 50 years, male gender, Diabetes, High CT severity, longer duration of illness, proper timing of initiation of BIPAP/NIV therapy, and its early use in comorbid class has documented significant impact on post covid lung fibrosis

2. Hyperglycemia has significant association with covid-19 pneumonia and we have documented transient hyperglycemia plays similar risk of acquiring and presenting with similar radiological presentation as of previously known Diabetes mellitus cases. Lung fibrosis is known to occur relatively more often in COVID-19 pneumonia cases in presence of hyperglycemia and it will take more than usual time to resolve in presence of Diabetes mellitus.

3. To conclude, COVID-19 pneumonia has unmasking effect on Diabetes mellitus and many undocumented diabetes cases were diagnosed after covid-19 disease. Response to conventional antifibrotics is excellent and it will have positive impact on radiological and clinical outcome in post covid-19 fibrosis cases.

P.03 TFEB signaling attenuates NLRP3-driven inflammatory responses in severe asthma.

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Background:

NLRP3-driven inflammatory responses by circulating and lung-resident monocytes are critical drivers of asthma pathogenesis. Autophagy restrains NLRP3-induced monocyte activation in asthma models. Yet, the effects of autophagy and its master regulator, transcription factor EB (TFEB), on monocyte responses in human asthma remain unexplored. To investigate whether activation of autophagy, and associated TFEB signaling, suppress inflammatory monocyte responses in individuals with distinct asthma severities.

Methods:

Peripheral blood CD14^{+} monocytes from asthmatic patients (*n*=66) and healthy controls (*n*=37) were stimulated with LPS/ATP to induce NLRP3 activation with or without the autophagy inducer, rapamycin. ASC specks, caspase-1 activation, IL-1β and IL-18 levels, mitochondrial function, ROS release and mTORC1 signaling were examined. Autophagy was evaluated by LC3 puncta formation, p62/SQSTM1 degradation and TFEB activation. Using a severe asthma (SA) model, we investigated the effects of TFEB activation on ameliorating asthmatic phenotypes in mice with myeloid-specific TFEB-overexpression or following administration of trehalose, the TFEB activator.

Results:

We observed increased NLRP3 inflammasome activation, concomitant with impaired autophagic flux in circulating monocytes that correlated with asthma severity. Monocytes from SA patients exhibited mitochondrial dysfunction and ROS accumulation. Autophagy failed to inhibit NLRP3-driven monocyte responses in SA, due to defective TFEB activation and excessive mTORC1 signaling. In turn, TFEB overexpression in myeloid cells and/or trehalose administration restored impaired autophagy, attenuated NLRP3-driven airway

inflammation and ameliorated SA manifestations.

Conclusions:

Our studies uncover a crucial role for TFEB signaling in suppressing inflammatory monocyte responses, raising the prospect that this pathway can be therapeutically harnessed for the management of SA.

P.04 Comparison between acute exacerbations of idiopathic pulmonary fibrosis and other interstitial lung diseases

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Interstitial lung diseases (ILDs) comprise a wide group of pulmonary parenchymal disorders. These patients may experience acute respiratory deteriorations of their respiratory condition, termed "acute exacerbation" (AE). The incidence of AE-ILD seems to be lower than idiopathic pulmonary fibrosis (IPF), but prognosis and prognostic factors are largely unrecognized. We retrospectively analyzed a cohort of 158 consecutive adult patients hospitalized for AE-ILD in two Italian university hospitals from 2009 to 2016. Patients included in the analysis were divided into two groups: non-IPF (62%) and IPF (38%). Among ILDs included in the non-IPF group, the most frequent diagnoses were non-specific interstitial pneumonia (NSIP) (42%) and connective tissue disease (CTD)-ILD (20%). Mortality during hospitalization was significantly different between the two groups: 19% in the non-IPF group and 43% in the IPF group. AEs of ILDs are difficult-to-predict events and are burdened by relevant mortality. Increased inflammatory markers, such as neutrophilia on the differential blood cell count (HR 1.02 (CI 1.01–1.04)), the presence of pulmonary hypertension (HR 1.85 (CI 1.17–2.92)), and the diagnosis of IPF (HR 2.31 (CI 1.55–3.46)), resulted in negative prognostic factors in our analysis. Otherwise, lymphocytosis on the differential count seemed to act as a protective prognostic factor (OR 0.938 (CI 0.884–0.995)). Further prospective, large-scale, real-world data are needed to support and confirm the impact of our findings.

P.05 Day and night-time symptoms among Greek COPD patients who recently initiated treatment with dual bronchodilation: the DANICO study

Konstantinos Kostikas[1]; Katerina Dimakou[2]; Konstantinos Gourgoulianis[3]; Mina Gaga[4]; Dimosthenis Papapetrou[5]; Georgios Tsoukalas[6]; Panagiotis Chatziapostolou[7]; Antonios Antoniadis[8]; Georgios Meletis[9]; Efstathia Evangelopoulou[10]; Panagiota Styliara[11]; Ilektra Karypidou[12]; Athena Gogali[1]; Konstantinos Kalafatakis[13]; Nikolaos Tzanakis[14]

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Background:

The rationale of this study was to investigate to evaluate the real-life effectiveness of the fixed dose combination of aclidinium/formoterol on daily and night symptoms and quality of sleep in Greek COPD patients.

Methods:

DANICO was a multicenter observational study in COPD patients who recently started treatment with aclidinium/formoterol. Patients a baseline and a follow-up visit at 3 months. Variables collected included demographics, vital sign measurements, comorbidities, COPD assessment test (CAT), COPD spirometric severity, GOLD 2019 ABCD classification, COPD treatment, and severity of early morning and night-time COPD-related symptoms. The primary objective was to evaluate early-morning, daytime and night-time symptoms related to COPD following treatment with aclidinium/formoterol. Reasons for prescribing aclidinium/formoterol, satisfaction of patients to the treatment, as well as their compliance have been also recorded.

Results:

The study included 2,105 COPD patients, 73% male with a median age of 68 years. Most COPD patients were classified to 2019 GOLD groups B and D at baseline. After 3 months on aclidinium/formoterol, 1,039 patients (50.1%) experienced an improvement in their early morning symptoms. Furthermore, 1,036 patients (49.9%) experienced an improvement in daily symptoms, 924 patients (44.9%) experienced an improvement in night-time symptoms and 386 patients (43.2%) reduced the frequency of overnight sleep disruptions due to COPD symptoms. Treatment with aclidinium/formoterol also improved on average the pre-and post-bronchodilator FEV1 by 3.18% and 2.78%, and reduced CAT score by 5.22 points. The dominant reason for the treating physicians to prescribe aclidinium/formoterol was the unsatisfactory control of the disease. Satisfaction with and self-reported compliance to aclidinium/formoterol across patients was high.

Conclusion:

Aclidinium/formoterol used under real-life conditions provided significant

benefits on the quality of life of COPD patients by reducing morning, daytime and night-time symptoms and symptom burden in 2019 GOLD groups B-D, and activity impairment in all 2019 GOLD ABCD groups.

Keywords:

COPD; dual-bronchodilation therapy; aclidinium/formoterol; daytime and night-time symptoms; 2019 GOLD ABCD classification

P.06 Self-perceived quality of sleep among COPD patients in Greece: the SLEPICO study

Nikolaos Koulouris[1]; Katerina Dimakou[2]; Konstantinos Gourgoulianis[3]; Nikolaos Tzanakis[4]; Aggeliki Rapti[5]; Mina Gaga[6]; Niki Georgatou[7]; Paschalis Steiropoulos[8]; Christos Karachristos[9]; Athena Gogali[11]; Konstantinos Kalafatakis[10]; Konstantinos Kostikas[11]

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Background:

Poor sleep quality among patients with chronic obstructive pulmonary disease (COPD) is frequently unnoticed and unaddressed by physicians and patients themselves. The aim of the SLEPICO study was to record quality of sleep in Greek COPD patients and correlate these findings with disease features.

Methods:

This was a cross-sectional observational study. We collected forty variables, including demographics, vital signs, comorbidities, the COPD and Asthma Sleep Impact Scale (CASIS) questionnaire, COPD assessment test (CAT), spirometry measurements, GOLD 2017 ABCD classification, and inhaled COPD treatment.

Results:

The study included 3,454 COPD patients, 73% male with median age 69 years. More than half of the patients (60.6%) had moderate and 23.8% had severe airflow limitation,

while 42.1% suffered from at least one exacerbation in the previous year. Regarding sleep quality, 14% reported frequent to very frequent issues, between a fourth and a third of them reported occasional night sleep disturbances, and at least half of them reported no or very infrequent problems in their sleep. Our study indicates that CAT and the spirometry-based disease severity were predictors of poorness in quality of sleep ($F_{2,3451} = 1397.5$, $p<0.001$, adj. $R^2 = 0.45$) as assessed by CASIS score, and that the latter also correlates with age ($\rho=0.122$, $p<0.001$) and disease duration ($\rho=0.104$, $p<0.001$). There was no correlation between sleep quality and number of exacerbations. Finally, untreated patients with COPD suffered from poorer quality of sleep compared to treated subjects, independently of the use of inhaled corticosteroids ($F_{2,3451} = 21.65$, $p<0.001$).

Conclusion:

Increased age, prolonged disease duration, a CAT score ≥10, and severe airflow limitation are indicators of poor quality of sleep, with potential consequences in the daily routine of those patients, thus urging potentially for further pharmacological interventions or modifications.

Keywords:

COPD; CASIS; sleep physiology; inhaled corticosteroids; ABCD classification; COPD severity

P.07 Disorders of hemostasis and morphofunctional properties of erythrocytes in patients with comorbid asthma, COPD and obesity

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Objective:

To investigate changes in hemostatic system and morphofunctional properties of erythrocytes in patients with comorbid asthma, COPD and obesity.

Methods:

The study population consisted of 20 patients with comorbid asthma, COPD and obesity (Group I), 20 patients with coexisting asthma and COPD (Group II), 20 individuals with bronchial asthma (Group III), 20 COPD patients (Group IV), 20 obese patients (grade I-II) (Group V), and 25 healthy individuals (Group VI). Measurements of serum levels of fibrinogen, the activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), recalcification time, euglobulin clot lysis time, plasminogen activator inhibitor 1, total fibrinolysis activity (TFA), antithrombin III activity, factor XIII (FXIII) activity, percentage of adhered platelets, spontaneous platelets aggregation index (SPA index), red blood cells (RBCs) deformability index and velocity of RBCs suspensions were done.

Results:

There were a tendency toward shortening of APTT, PT, TT and recalcification time in Groups I-V, but the most prominent changes were observed in Group I: APTT significantly decreased by 35.2%, PT- by 31.7%, TT – by 31.05% and recalcification time decreased by 21.1% compared to controls. It has been demonstrated that among Group I subjects there were increased serum fibrinogen levels by 57.7%, prolonged euglobulin clot lysis times by 64.1%, higher percentage of adhered platelets by 51%, plasminogen activator inhibitor 1 levels was 2.5 times higher and SPA index was 2 times higher compared to controls. AT-III and FXIII activity levels were reduced by 23.3% and 28.1% respectively. There was no significant difference in TFA between Groups I and VI. RBCs deformability index reduced by 37.4% while velocity of RBCs suspensions increased by 66.2%.

Conclusions:

Patients with comorbid asthma, COPD and obesity demonstrates the most pronounced increase in procoagulant and decrease in anticoagulant activity of blood. Changes in the morphofunctional state of erythrocytes could be one of the factors leading to the microcirculatory disorders in patients with comorbid asthma, COPD and obesity.

POSTER

P.08 Risk factors for non-tuberculous mycobacterial pulmonary disease in France based on health claims database analysis

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Introduction:

Nontuberculous mycobacterial lung disease (NTMLD) affects mostly susceptible individuals and is rare but increasing in prevalence. Timely and accurate diagnosis is crucial for optimal patient care and improving outcomes.

Objective:

The aim of this study was to identify host-related risk factors associated with NTMLD in France.

Methods:

A retrospective analysis was performed using the SNIIRAM database over 2010-2017. Patients with NTMLD were identified based on the ICD10 codes during hospitalizations and/or specific antibiotics treatment regimens. The study population was matched (age, gender and region) to a control group (1: 3) without NTMLD. Both groups

were compared for prevalence of risk factors and odds ratios (OR) were calculated in a multivariate logistic regression model.

Results:

A total of 5,628 patients with NTMLD (men: 52.9%) were identified over the study period. Pulmonary diseases were more prevalent in the cohort with NTMLD diagnosis, and the most common conditions were pneumonia (24.8% for NTMLD / 1.4% for controls), followed by COPD (18.9%/1.2%) and bronchiectasis (10.6%/0.1%).

Commonly used drugs by NTMLD patients were proton pump inhibitors (64.8%/42.0%) followed by corticosteroids (55.4%/29.9%), inhaled corticoids (23.8%/7.8%) and azithromycin (20.5%/7.8%). Malnutrition and smoking were all more common in the NTMLD group compared to controls, with difference of 20.1%, and 11.4%, respectively.

In the multivariate analysis, the three highest significant odds ratios (ORs) were for the history of tuberculosis (OR=705, 95% CI: 95-5,228), bronchiectasis (OR=226, 95% CI: 48-1,065), and cystic fibrosis (OR=130, 95% CI: 17-984), all of which were present in more than 5% of NTMLD patients. (Table 1)

Conclusions:

Whereas screening for NTM is recommended in guidelines for bronchiectasis and cystic fibrosis, this study provides insights into other high-risk groups. Further studies should be conducted in order to confirm the association between those newly identified risk factors and NTMLD.

Table 1. Frequencies of risk factors and odds ratios based on multivariate logistic regression analysis

Risk factors	NTMLD group (%)	Control group (%)	Difference (%)	Odds ratio (mean, 95% CI)
Co-morbidities				
COPD	18.9	1.2	17.7	11.7 (7.3-18.7)
Bronchiectasis	10.6	0.1	10.5	226.4 (48.1-1065.2)
HIV	7.5	0.2	7.3	112.7 (36.3-349.5)
History of tuberculosis	7.1	<0.1	7.1	705 (95.1-5227.1)
Chronic bronchitis	6.9	0.5	6.4	15.8 (6.8-36.7)
Asthma	6.5	0.9	5.6	3.1 (1-9.7)
Lung cancer	3.6	0.3	3.3	14.6 (8.9-23.9)
Organ transplantation	2.9	0.1	2.8	57 (6-545.2)
Cystic fibrosis	2.6	<0.1	2.6	130.3 (17.3-983.7)
Idiopathic pulmonary fibrosis	2.4	<0.1	2.4	43.4 (11-171.6)
Rheumatoid arthritis	2.0	0.2	1.8	10.2 (2.5-41.4)
Primary ciliary dyskinesia	1.2	<0.1	1.2	70.3 (5.6-885.4)
Drugs				
Proton pump inhibitors	64.8	42.0	22.8	1.5 (1.2-2.0)
Corticoids	55.4	29.9	25.5	1.8 (1.4-2.3)
Inhaled corticoids	23.8	7.8	16.0	1.7 (1.2-2.6)
Azithromycin	20.5	7.8	12.7	2.1 (1.4-3.1)
Colistin	3.5	<0.1	3.5	48.4 (5.9-398.6)
Leflunomide	0.5	<0.1	0.5	9.5 (1.4-63)
TNF alfa inhibitors	0.5	0.1	0.4	3.5 (1.3-9.8)
Other factors				
Malnutrition	22.1	2.0	20.1	43.1 (14.7-126.8)
Smoking	13.6	2.2	11.4	2.9 (1.5-5.8)

P.09 Traditional and Short course treatment for Multidrug resistant Tuberculosis

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Introduction:

Multidrug-resistant tuberculosis (MDR-TB) (is defined as TB with resistance to isoniazid and rifampicin) is known as a threatening TB control programs worldwide. MDR-TB treatment is difficult, expensive and prolonged periods of time. According to World Health Organization (WHO) guidelines, the treatment takes 18-24 months to complete that it is caused to increase poor outcome because the patients maybe disobey as a consequence of adverse effects and protracted time. Considering all difficulties, several studies were done or are running in many countries and they recommended short-course-therapy (shorter regimen) for 9 months to one year and a new one without injectable drugs. The aim of this study, which was done before the new WHO guideline, was the evaluation of the results and response of the short-course therapy (sputum smear conversion and adverse effect monitoring) in MDR-TB patients and comparison with traditional treatment.

Methods:

All admitted MDR-TB cases (48 patients of all 94 referred MDR-TB patients) from May 2017 to May 2019, at Masih Daneshvari Hospital in Tehran and all patients under observed for MDR-TB treatment in other peripheral health centers in different cities, who signed consent form, were included in this study. Shorter regimen consisted of Moxifloxacin, Prothionamide, Amikacin, Clofazimine, Linezolid, Ethambutol, Pyrazinamide and Cycloserine about 12 months and conventional treatment regimens (longer regimens) consisted of Levofloxacin, Prothionamide, Cycloserine, Amikacin, Ethambutol and Pyrazinamide for 18- 24 months were prescribed to MDR-TB patients randomly: in equal number (24 patients in each group). All patients were observed for using drugs on time and examined completely for developing to adverse effects. We were taken blood samples for evaluation of renal, liver and endocrine adverse effects, sputum smear monthly and sputum culture every two month. The patients were monitored and were evaluated for any complication of treatment. The patients were followed for two years after the end of MDR-TB treatment for relapse (until May 2021). This research was funded by National Institute for Medical Research Developement (NIMAD). The registration number was 962629.

Results:

The median age of 48 patients was 39 years. Thirty-four patients were Iranian and 14 of them were female. Amikacin

was used base on the patients' condition from 2 to 5 months. There was no significant difference between two groups for mean age however the mean age in standard group was higher than short-course group (45 vs. 39 years).The mean sputum smear grade in longer regimen group was significantly higher than shorter regimen group (p=0.037).

The median days need to smear conversion was 23 and 37 days in shorter and longer regimen, respectively. The median days need to culture conversion was 22 and 30 days in shorter regimen and longer regimen, in that order. The mean interval of sputum smear conversion was less in shorter regimen group but it was not significant (36 vs. 49 days, p=0.22). Also the mean interval of sputum culture conversion in shorter group and longer was 32 and 56 days, respectively that it is not related to outcome of treatment (p=0.66). At the end of the second months of the treatment in shorter regimen group, smear and culture conversion were found in 87.5% (21/24) and 91.7% (22/24), respectively; however in longer regimen group were 75% (18/24) and 75% (18/24), respectively. Between shorter and longer groups smear and culture conversion rates after two months were comparable but these differences were not significant (p=0.46, p=0.24, respectively)

Twelve patients developed to severe adverse effects. Eight of them were in shorter group. There is no relationship between outcome of treatment and developing to adverse effects but two patients (one of each group) died.

There was no difference between two groups for the outcome of TB treatment, however cure rate in overall was 77% (37 patients) and among shorter group and longer regimens group was 83% and 71%, respectively. There is no relation between outcome of treatment and other factors. None of the patients relapsed after two years of the end of the treatment.

Conclusion:

Shorter treatment can increase the cure rate and cooperation and adherence of the patients however there is no difference between two groups. It would be better shorter treatment with considering of high rate of the default among standard group, in national TB program.

E-POSTER

P.10 Prognostic markers for determining the severity of the course and prognosis in patients with idiopathic pulmonary fibrosis

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Background:

Idiopathic pulmonary fibrosis (ILF) has a progressive course and high mortality. Non-invasive markers are needed to determine the severity of ILF and monitor the effectiveness of

treatment. The aim of the study was to determine the relationship between the clinical manifestations of ILF, respiratory failure, trypsin-like activity (TPA) of serum.

Materials and methods:

The study included 34 patients, which were distributed according to severity: group I - moderate (I), group II - severe (II). CT CT, spirometry, shortness of breath was determined by mMRS, self-assessment of the condition on a visual analog scale (VAS), SaO2, TPA activity.

Results:

The mean age was 57.6 ± 1.7 years. In I - 15 patients (44%): respiratory rate (BP) - 19.1 ± 0.2 in 1 min., SaO2 level - 88 - 92% - (90.0 [88.0 - 92.0] In II - 19 patients (55.9%), BP 22.2 ± 0.2 in 1 min ($p < 0.001$), SaO2 75-88% [82.0] [75.0 - 88.0]; $p < 0.001$) The best operational characteristics ($p < 0.001$) to assess the severity of the course is self-assessment for YOU> 5 points (AUC = 0.932; CT = 84.2%; SP = 86.7%), the severity of shortness of breath for mMRS> 2 points (AUC = 0.819; CT = 94.7%; SP = 46.7%), FJEL <63% (AUC = 0.870; CT = 84.2%; SP = 73.3%), TPA level> 30 IU / ml (AUC = 0.738; CT = 89.5%; SP = 46.7%; $p < 0.05$) TPA was directly correlated with the main indicators characteristic of ILF and inversely with the rate of blood saturation.

Conclusions:

the prognosis for life depends on the severity of the course - the correlation coefficient $r = + 0.82$ ($p < 0.001$). The overall mortality was 94.7% (18 of 19 patients) in severe versus 13.3% (2 of 15 patients) in patients with moderate severity ($p < 0.001$). The studied indicators turned out to be predictors of an unfavorable prognosis.

P.11 Renal function and cystatin C level in patients with chronic obstructive pulmonary disease and hypertension

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Kidney damage is common in patients with COPD as a consequence of a systemic inflammatory response. Serum cystatin C has been shown to be a sensitive serum marker of glomerular filtration rate and a stronger predictor than serum creatinine, risk of death, and cardiovascular events in elderly patients.

The aim:

Determine the level of cystatin C in patients with COPD and hypertension.

Materials and methods:

The one-time study included 101 patients with hypertension and COPD, which were divided into 3 groups:Gr I consisted of 43 patients with hypertension, Gr II - 32 patients with hypertension and COPD and Gr III -of 26 patients with COPD. The age of

patients of Gr I was 56.7 (10.6) years, patients of Gr II - 59.3 (9.2) years,Gr III - 57.7 (9.2) years. Patients underwent a study of the blood. We used the program Statistica 10.

Results:

Blood creatinine level in Gr I it was 89.3 (84.2; 101.9) µmol /l,in Gr II - 99.0 (80.0; 115 , 0) µmol/l,and in Gr III - 84.6 (75.0; 94.2) µmol/l (p = 0.008). In group I GFR was 70.6 (57.0; 83.0) ml/min, in Gr II - 67.5 (57.0; 77.0) ml/min, and in Gr III - 82.5 (70.0; 89.0) ml/min (p = 0.02). In Gr I Cystatin C level was 1,16 (1,01;1,27) mg/l,in Gr II - 1,3 (1,21;1,37) mg/l , and in Gr III - 1,05 (0,97;1,07) mg/l (p = 0.006).

Conclusions:

The aggravating effect of COPD on renal function in patients with hypertension has been identified. It was found that cystatin C is a more sensitive marker of kidney damage than blood creatinine.

E-POSTER

P.12 Diabetes mellitus type 2 (T2D) as a comorbidity of Chronic Obstructive Pulmonary Disease (COPD)

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We aimed to investigate the association between COPD and T2D and the relation to the severity of airflow limitation.

Cross-sectional study including 120 patients with initially diagnosed COPD, aged 40 to 75 years and 60 non-COPD subjects matched by age, smoking status, body mass index, as controls. All study participants underwent anthropometric measurements, fasting blood sugar (FBS), oral glucose tolerance test (OGTT) (performed in patients with fasting blood sugar level 5.6-6.1mmol/L (measured two times), lipid profile, CRP, pulmonary evaluation (dyspnea severity assessment, baseline and post-bronchodilator spirometry, gas analyses, chest X-ray).

Results presented statistically significant difference in presence of T2D in COPD patients compared to controls (45.0% vs 20.0%; P=0.0011). According to the GOLD classification, the frequencies of T2D in COPD patients were categorized in stages I, II, III, IV (25.0%, 43.3%, 52.5%, 58.3%, respectively), and according to combined assessment test in A, B, C, D (29.2%, 37.5%, 35.0%, 41.7% respectively). In GOLD 2 stage the risk for T2D was 2.3 times higher than GOLD1. COPD patients with T2D presented significant association with pulmonary function. FBS was higher in COPD than controls (8.4±1.1mmol/L vs 4.9±2.1mmol/L) with statistical significance (p<0.0001), but HDL was lower in COPD than controls (39.1±6.4mg/dl vs 49.6±3.9mg/dl) with statistical significance (p<0.0001).

We found higher prevalence of T2D in patients with COPD even in early COPD stages compared to non-COPD. Our findings suggest multidisciplinary approach in COPD patients for prevention, diagnosis and early start of treatment.

Key words: COPD, comorbidity, Diabetes mellitus type 2

P.13 An elusive case of antisynthetase syndrome Presenting as organising pneumonia with bilateral pleural effusions — A case report

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Background:

Antisynthetase syndrome(ASS) is a rare immune-mediated disorder (1-9 in 1,00,000 population) characterized by Interstitial lung disease(ILD) and Polymyositis(PM)/Dermatomyositis(DM) in association with Anti-aminoacyl-transfer-RNA antibodies most commonly anti-JO-1 antibodies. It affects females twice as often as males. ASS associated ILD can occur either simultaneously, before, or after the development of PM/DM. Presentation of ILD can be nonspecific interstitial pneumonia, usual interstitial pneumonia, diffuse alveolar damage, organizing pneumonia(OP).Pleural effusions are rarely seen. We present a case of ASS which was diagnosed and treated as Pneumonia in primary health care (PHC) centre and then referred to us as unresolved pneumonia for further evaluation.

Case presentation:

A 65 year old male patient had presented with complaints of cough, dyspnea and fever with uncontrolled type 2 Diabetes mellitus to a PHC physician where he was diagnosed as bilateral pneumonia based on chest X ray, treated with multiple antibiotics over a course of 1 month and then referred to us as Non-resolving pneumonia. High Resolution Computed Tomography (HRCT) chest showed bilateral patchy multifocal consolidations, predominantly in lower zones with mild bilateral pleural effusions. RT-PCR for COVID 19 was negative. Bronchoalveolar lavage reports were inconclusive. Thoracocentesis was done which showed exudative lymphocytic pleural effusion. Patient was lost to follow up due to COVID-19 pandemic for 6 months and later presented with progressive exertional dyspnoea, cough, loss of weight and appetite, proximal muscle weakness, skin changes, and was bound to wheel chair since 2 months. A repeat HRCT chest showed similar findings as previous scan. Based on the clinical and radiological picture a provisional diagnosis of PM/DM-ILD/ASS was considered. In further evaluation Antinuclear antibody (ANA) and Myositis profile was strongly positive for anti-JO-1, anti-RO52 antibody with high Creatinine Phosphokinase (CPK) levels which led to a diagnosis of ASS based on proposed diagnostic criteria. Patient was put on oral prednisolone

and later shifted to Mycophenolate mofetil which led to marked clinical and radiological improvement.

Conclusion:

Antisynthetase Syndrome presenting as Organising Pneumonia with bilateral pleural effusion is a rare finding especially as the first manifestation. This case signifies the importance of screening patients of Organising Pneumonia and other ILDs with autoimmune workup, detailed clinical evaluation and long term follow-ups. Early initiation of steroids and immunosuppressive drugs can improve the patient outcome and survival in an otherwise poor prognostic disease.

Keywords:

Anti-synthetase syndrome, Anti Jo-1antibodies, Anti RO 52 antibodies, Interstitial lung disease, Organising pneumonia, Bilateral pleural effusions, Mycofenolate Mofetil.

E-POSTER

P.14 Ultrastructural organization of alveolar macrophages in the late stages of experimental diabetes mellitus

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Objective:

To study the dynamics of ultrastructural changes of alveolar macrophages in experimental diabetes mellitus.

Material and methods of research:

The experiments were performed on 20 white male rats weighing 170-210 g. Diabetes mellitus was reproduced by intraperitoneal administration of streptozotocin company "Sigma" (USA), diluted in 0.1 M citrate buffer with a pH of 4.5 at a rate of 60 mg / kg body weight. Pulmonary tissue collection for electron microscopic examination was performed under thiopental anesthesia 70 days after administration of streptozotocin. Samples of lung tissue were fixed in 2.5% glutaraldehyde solution, followed by fixation in 1% osmium tetroxide solution. After dehydration, the material was poured into epon-araldite. Sections obtained on an ultramicrotome "Tesla BS-490" were studied in an electron microscope "PEM-125K".

Research results:

Submicroscopic analysis showed that 70 days after the start of the experiment, the nuclei of many alveolar macrophages were with a matrix of low electron-optical density and marginal placement of chromatin granules. The perinuclear space was expanded. Mitochondria were enlarged with an enlightened matrix and single disoriented cristae. The Golgi apparatus was expanded and large bubbles. The tubules of the granular endoplasmic reticulum were dilated with a weakly osmophilic content inside. The number of ribosomes on their outer surface was reduced. The

fragmentation of granular endoplasmic reticulum membranes was determined In some alveolar macrophages. A small number of lysosomes and phagosomes with polymorphic osmophilic material were observed in the cytoplasm.

Conclusion:

studies have shown that experimental streptozotocin-induced diabetes mellitus in the long term (70 days) is accompanied by severe violations of the submicroscopic structure of alveolar macrophages.

Key words:

diabetes mellitus, alveolar macrophages.

E-POSTER

P.15 Macro-organismal predictors of antibiotic-resistant bacteria isolation

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Background:

Antibiotic resistance has reached pandemic proportions recently and the rate grows every year. There are limited data on risk factors for resistant pathogens in bronchiectasis exacerbations, but absent in stable bronchiectasis patients. We aimed to investigate macro-organismal risk factors associated with the isolation of antibiotic-resistant pathogens in stable bronchiectasis patients.

Materials and methods:

A prospective observational study enrolled 99 patients with confirmed bronchiectasis by HRCT were included. Bronchiectasis aetiology and comorbidity index (BACI) was assessed in all patients. Weight and percentage of body fat tissue (BF) were measured by "Body composition monitor Omron BF511" for the static weighing and body mass index (BMI) was calculated. Microbiological detection of sputum samples was conducted by conventional bacteriological methods, sensitivity to antibiotics was determined by disco-diffusion method according to CLSI guidelines. Such factors as age, sex, anthropometry, history of smoking, ICS use, duration of the disease, comorbidity index, exacerbation frequency, and pulmonary function were investigated for the prognostic ability of antibiotic-resistant bacteria isolation using the univariate logistic regression model. The methods of descriptive and non-parametric statistics were used to process the results.

Results:

The pathogens were detected in sputum of 58 stable bronchiectasis patients (58.6%), the median age 56.5 (39-66) years, 17 (29.3%) were men. Resistance to at least one antibacterial drug was identified in 23 patients (39.7%), the median age 53 (38-66) years, 9 (39.1%) were men. Among detected antibiotic-resistant pathogens were *P. aeruginosa* in 11 cases (47.8%), *K. pneumoniae* – in four cases

(17.4%), *S. pneumoniae* – in three cases (13.5%), *S. aureus* – three cases (13.5%), *H. influenzae* – in one case (4.3%), *E. coli* – in one case (4.3%).

By constructing a univariate logistic regression model, low BF and underweight were found as the most significant independent antibiotic-resistant bacteria predictors (OR, 4.1 95% CI 1.1-16.6 and OR, 6.94 95% CI 0.72-66.7 respectively). The median BACI score was 3 (0-3) scores, low-risk BACI scores had seven patients (30.4%), intermediate-risk – 9 patients (39.1%), high risk - seven patients (30.4%). Also, it was detected the tendency of predicting antibiotic-resistant bacteria by BACI scores (OR, 1.15 95% CI 0.98-1.35, *p*=0.07).

Conclusions:

58% of patients with bronchiectasis from our cohort produced sputum colonized by pathogens, one-third of them had resistance to antibiotics. Underweight and low percentages of body fat tissue seem to be macro-organismal predictors of antibiotic-resistant bacteria isolation, as well as BACI scores. This topic needs further larger researches to confirm findings or/and find other predictors.

E-POSTER

P.16 Oxygen saturation in patients with COVID-19 in terms of the course of the disease and its systemic signs

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Objective:

To study the relationship between the oxygen saturation index (SaO2) at the time of hospitalization with time from the onset of the first symptoms of the disease, the duration of hospitalization and changes in the main hematological parameters in patients with COVID-19.

Methods:

The medical data of patients with COVID-19 hospitalized in the internal medicine department of NPC "City Clinical Hospital # 4" Dnipro City Council were retrospectively analyzed (Dec 2020 – Jul 2021).

Results:

220 patients (average age 67.2 (12.9), men- 122 (55.6%)) were included in the study. The time from the onset of the first symptoms to hospitalization was 7.3 (2.3) days. SaO2 at the time of hospitalization - 86.0 (72.0; 91.0) %. It was defined a negative correlation between SaO2 and time from the onset of symptoms (R = -0.208, p = 0.005). SaO2 was significantly lower in patients who had duration of the diseases 7 and more days by hospitalization (79.0 [70.0; 91.0]% vs 84.5 [79.0; 93.0] %, p = 0.005). There was a negative correlation between SaO2 and the duration of inpatient treatment (R=-0.45, p=0.0004). We detected a direct correlation between

SaO2 and the level of hemoglobin (R = 0.38, p = 0.003), erythrocytes (R = 0.298, p = 0.003), lymphocytes (R = 0.36, p = 0.0000001), partial activated thromboplastin time (R = 0.48 , p = 0.03), thrombin time (R=0.30, p=0.003); the negative - between SaO2 and levels of leukocytes (R= -0.34, p=0.000001), neutrophils (R = -0.36, p = 0.00000001), glucose (R = -0.38, p = 0.00004), creatinine (R = -0.46, p = 0.0000001), urea (R = -0.32, p = 0.0003).

Conclusion:

In patients with COVID-19 pronounced respiratory impairments, accompanied by a decrease in SaO2, develop by the end of the first week of illness, which is consistent with the general data. Respiratory disorders are associated with increased nonspecific inflammatory response, multiple organ metabolic disorders and hypercoagulation. To provide timely care to a patient with COVID-19 is necessary to widely implement oxygen saturation control at the out-patient stage of disease.

E-POSTER

P.17 Pericardial and Pulmonary Hydatid cysts with embolic spread

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Background:

Human echinococcosis is a zoonotic disease caused by tapeworm of the genus Echinococcosis. They are endemic in Mediterranean countries, Middle east, India, northern China and sheep – rearing areas. The most common presentation is liver followed by lungs, cardiac involvement in extremely rare cases. The incidence of cardiac echinococcosis is <2% of the total incidence of the disease. The left ventricle is most commonly involved in cardiac echinococcosis. The arterial spread of hydatid cysts is a rare presentation and is mostly secondary to cardiac hydatid cyst rupture or embolism of germinative membrane.

Case Presentation:

A 29-year-old gentleman who was initially diagnosed to have intrapericardial hydatid cyst for which he underwent surgical excision. After a symptoms free interval of 4 years, he developed cough with multiple episodes of hemoptysis for 2 months. His radiological imaging revealed bilateral filling defects in the segmental and subsegmental pulmonary arteries with cystic lesion over the apicoposterior segment of left upper lobe. As the cysts were small in size and multiple, plan on surgery was deferred and it was decided to treat with antihelminthic therapy for a period of 18 months. Later, developed relapse of similar symptoms. His repeat imaging showed increase in size of cysts and hypertrophied bronchial arteries. In view of extensive intravascular involvement and risk associated with the surgery, the plan for was deferred. He was offered medical management with medications and bronchial artery embolisation.

Conclusion:

In this case, as there were multiple small sized cysts, surgery would have not been effective even though it is a definitive treatment. A combination therapy with albendazole and praziquantel had offered a symptom free interval with regression of the cysts. The need for prolonged course of medical therapy needs to be studied in such patients with non resectable pulmonary hydatid cysts.

E-POSTER

P.18 Use of cytokine filter therapy in a COVID-19 related acute respiratory distress syndrome

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Cytokine storm is a critical factor in Acute Respiratory Distress Syndrome (ARDS) development, the most severe presentation of COVID-19. We present a patient in whom a cytokine adsorbing filter was used with the aim to reduce pro-inflammatory cytokine level. A 65-year-old woman with severe asthma receiving biologic treatment presented to ED. She was hospitalized due to COVID 19 pneumonia and was severely hypoxemic with oxygen saturation 85% breathing oxygen 15 L/min. The patient's laboratory tests revealed leukocytosis 24.2 x 10^9 (lymphocytes 2.9 %), the procalcitonin was 1.33 µg/L, C-reactive protein was 202.6 mg/L. Chest X-ray showed bilateral interstitial infiltrates. She was treated with remdesivir and corticosteroids. The patient hypoxaemia initially responded to high flow oxygen therapy, but she required invasive mechanical ventilation on the fourth day. As renal function worsened, continuous renal replacement therapy combined with Oxyris® filter was started. A total of 3 procedures were performed, followed by significant regression of pulmonary infiltrates. She was successfully extubated after thirteen days of mechanical ventilation. Mepolizumab therapy was continued according to schedule. The patient successfully recovered and was discharged home.Cytokine storm is associated with the development of multiorgan failure in COVID-19 patients, so it is reasonable to start all available methods of its reduction as soon as possible. We believe that the presented case of a successful recovery of a high-risk patient with severe asthma will encourage the early application of cytokine filter therapy in severe COVID-19 patients.

E-POSTER

P.19 Prevalence of cognitive impairment in patients with obstructive sleep apnea : a case control study

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Aim and Objectives:

Cognitive impairment and mood disorders are among the major neurological consequences associated with Obstructive Sleep Apnoea (OSA). We studied the prevalence of neurocognitive impairment and its association with the severity of OSA in untreated OSA patients from India.

Materials and Methods:

We prospectively studied 94 (47 cases of PSG proven OSA, and 47 age and gender matched controls) patients who attended the Internal Medicine and Pulmonology outpatient at our centre. A total of 15 tests (from the NIMHANS Neuropsychological Battery) were performed to access the cognitive functions like attention, executive functions and memory in all 94 patients. The respiratory disturbance, hypoxia and desaturation index were obtained from polysomnography (sleep study).

Observations:

Of the 15 cognitive function tests, a greater number of test errors (>6 errors) were seen in the OSA patients compared to controls (45% vs 2%; $p<0.001$), while 12.7% of the OSA group and 36.1% of control group did not show any error in all 15 tests. Working memory and executive function were more significantly impaired in the OSA group than in non-OSA group ($p<0.001$). Within OSA patients, duration of desaturation <90% and desaturation index were higher in patients with cognitive impairment than in without cognitive impairment 13.69 ± 25.57 vs 2.15 ± 4.18 min; $p<0.05$ and 23.52 ± 26.91 vs

13.25 ± 11.99 h; $p=0.08$, respectively. Mean level of oxygenation during sleep in OSA patients was significantly lower than control group ($p<0.05$). Severity of cognitive impairment (including all domains together) did not vary significantly with the severity of OSA, but greater numbers were seen in patients with severe OSA (63% vs 37%).

Conclusions:

Neuro-cognitive impairment is more commonly seen in patients with OSA, especially those with severe OSA**.** Hypoxia may have a role in cognitive function decline in OSA especially the duration of hypoxia and frequency of desaturation. From our study results, we recommend all patients with cognitive impairment should be screened for underlying OSA and undergo psychological screening. Early recognition of cognitive impairment in OSA and early initiation of CPAP therapy may reverse some of the cognitive dysfunction.

E-POSTER

P.20 Mediastinal adenopathy – A diagnostic ultimatum!

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Mediastinal adenopathy alongwith fever of unknown origin is a diagnostic challenge only in minority, as in most of the cases in developing countries like India are due to Tuberculosis unless proven otherwise.

Here, we have an unique case of a 45 year male farmer who was running high grade fever for last 10 months. He also had weight loss and night sweats, but denied cough, hemoptysis and breathing problem. He carried bundles of computed tomography scans of thorax which revealed mediastinal adenopathy in bilateral hilar, Rt. paratracheal and aortopulmonary window region with normal lung parenchyma. His routine biochemistry was all normal excpet mild iron deficiency anemia.

Not to our surprise, the gentleman was offered **antikochs treatment** which was then discontinued after 3 months as there was no releif from fever and follow up CT scan of chest showed increase in the size of mediastinal nodes.

The patient was then referred to **oncologist** who got CT guided biopsy from mediastinal nodes to confirm the clinical suspicion of **lymphoma**. However, the biopsy report showed only reactive lymph node tissue and IHC was not in favor of lymphoprolifearive disorder.

The poor man again was subjected to antikochs treatment thinking it must be **Drug resistant TB**, as its spreading in large numbers in India. As all other diagnostic work up was negative, we planned to do bronchoscopy with EBUS guided biopsy from mediastinal nodes. PET CT done prior confirmed positive uptake from central mediastinal nodes. Patient needed correction of PT-INR prior to planned **EBUS** and the EBUS cytology showed a very rare, unique phenomenon of **Emperipolesis**, which means a living cell engulfed within another living cell. A process very peculiar seen in sunus histiocytosis with massive mediastinal adenopathy. A diagnosis of **Rosai-Dorfman Disease** was made and patient was treated with Prednisolone and Thalidomide. There was complete resolution of symtoms and the patient was handed over to **hematologist**.

Rosai-Dorfman Disease is to be considered as DD of mediastinal adenopathy with PUO.

Our case was unique in its common presentation with a rare diagnosis which needs multimodality careful approach. Rosai-Dorfman almost always has cervical adenopathy in young children or in adolescents and 20% patients may have skin manifestations. **Our case was unique in not having any cervical adenopathy and was diagnosed in 45 year male and in the absence of skin lesions. Isolated mediastinal adenopathy in this rae disease is known in very few cases in the literature.**

E-POSTER

P.21 A retrospective single-center characteristics analysis of COVID-19 patients with fatal outcome

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Background:

The August 2021 has been marked by the beginning of a new "Catastrophic" fourth COVID-19 wave in Ukraine, where the Delta is currently the predominant variant of the virus. The data suggest this variant might cause more severe illness than previous in unvaccinated people. Despite the remained great concern about the last ones, fully vaccinated people also have a risk of ICU admission and death. The study aimed to analyze the anamnestic and clinical characteristics of both vaccinated and unvaccinated Delta variant COVID-19 patients with death outcome.

Materials and methods:

The study was a single-center retrospective analysis conducted on an original cohort of 34 non-survivors who were admitted with confirmed COVID-19 to Public Non-financial Corporation "City Clinical Hospital № 4" Dnipro City Council during August-September 2021. The information concerning patients' demographics, medical history, symptoms, comorbidity, laboratory data on admission and vaccination status was collected from medical cards and analyzed. The methods of descriptive and non-parametric statistics were used to process the results.

Results:

The median age was 71 (66;82) years, 16 were men (47%). The median bed count day was 5 (3;10). The median day of disease on admission was 6.5 (4;7). The median number of days from the beginning of the disease to death amounted to 12 (10;17). Case fatality rate in the hospital reached 16.8 %. 6 (18%) patients had the COVID-19 immunization history: by single dose CoronaVac vaccine - 2 (33.3%), double dose CoronaVac vaccine - 3 (50%), double dose Moderna vaccine - 1 (16.7%). The median day after the last vaccination was 50 (19;77) min - 18; max - 113.

'Typical' symptoms of shortness of breath - 34 (100%), fever - 26 (76%), cough - 20 (59%) were reported. Another symptomatology included dizziness - 6 (18%), headache - 5 (15%), chest pain – 6 (15%), vomiting – 3 (9%), neurological symptoms – 3 (9%), nausea – 2 (6%), bone pain – 1 (3%), catarrh – 1 (3%).

Almost all of the admitted patients - 33 (97%) had a variety of comorbidities. Ischemic heart disease – 28 (84.8%), hypertension – 26 (78.8%), diabetes mellitus – 14 (42.4%), dyslipidemia – 10 (30.3%) and atrial fibrillation – 10 (30.3%) were dominated among all of the coexistent diseases. The rest associated pathologies included: ischemic stroke – 7 (21.2 %), cardiac failure – 6 (18.2%), encephalopathy – 4 (12.1%), anemia – 4 (12.1 %), myocardial infarction – 3 (9%), cirrhosis – 3 (9%), gastroenterological diseases – 3 (9%), asthma – 1 (3 %), CKD – 1

(3%), hypothyreosis – 1 (3%). There were 24 (72.7%) patients with ⩾ 3 comorbidities in total.

Only 14 patients (41.2%) received additional pharmacotherapy: antihypertensive – 14 (100%), hypoglycemic – 6 (42.8%), anticoagulant – 4 (28.5%), hypolipidemic – 3 (21.4%), neurotropic – 3 (21.4%), inhaled corticosteroids – 1 (7.14%). 9 (26.4%) patients were prescribed antibiotics in ambulatory care.

Most patients - 25 (74%) were conscious on admission. The next median levels of primary vital signs were obtained: blood oxygen level was 85.5 (67;89); body temperature – 37.5 (37;38); blood pressure - 130/80 (110/70;140/90); pulse rate - 93 (81;102); respiratory rate - 20 (18;22).

All of the patients - 34 (100%) required an oxygen support. There were 29 (85%) who admitted to ICU. 21 (72%) of them received noninvasive continuous positive airway pressure (CPAP) therapy; 6 (21%) of patients were under invasive mechanical ventilation (MV); 2 (7%) patients received high-flow oxygen therapy.

The basic laboratory tests such as full blood count (FBC), biochemical blood test and coagulation test were performed. The median levels of FBC parameters were the next: WBC (10^9/L) – 9.1 (6.7;13); RBC (10^{12}/L) – 4.19 (3.6;4.68); Hb (g/L) - 133 (118;146); PLT (10^9/L) – 252.5 (204;283); Neutrophils (10^9/L) – 7.58 (6;11.7); Neutrophils (%) - 88 (81;92); Lymphocytes (10^9/L) – 0.58 (0.4;1.33);

Lymphocytes (%) – 7.65 (4;14). There was the difference in absolute and relative monocytes level in vaccinated group (G1) and unvaccinated one (G2). In G1 absolute monocyte level (10^9/L) was 0.5 (0.42;0.6); G2 – 0.33 (0.18;0.53), p = 0.04. In G1 relative monocyte level (%) was 6.45 (6;7); G2 – 3,9 % (2;5.5), p = 0.01.

Biochemical profile showed the next median levels: ALT (U/L) - 52 (35;76), AST (U/L) – 56.4 (37;87.8), Total bilirubin (mmol/L) – 13.85 (11.3;18.4), Total protein (g/L) – 65.8 (62.2;69), Glucose (mmol/L) – 7.55 (6.3;10.48), Blood urea (mmol/L) – 11.07 (7.55;19.3), Serum creatinine (mmol/L) – 142.45 (124;157), CRP (mg/L) – 77.05 (56.2;101).

Coagulation profile showed the next median levels: Prothrombin time (s) - 13 (12.4;14.3), Prothrombin (%) – 87.5 (83;94), INR – 1.13 (1.06;1.19), Thrombin time (s) – 15.2 (13.2;21.2). There was the difference in APTT in vaccinated group (G1) and unvaccinated one (G2). In G1 APTT (s) was 26.2 (21.8;32.7); G2 – 33.2 (27.35;37.7), p = 0.04.

Conclusions:

Most of the non-survivors in our cohort belonged to the elderly age group. 73 % of patients with COVID-19 immunization history received CoronaVac vaccines. Majority of patients admitted to ICU and required oxygen support had ⩾ 3 comorbidities. The predominant comorbidities were related to cardiometabolic group. However, only less than half of patients received their basic therapy of

underlying diseases. Full blood count findings showed relative lymphopenia. According to the FBC and coagulation profile data there was found a statistically significant difference in monocytes level and APTT between vaccinated and unvaccinated patients. Comparative analysis showed higher absolute and relative values of monocytes in vaccinated ones with concomitant shorter APTT. The biochemical test revealed increase above the normal range of all parameters, what indirectly could indicate the multiorgan injury including hepatorenal syndrome primarily. There was approximately one week of ambulatory care for the patients before hospital admission despite all of the risk factors that burden the prognosis for recovery without early involvement and monitoring of specialized healthcare level.

E-POSTER

P.22 Chest HRCT findings in patients with chronic lymphoproliferative diseases

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The lung injury in patients (pts) with chronic lymphoproliferative diseases (CLPD) is considered to play an important role in predicting outcomes of treatment and prognosis for life. The study aimed: to define the prevalence and structure of the chest HRCT changes in CLPD pts in Dnipro, Ukraine.

Materials and methods. Among cards of CLPD pts hospitalized to the hematology department during 2018-2019 we selected cards with a primary diagnosis of CLPD and underwent initial chest HRCT. The methods of descriptive statistics were used to process the data.

Results. 84 cards were selected for final analysis. The age was 65 (56;68.5) years, 46 (54.8%) were men. 29 (34.5 %) pts had myeloma, 24 (28.6 %) – chronic lymphocytic leukemia, 26 (30.9 %) – lymphoma and 5 (5.9 %) pts – other CLPDs. A total of 63 pts (75 %) had one or more findings diagnosed by chest HRCT. Intrathoracic lymphadenopathy (ITLP) was detected in 33 (39.3 %) pts (16 patients (19 %) had ITLP only), impairment of the lung parenchyma – in 34 (40.5 %) pts (bronchial wall thickening – in 12 (14.3 %) pts, focal-infiltrative changes 6 (7.1 %) pts; emphysema – in 1 (1.2 %) pts; ground-glass opacities in 20 (23.8 %) pts; centrilobular opacities – in 23 (27.4 %) pts). Hydrothorax was found in 9 (10.7 %) pts. Conclusions. 75 % of primary pts with CLPD had one or more pathological changes diagnosed by chest HRCT in Dnipro (Ukraine). 19 % of pts had only ITLP, a total of 39.3 % of the cohort had ITLP. Among lesions of the lung parenchyma, the most common were ground glass and centrilobular opacities. Chest CT scanning in primary CLPD patients is an important part of the diagnostic process not only

for staging but for comorbidity diagnosing.

P.23 Prevalence and structure of pulmonary comorbidity in patients with chronic lymphoproliferative diseases

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Comorbidities in patients (pts) with is chronic lymphoproliferative diseases (CLPD) considered to play an important role in predicting outcomes of treatment and prognosis for life. The study aimed to determine the prevalence and structure of respiratory symptoms and comorbidity in patients in Dnipro (Ukraine).

Materials and methods. The retrospective analysis of medical cards of pts hospitalized with CLPDs in the City hematology center in Dnipro (Ukraine) in 2018-2019 years (y) was performed. Respiratory symptoms and known respiratory comorbidity were analyzed. The descriptive, parametrical and non-parametrical statistics were used to process the results.

Results. Totally 986 pts cards were included in analysis. The age of pts was 65 (56;69) y, 51.8% were men. 481 (49%) had myeloma, 325 (33%) – chronic lymphocytic leukemia, 133 (13%) – lymphoma and 47 (5%) had other CLPDs. 9% of pts had at least one chronic respiratory disease, the most common were chronic bronchitis – 5.1%, COPD – 1.9%, upper airways pathology – 1.4%, tracheitis – 0.4%, asthma – 0.3%. 6% of all pts had community-acquired pneumonia. Respiratory symptoms were also common among pts with CLPD without established respiratory comorbidity, cardiovascular disease, or anemia: dyspnea in 13.6% of pts without diagnosed comorbidity, wet cough – 2.8%, tachypnea – 1.9%, dry cough – in 1.4%.

Conclusions.

Chronic respiratory comorbidity occurred in 9% of pts with CLPD in Dnipro, the most common was chronic bronchitis.

Respiratory symptoms occurred in pts with CLPD even without diagnosed respiratory pathology.

Pulmonary function tests and chest computed tomography in all patients with CLPD should be recommended.

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