

ID# 50

Accuracy of Multidisciplinary Diagnosis of COVID-19 Using BAL as Gold Standard

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Introduction: The sensitivity of the nasal swabs is low and false-negative results may worsen both the spread of the outbreak, due to inappropriate allocation of patients, and the prognosis of patients, due to inappropriate and/or delayed treatment. To the best of our knowledge, to date no study has investigated the diagnostic accuracy of a multidisciplinary team (MDT, i.e. pulmonary physician and thoracic radiologist) diagnosis of COVID-19 in suspected cases with negative nasal swabs that underwent subsequent BAL.

Objects: The aim of this study was to evaluate the accuracy of the MDT diagnosis of COVID-19 in suspected cases not confirmed by nasal swabs, compared to BAL (that for the purpose of this study was considered the diagnostic gold standard).

Methods: Here we present the interim analysis of a study developed as a part of a wider international research project: the Dragon project (IMI2 - Call 21; Grant agreement number 101005122). This pilot study is a multi-center, retrospective, observational study, but interim analysis here presented is limited to a single center (Florence University Hospital). All consecutive patients admitted for suspected COVID-19 that resulted negative to two consecutive nasal swabs underwent BAL. MDTs with different expertise levels were asked to provide a provisional diagnosis (up to three choices allowed), confidence levels and management decision (patient allocation and treatment) after reviewing clinical, HRCT and BAL data in a stepwise fashion.

Results: We enrolled 86 patients, median age 63 years (range 19-90), 52 males (60.5%), 50 (60%) current or former smokers. 83 (95%) patients had one or more comorbidities (median 3, range 1-10; Charlson CI 4.6, 0-11). BMI 24.3 (14.3-24.5), P/F 295 (76-547). Only 7 cases were found positive on BAL (8.4%). For the MDT 1 sensitivity, specificity, positive and negative predictive value were respectively: 28% (2/7), 60% (48/79), 6% (2/33), 90% (48/53). For the MDT2 (younger) sensitivity, specificity, positive and negative predictive value were respectively: 57% (4/7), 81% (64/79), 21% (4/19), 95% (64/67). The concordance between the two MDTs was poor: 60% of cases, with a kappa of 0.09 (SE 0.1).

Conclusions: The negative predictive value of a MDT diagnosis of COVID-19 is high irrespective of expertise level of the MDTs. However the sensitivity and the positive predictive value are miserable and the inter-observer variability is strikingly high. Therefore, BAL has a relevant role in confirming COVID-19 infections even if the proportion of positive cases is very small.

ID# 51

A Multicenter Study of Post-COVID-19 Interstitial Lung Syndrome

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Introduction: Available data indicate that a large minority of patients with COVID-19 develop ARDS, and pulmonary fibrosis is a recognized sequela of ARDS. However, the long-term pulmonary consequences of COVID-19 remain speculative.

Objects: The aim of this study is to evaluate risk factors, prevalence and characteristics of POST-COVID-19 interstitial lung changes, with the unique opportunity to evaluate radiologic and pathologic correlations using HRCT and transbronchial lung cryobiopsy specimens.

Methods: Here we present the preliminary data on HRCT features of POST-COVID-19 ILD. Data were collected at the time of the first interim analysis (28/11/2020) of the PCOILS trial: a prospective, multicenter national study involving 12 Italian centers (Fig 1). We collected data of consecutively hospitalized patients at baseline and then at 6 (+/-1) months after hospital discharge. HRCT changes at 6 months involving more than 5% of the total

lung volume were considered significant. Patients with significant HRCT changes will undergo BAL and/or cryobiopsy and a subsequent follow-up with HRCT and lung function evaluation at 12(+/-1) and 18 (+/-1) months.

Results: At the time of the present interim analysis, 524 patients from 9 centers were enrolled (enrollment is still ongoing and will end on January 31st, 2021). Median age was 67 years (range 18-87), 330 were males (62.9%). HRCT changes were detected in 333 participants (63.5%), and in 219 (41.7%) were considered significant. 118 cases (22.5%) showed fibrotic changes including the following HRCT patterns: 7 (1.3%) probable UIP, 45 (8.5%) NSIP (with or without OP), 38 (7.2%) indeterminate, 28 (5.3%) fibrotic consolidations. Among the remaining 101 (19.2%) non fibrotic cases the radiologists described: 11 (2%) NSIP-OP, 15 (2.8%) indeterminate, 67 (12.7%) pure ground glass, 8 (1.5%) consolidations all suspected for lung cancer.

Conclusions: This preliminary analysis confirms that after COVID-19 infection a large minority of patients develops interstitial lung changes mostly with NSIPOP, indeterminate features or ground glass. The hypothesis that post-COVID-19 interstitial changes and interstitial lung diseases may share common risk factors, pathogenetic mechanisms and disease behaviour warrants further evaluations.

ID# 52

Lung Cancer and Pulmonary Langerhans Cell Histiocytosis: A Case Report

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Introduction: Pulmonary Langerhans cell histiocytosis (PLCH) is a diffuse lung disease that usually affects young adult smokers (1). The prognosis is usually good, and smoking cessation is the main therapeutic measure. Lung adenocarcinoma is the most common lung cancer, with an often poor prognosis, particularly in advanced forms (2). For both of these diseases, diagnostic certainty is histological. In this report we describe the case of a patient with lung adenocarcinoma (stage IVb) with associated pulmonary Langerhans' cell histiocytosis.

Case report: Patient aged 60 years, male, previous moderate smoker, owner of a knitting company. No known allergies, no family history of pulmonary disease. In home therapy with cardioaspirin for left carotid stenosis. Patient in good general condition until January 2021 when, due to the onset of dyspnoea and coughing, he underwent radiological investigations. A CT scan of the chest showed diffuse cystic formations of irregular morphology, thickened walls, associated with solid nodular opacities as well as the presence of solid neoformation at the right hilar site infiltrating the upper and lower right bronchial branches with atelectasis of the middle lobe parenchyma. The patient then completed radiological diagnostics with CT scans of the brain and abdomen. At encephalic level, lesions compatible with metastasis were found. Respiratory



Fig. 1.