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Online multidisciplinary discussion on interstitial lung disease: Using new technologies to connect general hospitals to expert units

Joel Francesqui[1,2], Mariana Benegas[3,4], Elena Laserna[5], Leticia Valera[5], Sandra Cuerpo[2], Fernanda Hernández-González[2,3], Mario Serrano[5], Marcelo Sanchez[3,4], Jacobo Sellares[2,3,6]

[1]IR SANT PAU, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain; [2]Pulmonology Department, Respiratory Institute, Hospital Clínic, Barcelona, Spain; [3]Interstitial Lung Diseases Core member, European Reference Networks (ERN-LUNG); [4]Radiology Department, Hospital Clínic, Barcelona, Spain; [5]Pulmonology Department, Hospital de Mollet, Barcelona, Spain; [6]Centro de Investigación Biomédica en Red Enfermedades Respiratorias

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To the editor,

Multidisciplinary discussion [MDD] in expert centres is an essential part of diagnosing interstitial lung disease [ILD] (1). Early referral to an expert centre could improve survival in patients with idiopathic pulmonary fibrosis [IPF] (2,3). However, it is not always possible for all hospitals to have specialized units (4,5). Thus, management of these patients can be difficult in countries with limited resources, mainly because of the large number of patients referred to scarce reference centres. In addition, many general hospitals are quite distant from referral units, which could be a major limitation for patients with comorbidities, advanced disease or requiring frequent visits(6). In the era of the information and communication technologies [ICT], discussing these patients remotely through live sessions may be a feasible option (7). Moreover, during the COVID-19 pandemic the use of virtual meetings for educational, investigational, or clinical purposes has become part of the usual medical practice (8). We aimed to report our experience of periodic online meetings to discuss ILD patients referred from a general hospital before the COVID19 pandemic. We retrospectively analysed the Electronic Medical Records [EMR] of 94 patients discussed in 30 one-hour online sessions, from November 2017 to June 2019, by specialists from the ILD unit of Hospital Clinic of Barcelona [1 pulmonologist and 2 radiologists] and Hospital of Mollet [3 pulmonologists]. For each session, a private virtual room for teleconferencing, under the *LifeSize®* platform, was used. Physicians from Hospital of Mollet presented cases with suspected ILD, sharing laboratory analytics, pulmonary function tests and CT scans. Additionally, radiologists from the Hospital Clinic ILD unit could preview the CT scans using the Catalonian Reference Network for Imaging [HC3], where all images and tests of Catalonian patients could be consulted. Finally, a decision on the diagnosis suggestions for management and referral to the specialized unit was made for each case in common agreement between the participants. Relevant clinical data from all the included patients were collected and analysed. This study was approved by the Ethics Committee of both hospitals [HCB/2019/0584]. One hundred thirty-one online discussions were conducted on 94 patients [21 and 8 patients were reviewed two and three times respectively in different sessions]. Table 1 shows the main characteristics of the patients discussed in virtual

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Correspondence: Jacobo Sellares.
Pulmonology Department, Respiratory Institute, Hospital Clínic.
C/ Villarroel 170. 08036 Barcelona, Spain.
E-mail: sellares@clinic.cat
ORCID: 0000-0001-6047-1670

meetings. The most common presumptive diagnosis was IPF followed by unclassifiable ILD and connective tissue disease related ILD [CTD-ILD]. ILD was ruled out in 26% of cases. Of all the patients discussed, only 25% merited referral preventing overload of the specialized unit and allowing patients to be managed in their own area hospital according to the expert unit recommendations. The most frequent diagnosis referred to our centre was IPF, to prioritise anti-fibrotic treatment. To our knowledge this is the first study in Spain to report the experience of using communication technologies to discuss patients with ILD between a general hospital and an expert ILD unit before de COVID-19 pandemic, demonstrating that many patients could be managed without unnecessary referrals to expert units. In this virtual discussions, CT scans could be assessed by expert ILD radiologists and pulmonologists improving the initial diagnosis suspicion and prioritizing referrals for specific treatment or complex cases. MDD in ILDs is the gold standard for diagnosing IPF and other types of ILD. Virtual meetings could be an alternative to in-person sessions. Furthermore, social distancing during the COVID-19 pandemic impacted usual clinical practice, delayed diagnostic tests and in-person MDD. In this scenario, some centres opted for virtual or hybrid meetings. Mackintosh et al.(8) described a hybrid model of MDD in Australia that began before the onset of the pandemic and then became entirely virtual in the COVID-19 era. In this virtual MDD format, 465 cases were discussed in 72 virtual meetings from four principal centres of Australia with the participation of different specialities, including nurses and training physicians. The most common diagnosis was IPF followed of CTD-ILD. In a similar way, we introduced the on-line MDD on ILD in November 2017 as a response to the increasing volume of referrals to the specialised consult. This online format continued during the pandemic and up to the present having been extended to other general hospitals in different sessions. More recently, a Finnish study(7) described the use of virtual communication in ILD MDD form five university hospitals. In three of them the access to the MDD through virtual communication was available years before the pandemic, and in the other two the virtual access began during the pandemic. Nowadays, online meetings are almost fully included in our daily practice, however, further studies are needed to standardise a specific model of online MDD on ILD. Our study has some limitations, as it pretends to describe a small cohort of patients from a specific area of Barcelona, Spain which restricts their generalization to other areas of the region. Furthermore, this model depends on access to a computer, smartphone, or other communication technology, which may not be adequate in low-resource environments. Also, the use of virtual meetings might be limited due to connection or technical issues. Moreover, the diagnoses were based on a reduced expert consensus, as at that moment, we did not include autoimmune specialists, immunologists, or pathologists in the discussion. In summary, our results support that online MDD on ILD could be a feasible approach to improve the management of these diseases in determined geographic settings; however, more studies are needed to standardise it and to compare its utility in front of the traditional face-to-face meetings.

Table 1. Principal characteristics of patients assessed in the online meetings (n, 94)

Gender - Male, n (%) - Female, n (%)	 53 (56) 41 (44)
Age, years ± SD	69.4 ± 9.6
ILD presumptive diagnosis, n (%) - No ILD - IPF - Unclassifiable ILD - CTD-ILD - SRILD - OP - NSIP - arcoidosis - HP - Other	 24 (26) 16 (17) 14 (15) 12 (13) 10 (11) 5 (5) 4 (4) 3 (3) 2 (2) 4 (4)
Referral to the ILD expert unit, n (%)	23 (25)
Diagnosis of patients referred to the ILD unit, n (%) - IPF - CTD-ILD - Unclassifiable ILD - NSIP - HP	 11 (69*) 5 (42*) 4 (29*) 2 (50*) 1 (50*)

Abbreviations: SD: standard deviation, ILD: interstitial lung disease, IPF: Idiopathic pulmonary fibrosis, CTD-ILD: Connective tissue disease related ILD, SRIL: Smoking related interstitial lung disease, OP: Organising pneumonia, NSIP: Nonspecific interstitial pneumonia, HP: Hypersensitivity pneumonitis. * Percentage of patients calculated from the total number of diagnosis suspicion, not from the total number of referrals.

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