Elucidating minimal important difference in childhood interstitial lung diseases

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Rare paediatric lung diseases have been a challenge over years for paediatric pulmonologists.

There has been growing attention to rare lung diseases in paediatrics in recent years. Especially, childhood interstitial lung disease (chILD) became an area of special interest since comprehensive classification systems[1] and clinical network[2] have been steadily developed.

chILD is an umbrella term representing a highly heterogenous group of rare diseases comprising more than 200 different lung conditions.[2] The incidence in Europe is 0.5–1 case in 100 000.[3] In the UK and Ireland, the prevalence is estimated as 0.36 cases per 100 000 children.[4] The prognosis varies from a mild, self-limiting disease to a rapidly progressive, fulminant course and individual diagnosis are often associated with substantial morbidity and mortality.[2]

As most centres only see few cases per year, there is limited knowledge about the onset, severity and the course of each of these rare conditions. In addition, no one centre would see a sufficient amount of patients to carry out randomised controlled trials of treatment,[5] which could only be solved by multicentric collaborations.

To get out of this dilemma and to address this problem, the European Union Framework Programme grant 'chILD—European Management Platform' (www.childeu.net) was established to build a pan-European consensus for standardised diagnosis and treatment protocols in chILD.[2]

This international platform has collected systematically data from different chILD centres in Europe and has made it possible to gain significant insight into current clinical standards for diagnosis, therapeutic strategies, outcome, follow-up and management of exacerbations in various cases. Studies collecting cases have already advanced our knowledge of chILD and have given us a better overview of the outcome with the available but limited treatment options including steroids, hydroxychloroquine (HCQ) and azithromycin.

As cases are rare and knowledge about prognosis remains scarce, paediatric pulmonologists struggle to advise patients and caregivers appropriately. In addition, experiences of paediatric pulmonologists show that these patients often do not receive optimal care, as there are no evidence-based treatments available for chILD.[6] However, it is very important for those affected to have information about their personal perspectives, diagnostic pathways, treatment effectiveness, quality of life and the impact on everyday functioning. For example, based on personal experiences, many centres used HCQ as a first-line or second-line anti-inflammatory treatment in chILD. A recently published study showed that HCQ has limited effect on treatment response and health-related quality of life (HRQL).[7] The study has its limitations; however, the results remind us that HCQ treatment requires careful reassessments in everyday practice.

The study by Griese *et al* has important implications for clinical practice and research as it provides tools to assess the clinical relevance of disease progression in patients with chILD.[8]

Until now, no information about the minimal important difference (MID) is available in chILD. MID is defined as the smallest change in a parameter that is perceived as important and that would prompt a clinician to change the treatment.[9 10] MIDs are provided on a distribution-based method and on an anchor-based approach, which is generally considered to be superior. In this study, the spirometry parameters forced vital capacity and expiratory volume in one second served as anchors.

The authors established MIDs for clinical variables which are commonly used in chILD and which could easily be carried out in any local centre to assess and to interpret relevant disease progression and to design randomised clinical trials. Interestingly, respiratory rate and oxygen saturation in room air failed in anchor-based MIDs. Whereas, the disease severity score (Fan) and, in a larger extent, the HRQL questionnaires had a significant relation. These findings indicate that chILD has an important impact on HRQL and HRQL needs more attention in future investigations.

In view of the rarity and at the same time, heterogeneity of chILD precision medicine may not yet be feasible. However, and as stated by the authors, a 'basket approach' will be the first step to provide clinicians with a promising tool.

All this progress was made possible by the dedication and the commitment of multiple European collaboratives who have improved the care of chILD by creating awareness and by advancing research, which will help further to lead to evidence based care.

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