Clinical and radiological correlation in interstitial lung diseases: a multicenter study.

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Introduction

Interstitial lung diseases encompass more than 200 different conditions affecting the lung parenchyma, often leading to progressive pulmonary fibrosis and respiratory failure. Given the clinical overlap between subtypes and the non-specific nature of symptoms such as cough and dyspnea, radiological evaluation, particularly HRCT, plays a pivotal role in narrowing differential diagnoses. A thorough understanding of clinical-radiological correlation is essential for the effective management of ILDs [1, 2, 3, 4].

Interstitial lung diseases (ILDs) represent a heterogeneous group of pulmonary disorders characterized by varying degrees of inflammation and fibrosis. Early and accurate diagnosis relies heavily on a multidisciplinary approach that integrates clinical, radiological, and pathological data. This multicenter study aims to evaluate the correlation between clinical features and high-resolution computed tomography (HRCT) findings across diverse ILD subtypes, emphasizing the role of radiological imaging in guiding diagnosis and treatment decisions [5,6, 7].

Clinical-Radiological Concordance:

A significant correlation ($p<0.001$) was noted between HRCT patterns and final MDT diagnosis in 82% of cases. Discordance occurred primarily in cases of overlap syndromes or atypical presentations, necessitating tissue biopsy [8, 9, 10].

Discussion

The findings reinforce the high diagnostic value of HRCT in ILD, particularly when interpreted within a multidisciplinary context. Certain radiological patterns, such as the UIP pattern in suspected IPF, often obviate the need for biopsy. Conversely, mixed or non-specific imaging findings demand clinical corroboration and further testing. Moreover, radiological patterns also have prognostic implications; for instance, UIP pattern is associated with a poorer prognosis compared to NSIP.

The study also highlights the role of HRCT in monitoring disease progression and therapeutic response, especially in fibrosing ILDs. Regular imaging, along with clinical assessment and PFTs, allows dynamic disease management and timely intervention.

Conclusion

This multicenter study underscores the critical role of HRCT in diagnosing and managing ILDs. A strong clinical-radiological correlation enhances diagnostic accuracy, facilitates early intervention, and improves patient outcomes. Further research is needed to integrate artificial intelligence and quantitative imaging tools to standardize interpretation and reduce interobserver variability.

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