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Rheumatoid Arthritis-Interstitial Lung Disease in a Rheumatology Centre in Malaysia: Prevalence and Its Associated Factors

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AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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**Rheumatoid Arthritis-Interstitial Lung Disease in a Rheumatology Centre in Malaysia:
Prevalence and Associated Factors**

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ABSTRACT

Aim: The purpose of the study was to determine the prevalence of RA-ILD and identify its associated factors.

Methods: This is a cross-sectional study involving 156 RA patients who fulfilled 2010 ACR/EULAR criteria done from December 2020 to May 2021. Data on patient's demographic, serologic markers, and treatment history was collected. Clinical characteristics and treatment history were analysed in univariate and multivariate analysis.

Results: 156 RA patients (female 90.4%) with mean age of 56.57 ± 13.19 were included in the study. Sixteen patients were diagnosed as having RA-ILD (10.3%). In univariate analysis, the factors associated with RA-ILD were older age (66.19 ± 9.40 vs 55.47 ± 13.14 years old, $p=0.002$), Indian race (68.8% vs 29.3%, $p=0.002$), mMRC score of 2 to 4 (62.5% vs 12.1%, $p<0.001$) and not on Methotrexate (MTX) (68.8% vs 35%, $p=0.013$). In multivariate analysis, age (adjusted OR 1.09; $p=0.026$), Indian race (adjusted OR 8.05; $p=0.005$), mMRC score of 2 to 4 (adjusted OR 12.93; $p<0.001$) and patients who were not currently on MTX treatment (adjusted OR 0.15; $p=0.009$) were independent significant associated factors for RA-ILD.

Conclusion: Factors associated with RA-ILD were older age, Indian race, higher mMRC score, and not currently on Methotrexate.

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INTRODUCTION

Rheumatoid arthritis (RA) is an autoimmune disease characterised by chronic symmetrical inflammation of the joints. It is a systemic disease which can affect other organs such as the heart, lungs, skin, and eyes; which contribute to the excess morbidity and mortality of RA patients.¹ Pulmonary disease is one of the commonest extra-articular manifestation of RA.²

A wide range of prevalence of rheumatoid arthritis associated interstitial lung disease (RA-ILD) had been reported in previous study. These variation are due to the definition of ILD being used, radiological method being utilised to diagnose ILD, racial distribution of subject population and the study design applied in different studies. A local study in which High Resolution Computed Tomography (HRCT) thorax was performed on all subjects regardless of symptoms, reported a prevalence of 44%.³ A cross-sectional study comprising multi-ethnic cohort on symptomatic patients reported a prevalence of RA-ILD of 3.6%, using HRCT thorax.⁴ The factors identified to be associated with RA-ILD were male gender,⁵ older age at onset,⁶ longer disease duration,⁴ smoker,⁷ higher titre of rheumatoid factor (RF)^{5,8} and anti-cyclic citrullinated peptide (anti-CCP) antibody positivity.^{8,9}

RA-ILD is a significant contributor to morbidity and mortality.¹⁰ Patients with RA-ILD have higher risk of death when compared to RA patients without ILD.¹¹ RA-ILD can be a progressive disease⁷ and the factors associated with progression of RA-ILD includes usual interstitial pneumonia (UIP) pattern on HRCT, severe disease at presentation, and rapid rate of pulmonary function test (PFT) deterioration in the first 6 months following diagnosis.¹² Although early detection or intervention of RA-ILD has not been proven to alter clinical outcomes,¹³ nintedanib