Rheumatoid arthritis associated interstitial lung disease: 1 year is too much to exclude methotrexate-induced pulmonary involvement

Sir,

We read the article, “Pulmonary involvement in rheumatoid arthritis: A cross-sectional study in Iran” by Zayeni et al.\textsuperscript{[1]} with great interest. The authors have evaluated 44 patients of rheumatoid arthritis with pulmonary function testing (PFT), chest X-ray, high-resolution computed tomography (HRCT) of the lungs, and disease activity score 28. The authors have excluded the patients with history of smoking and use of drugs such as gold, penicillamine, sulfasalazine, and methotrexate for more than 1 year.

Rheumatoid arthritis associated interstitial lung disease (RA-ILD) is more commonly found in male, history of smoking, and high titers of rheumatoid factor and with duration of the disease.\textsuperscript{[2]} In the present study, the male are under-represented (9 patients, 20.45%) and smokers have been excluded totally. Thus, the study has significant selection bias.

Studies suggest that methotrexate-induced ILD is most frequently occurs after 4–6 months after initiation of therapy.\textsuperscript{[1,4]} The authors tried to exclude methotrexate-induced ILD by exclusion of patients taking methotrexate for more than 1 year. While this did not exclude patients having methotrexate-induced ILD, it might have excluded patients having long duration of RA which is linked with development of RA-ILD.

Second, the authors mentioned HRCT findings as nodules, fibrosis, cyst, bronchiectasis, air trapping, and bronchiolectasia. However, RA-ILD is classically divided into usual interstitial pneumonia (UIP), nonspecific interstitial pneumonia, organizing pneumonia, lymphocytic interstitial pneumonia (LIP), bronchiolitis, etc. Hence, the present study lacks these specific patterns of ILD which are recognized worldwide. According to available literature, UIP is the most common form of ILD in RA.\textsuperscript{[2]}

Third, the authors have stated that “air trapping” was the most common finding in patient’s PFT, and there is no mention of PFT variables in the present study. Instead of simply summarizing these PFT findings, the authors could have mentioned the PFT variables which would be more helpful for quantification and severity grading of lung function.

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Conflicts of interest
There are no conflicts of interest.

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Sir,

Pleural manometry is the technique to measure the pleural pressure either with water manometer or with digital manometer. Under normal conditions, there is a thin film of pleural fluid in the pleural space. The fluid is secreted from the parietal pleura as it is supplied by systemic vessels and is a high-pressure system and absorbed from visceral pleura supplied by pulmonary vessels, which operate at lower pressures. It is also absorbed from lymphatics of visceral and parietal pleurae, covering the diaphragms and mediastinal region. Total pleural fluid volume is 0.26 ± 0.1/ml/kg with cell counts of 1500–2000/ml, macrophages of 75%, and lymphocytes of 23%, approximately 2% are mesothelial, neutrophils, and eosinophils.

Pleural pressures are negative throughout the respiratory cycle as it is a must to keep the lungs expanded and to keep them abutted against the chest wall. Normal end-expiratory pressure in pleural space is −5 cm of H₂O and end-inspiratory pressure is −10 cm of H₂O, attaining a pressure of −15 cm on deep inspiratory maneuver. Direct measurement of pleural pressure is a challenge as catheter will get distorted in pleural space and will not reflect the true pleural pressure. However, in pleural effusion, catheter does not get distorted, and we can smoothly measure the pleural pressures.

Pleural manometry is not a new technique and pleural pressures are being measured for decades, but unfortunately, it failed to get its due place in routine practice. This may be because there are no special trainings in pleural diseases or there are no fellowship programs. Whether or not it should be practiced in every case can be debated, but it can prove to be extremely helpful in selected cases to prevent the development of excessively negative pleural pressures. The development of negative pleural pressure is known to cause re-expansion pulmonary edema. Pleural manometry is very helpful in the diagnosis of unexpanded lungs (both trapped and untrapped). It also helps in the prediction of pleurodesis success.

Pleural manometry [Figure 1] is a technique, where the pleural pressure is measured by connecting thoracocentesis needle on one side to the transducer and the bedside monitor using two three-way adaptors, the pleural pressure is measured intermittently after removal of an average of 250 ml of fluid. The values are recorded, graph prepared, and interpretation done. It helps in prognosticating whether the lung will expand or not and effectiveness of pleurodesis.

To make things simple, now digital manometers are available to measure the pleural pressures directly [Figure 2] during thoracocentesis. It is wonderful that single use disposable device works on battery and its life is 4 h. Hence, normally, pleural pressure is slightly positive and as fluid is withdrawn, it comes down which suggests that lung is expanding and returning to its normal position [Figure 3, top tracing]. In entrapped lung,