Interstitial lung diseases

The impact of methotrexate on the development of interstitial lung disease in patients with rheumatoid arthritis.

*J. Kur-Zalewska[1], M. Tlustochowicz[1], A. Kadlubowski[2], A. Chcialowski[3], W. Tlustochowicz[1]
[1]Military Institute of Medicine, Department of Internal Diseases and Rheumatology (Warsaw, Poland)
[2]Military Institute of Medicine, Department of Radiology (Warsaw, Poland)
[3]Military Institute of Medicine, Vice-Director of Science (Warsaw, Poland)

Introduction

Interstitial lung disease (ILD) is one of the extra-articular manifestations of rheumatoid arthritis (RA). Its association with methotrexate (MTX) remains unclear.

Objectives

The aim of the study was to evaluate the association between treatment with MTX and the development of ILD in RA patients.

Methods

The adult patients with RA defined according to ACR 1987 criteria and without previous diagnosed ILD were included in the study. Detailed medical history, physical examination, laboratory tests and high-resolution computed tomography (HRCT) of the lung were performed in each subject.

Treatment with MTX, including prior and current MTX use, current and cumulative MTX dose, duration of MTX use, was assessed in all patients. The yearly MTX dose was calculated by using the quotient of cumulative MTX dose in milligrams and duration of RA in years.

The diagnosis of ILD was based on HRCT of the chest.

Results

111 patients with RA (94 women and 17 men) were enrolled in the study. The mean age was 60.7±11.3 years. The median RA duration was 7 years. In HRCT of the chest, abnormalities consistent with ILD were found in 53 patients (47.8%).

During the course of the RA, 88 patients (79.3 %) underwent at least 1 month treatment with MTX. 53 subjects (47.7%) received MTX at baseline with a mean weekly dose of 9.4 mg. The mean duration of MTX treatment was 25.7 months with the mean cumulative dose of 1465.2 mg. The mean calculated yearly MTX dose was 225.6 mg.

Statistically significant differences were observed between RA patients with ILD and without diagnosed ILD in mean current MTX dose (5.8 vs 12.6 mg, p- 0.002), mean cumulative MTX dose (1000.9 vs 1889.5 mg, p- 0.01) and mean yearly MTX dose (128.2 vs 314.7, p- 0.0002).

There were no significant differences between these two groups in MTX use (75.5% vs 82.8%, p- 0.34) and mean duration of MTX treatment (19.7 vs 31.2 months, p- 0.054).

Conclusions

MTX does not induce pulmonary fibrosis. It seems that ILD development might be related to insufficient treatment of RA. Treatment with higher doses of MTX is associated with lower risk of ILD associated with RA.