



Hepatic Steatosis and Its Associated Factors among Patients with Psoriasis Receiving Methotrexate

A. Liyanage¹, G. Liyanage¹, S. De Zoysa², B. Wijenayake³, B. Yapa⁴, M. Pushparani², V. De Silva¹, S. Imafuku⁵, S. Lekamwasam¹

¹ Faculty of Medicine, University of Ruhuna, Sri Lanka

² General Hospital Hambantota, Sri Lanka

³ National Hospital Hambantota, Sri Lanka

⁴ General Hospital Matara, Sri Lanka

⁵ Faculty of Medicine, Fukuoka University, Japan

*Corresponding author: achalaliyanage@med.ruh.ac.lk

Methotrexate (MTX) is an effective and affordable systemic therapy for psoriasis but requires continued biochemical and sonographic monitoring to detect liver damage early. This study evaluates liver functions and ultrasonographic findings among MTX-treated psoriasis patients, with emphasis on hepatic steatosis and associated factors. This cross-sectional study of 80 adults with chronic plaque psoriasis assessed demographic characteristics, disease severity using body surface area (BSA) and Psoriasis Area Severity Index (PASI), cumulative MTX dose, and liver biochemistry. Ultrasonography was performed by a radiologist blinded to clinical data. Comparisons between groups were assessed using the Mann-Whitney U test. Of the 80 patients assessed, 34 were males (42.5%), and the majority (45%) belonged to social class 3. The median (IQR) disease duration was 12 (5–19) years, with a median (IQR) cumulative MTX dose of 885 (90–2272) mg. Ultrasound assessment showed a normal liver in 45% of participants, grade I steatosis in 50%, and grade II in 5%. Mean values of total protein (7.05 ± 0.45 g/dL), albumin (4.54 ± 0.24 g/dL), total bilirubin (0.70 ± 0.33 mg/dL), ALP (60.9 ± 26.3 U/L), ALT (36.0 ± 28.7 U/L), AST (29.4 ± 13.2 U/L), and GGT (25.7 ± 16.5 U/L) were within normal limits. Patients with steatosis had higher BMI, waist circumference, diastolic blood pressure, fasting blood sugar, TG/HDL ratio, hs-CRP, and GGT, and lower HDL levels (all $p < 0.05$). No significant differences were found for age, gender, cumulative MTX dose, disease severity indices, other lipid parameters, or liver function markers. Overall, most methotrexate-treated patients demonstrated normal liver biochemistry. Metabolic risk factors, rather than exposure to higher cumulative doses of MTX, were more prevalent among patients with hepatic steatosis. Therefore, metabolic screening combined with ultrasound may aid in detecting liver abnormalities in MTX-treated psoriasis patients.

Keywords: Methotrexate, Psoriasis, Liver function, Hepatic steatosis, Ultrasound