الدراسات العليا

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Title of thesis: Study the Prevalence of MAFLD and Liver Fibrosis in Patients with Rheumatoid Arthritis

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Abstract

Rheumatoid arthritis is a common, chronic autoimmune disease affecting 0.5–1% of the global population, often leading to joint damage and extra-articular manifestations in the skin, eyes, lungs, kidneys, heart, nerves, and gastrointestinal system. Liver involvement in RA can present as abnormal liver tests, metabolic liver disease, autoimmune hepatitis, biliary diseases, or MAFLD.

MTX, the mainstay of RA treatment, is associated with liver toxicity and may contribute to MAFLD. MAFLD, now the most common chronic liver disease, is linked to obesity and diabetes and is predicted to affect over 55% of adults by 2040. Unlike NAFLD, MAFLD diagnosis is based on metabolic dysfunction alongside liver steatosis. While a connection between MAFLD and RA has been suggested, data remains limited.

This study aimed to assess the prevalence of MAFLD and liver fibrosis in 154 RA patients at Fayoum University hospitals (July 2024–February 2025). History, clinical examination including anthropometric measurement (BMI, WC, HC, WHR, and WHtR) & Disease Activity Score 28 (DAS28), Abdominal Ultrasound, Fibroscan, Laboratory investigations including Complete liver biochemical profile, lipid profile, HbA1C, and inflammatory markers (CRP&ESR) were recorded at baseline.

MAFLD prevalence by CAP was 51.3%. 65,8% of them had moderate and severe steatosis. MAFLD phenotypes included T2DM (22.8%), overweight/obesity (69.6%), and lean MAFLD (7.6%). Fibrosis prevalence was 22.1%, with early fibrosis in 21.4% and cirrhosis in 0.6%. Univariate analysis showed that Increased Age, BMI, WC, TG, and HbA1C were associated as risk factors for MAFLD. Associated risk factors for liver fibrosis were increased age, WC, BMI, HbA1C, and liver steatosis.

Ultrasound demonstrates the highest accuracy (89%) and specificity (96%) for the prediction of steatosis**.** TYG-BMI shows the best overall performance with a high AUC (0.874),

strong specificity (89.3%), and good accuracy (81.8%) for the prediction of liver steatosis. FLI had a sensitivity of 83.5% and a specificity of 76%. HIS had a sensitivity of 86.1% and a specificity of 68%. TG/HDL ratio exhibited the highest specificity (93.3%).

The Agile 4 score demonstrates the highest diagnostic accuracy (85.7%), positive predictive value (71.3%), and excellent specificity (93.3%) for the prediction of Liver fibrosis. Agile 3+ had high sensitivity (85.3%) and good accuracy (70.8%). The FAST score also shows good sensitivity but lower specificity and accuracy. the FIB-4 score and NAFLD fibrosis score (NFS) exhibited moderate diagnostic accuracy with AUCs of 0.627 and 0.666, respectively.

In Conclusion:

- RA patients are at increased risk for MAFLD and liver fibrosis, especially those with metabolic risk factors such as obesity and diabetes
- Ultrasound is a reliable method for the detection of liver steatosis.
- Non-invasive diagnostic tools, TyG-BMI, HSI, FLI, NFS, FIB-4, and Agile scores, are reliable for screening and monitoring liver involvement in RA patients.