Cytokeratin 18 and Transient Elastography with Controlled Attenuation Parameter as Screening Tools for Nonalcoholic Steatohepatitis in HIV Mono-Infected Patients

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Background: Nonalcoholic steatohepatitis (NASH) is a leading cause of end-stage liver disease in North America. HIV+ persons are at risk of NASH. However, data on NASH in HIV mono-infection are scarce.

Methods: We conducted a prospective screening study for NASH in HIV mono-infected persons based on a stepwise diagnostic algorithm employing the serum biomarker cytokeratin 18 (CK-18) and transient elastography (TE) with associated controlled attenuation parameter (CAP). All patients underwent TE with CAP to diagnose fatty liver; patients with fatty liver were further screened for NASH with CK-18; finally, those with a non-invasive diagnosis of NASH were offered liver biopsy, as per standard of care. Fatty liver was defined as CAP>238dB/m. NASH was diagnosed by a CK-18>246U/L. Cofactors associated with NASH were determined by logistic regression analysis.

Results: 310 consecutive cases (mean age 49.9 years, 77% men, mean CD4 630$\pm$253, 90% on antiretrovirals) without significant alcohol intake or coinfection with hepatitis B or C were included. Fatty liver was diagnosed by CAP in 171 cases (55%). CK-18 was performed in all of them, and NASH was diagnosed in 30 cases (representing 18% of patients with fatty liver and 10% of the overall cohort, a figure that is three times higher

than the general Canadian population). 22 out of 30 patients with a non-invasive diagnosis of NASH agreed to undergo a liver biopsy. Histology confirmed NASH in all cases. After adjusting for age and BMI, ALT (OR=1.11, 95% CI 1.05-1.78; p<0.001) and TE measurement (OR=1.31, 95% CI 1.02-1.67; p=0.03) were independent predictors of NASH.

Conclusion: A screening strategy based on a stepwise algorithm combining two non-invasive tools and liver biopsy revealed a high prevalence of NASH in HIV mono-infected persons, particularly in case of high ALT and TE measurement. Non-invasive screening for NASH can help diagnosis and early initiation of interventions in this population.