**OS026**

## Liver stiffness predicts incident severe liver disease in patients with chronic liver disease

Hannes Hegmar[1,2], Axel Wester[2], Soo Aleman[3], Jens Backman[4], Erik Degerman[5], Håkan Ekvall[6], Katarina Lund[7], Åsa Lundgren[8], Patrik Nasr[2,9], Afshin Shahnavaz[10], Johan Vessby[11], Johan Westin[12], Kristina Önnerhag[13], Hannes Hagström[1,2,14]. [1]*Division of Hepatology, Department of Upper Gi, Karolinska University Hospital, Huddinge, Sweden;* [2]*Karolinska Institutet, Department of Medicine, Huddinge, Stockholm, Sweden;* [3]*Karolinska Institutet/Karolinska University Hospital, Department of Infectious Diseases, Stockholm, Sweden;* [4]*University Hospital of Umeå, Department of Infectious Diseases, Umeå, Sweden;* [5]*Falun Hospital, Department of Infectious Diseases, Falun, Sweden;* [6]*Sundsvall-Härnösand Regional Hospital, Department of Infectious Diseases, Sundsvall, Sweden;* [7]*Northern Älvsborg County Hospital, Department of Infectious Diseases, Trollhättan, Sweden;* [8]*Central Hospital Kristianstad, Department of Infectious Diseases, Kristianstad, Sweden;* [9]*Linköping University, Department of Gastroenterology and Hepatology, Department of Health, Medicine and Caring Sciences, Linköping, Sweden;* [10]*Southern Älvsborg Hospital, Department of Infectious Diseases, Borås, Sweden;* [11]*Uppsala University, Department of Medical Sciences, Gastroenterology Research Group, Uppsala, Sweden;* [12]*University of Gothenburg and Sahlgrenska University Hospital, Dept of Infectious Diseases, Gothenburg, Sweden;* [13]*Skåne University Hospital, Department of Gastroenterology and Hepatology, Malmö, Sweden;* [14]*Karolinska Institutet, Clinical Epidemiology Unit, Department of Medicine, Solna, Stockholm, Sweden*
Email: hhegmar@gmail.com

**Background and aims:** Prognosis in chronic liver disease is heterogenous, and fibrosis stage is the best predictor of liver-related events. Liver stiffness measurement (LSM) by Vibration-Controlled Transient Elastography (VCTE) is a non-invasive biomarker of fibrosis. It is uncertain if LSM can predict risk for future liver-related events. The aim was to investigate the prognostic ability of LSM.
**Method:** This was a Swedish multi-center cohort study including patients (n = 13, 170) with chronic liver disease who underwent LSM by VCTE between 2008 and 2019. Exclusion criteria were an unreliable LSM, congestive heart failure, and decompensated cirrhosis at baseline. Liver-related events were ascertained from Swedish national health registers. In patients without baseline cirrhosis, we investigated progression to "severe liver disease," defined as a diagnosis of cirrhosis, decompensated cirrhosis or hepatocellular carcinoma (HCC). In patients with baseline cirrhosis, we investigated progression to decompensation or HCC. Incidence rates and cumulative incidence at two and five years were calculated. Cox regression was used to evaluate the rate of outcomes for categories of LSM values.
**Results:** Patients (median age 46 years, 59% men) had a median LSM of 5.9 (interquartile range 4.6–8.0) kPa. Etiologies consisted of hepatitis C (n = 6849, 52.0%), hepatitis B (n = 3497, 26.6%), alcohol-related liver disease (n = 211, 1.6%), autoimmune liver disease (n = 624, 4.7%), non-alcoholic fatty liver disease (n = 699, 5.3%) and other or uncertain etiologies (n = 1290, 9.8%). Patients without baseline cirrhosis (n = 11, 883) had 333 (2.8%) events of severe liver disease during a median follow-up time of 2.9 years. Patients with cirrhosis at baseline (n = 1287) had 206 (16.0%) events of decompensation or HCC. In patients without cirrhosis, a LSM of 12–15 kPa was associated with a 42-fold higher rate of severe liver disease than a LSM of <6 kPa (Figure A). In patients with cirrhosis, a LSM >30 kPa was associated with a 5.4-fold higher rate of decompensation compared to a LSM of 15–17 kPa (Figure B). Incidence rates per 1000 person-years in severe liver disease ranged from 2.1 (95%CI 1.6–2.8) to 88.9 (95%CI 73.2–107.9) for LSM <6 kPa and 12–15 kPa, respectively. Incidence rates per 1000 person-years in decompensated cirrhosis ranged from 18.2 (95% CI 10.3–32.0) to 109.6 (95%CI 88.9–135.1) for LSM 15–17 kPa and >30 kPa, respectively. In patients without cirrhosis, the cumulative incidence at two years ranged from 0.4 (0.3–0.6)% to 19.1 (15.1–23-5)%, and at five years from 1.1 (0.8–1.6)% to 32.9 (26.9–38.9)%, respectively.
**Conclusion:** Increased LSM by VCTE is associated with higher rates of progression to cirrhosis and decompensation in a dose-response manner. The results can be used to guide follow-up and treatment decisions.

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## Linear slope of serial FIB-4 measurements predicts liver-related complications and correlates with cirrhosis-associated genetic variants among patients with ALT-based NAFLD phenotype

Craig Teerlink[1], David E. Kaplan[2], Marijana Vujkovic[3], Benjamin Voight[4], Kyong-Mi Chang[3], Julie Lynch[5], Scott Duvall[5], Tori Anglin[5], Timothy Morgan[6], Linus Schwantes-An Tae-Hwi[7], Trina Norden-Krichmar[8], Daniel Dochterman[9], Poornima Devineni[9], Philip Tsao[10], Carolin Victoria Schneider[11]. [1]*University of Utah Health, Internal Medicine, Salt Lake City, United States;* [2]*Perelman Center for Advanced Medicine, Gastroenterology, Philadelphia, United States;* [3]*University of Pennsylvania, Medicine, Philadelphia, United States;* [4]*University of Pennsylvania, Genetics, Philadelphia, United States;* [5]*VA Health Care System, VINCI, Salt Lake City, United States;* [6]*University of California Irvine, Medicine, Irvine, United States;* [7]*Indiana University, Medicine, Indianapolis, United States;* [8]*University of California Irvine, Epidemiology and Biostatistics, Irvine, United States;* [9]*VA Health Care System, GenISIS, Boston, United States;* [10]*Stanford University, Medicine, Palo Alto, United States;* [11]*University of Pennsylvania, Translational*

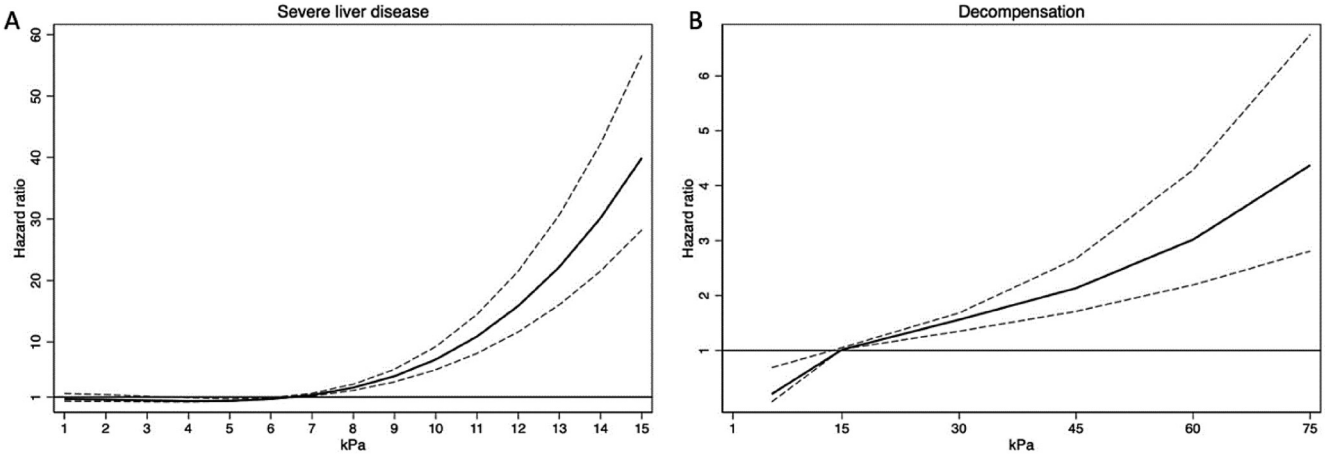


Figure: (abstract: OS026): A. Patients without cirrhosis at baseline. B. Patients with cirrhosis at baseline.