Aim: We examined the disease severity and outcomes of patients with hepatitis delta in Belgium. In addition, we aimed to investigate the differences in disease severity in multiple subpopulations of this cohort.
Methods: In the present study we retrospectively performed a medical chart review of hepatitis delta patients seen at 6 Belgian hospitals. All relevant data, including lab results, radiography findings, biopsies and consultation notes, were collected from July 2001 until October 2022. The inclusion criteria were a) HBsAg or HBV DNA positive at admission; b) anti-HDV or HDV RNA positive; c) available medical file with initial biological and clinical evaluations; d) at least 1 follow-up visit. Severe outcomes were defined as either a) liver decompensation, b) HCC diagnosis, c) liver transplantation or d) death.
Results: A total of 100 HDV positive patients were included. The median age was 35 years (range 6 – 61 years). Patients were predominantly male (57.9%) and had a median follow-up of 5.43 years (range 0.17 – 20.41 years). The median time until HDV diagnosis was 0.13 years (max 17.9 years). The median ALT and MELD score at admission were 77.5 U/L (range 13 – 5450 U/L) and 7.88 (range 6 – 37) respectively. For 86/100 patients a biopsy or non-invasive liver fibrosis assessment was available, showing cirrhosis in 37.2% of the patients (13 on biopsy and 19 with an elastography >= 12 kPa). Cirrhosis was diagnosed at a median age of 41 years (range 13 – 60 years). A HDV RNA assay was performed in 91/100 patients, of which 68 (74.7%) had a positive result. Different HDV RNA assays have been applied in our real-world cohort, both in-house (mostly before 2014) as commercially available (mostly after 2014). The mean ALT was significantly higher at admission in patients with a positive HDV RNA (136 U/L vs 63 U/L, $p<0.001$). There was no significant difference in age ($p = 0.48$), presence of cirrhosis ($p = 0.85$) and MELD score at admission ($p = 0.22$) between these groups. A total of 25 patients had at least one severe outcome: 19 liver decompensations (of which 5 at admission), 8 HCC's (1 at admission), 3 liver transplantations and 9 deaths. The 1-, 5- and 10-year cumulative outcome probability was 16%, 21% and 39% respectively. The median age at first outcome was 49 years (range 25 – 61 years). After accounting for age, there was no association between a positive HDV RNA result and having a severe outcome ($p = 0.82$). Importantly, repetitive HDV RNA assays were only available in 52% of the patients and in 36% of the patients with a severe outcome the HDV RNA assay was performed after the clinical outcome was observed. The fact that no association was found questions the prognostic value of a one-time HDV RNA assay and suggests that this may not be representative for the HDV activity during the whole follow-up.
Conclusions: HBV-HDV coinfections lead to severe liver-related outcomes in almost 40% of patients within 10 years in Belgium. The lack of an association between HDV RNA positivity performed by different assays and outcomes in our study, calls for standardization of HDV RNA assays. In addition, we advocate to periodically monitor the HDV viral load with newest assays in order to detect persistent viremia or late HDV RNA relapses after initial negative results.

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MYOSTEATOSIS IN THE LIVER TRANSPLANT CANDIDATE: IS IT THE FUTURE PROGNOSTIC MARKER?
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Introduction: The body composition of the cirrhotic patient plays an important role in his prognosis. Several factors such as loss of skeletal muscle mass, malnutrition, and frailty (assessed by liver frailty index LFI) are closely associated with an increased risk of mortality in the liver transplant list. Myosteatosis is defined as the pathological excess of fat within the muscle expressed as a lower mean skeletal muscle radiodensity on computed tomography. Several studies have recently observed a negative impact of myosteatosis on the outcome of cirrhotic patients as well as in the postoperative outcome of patients undergoing liver transplantation (LT). There are still questions about the impact of this myosteatosis on liver function and on muscles functionality.
Aim: The aim of this study is to define the impact of skeletal muscle mass and composition on the morbidity and mortality on the waiting list for LT.
Methods: This single-center prospective observational study screened adult patients who were candidates for LT from June 2021 to September 2022. Each candidate received a complete nutritional and functional assessment during its pre-transplant evaluation. Low muscle mass (skeletal muscle mass index, SMI) and myosteatosis (muscle density attenuation) were measured on a cross-sectional area of the third lumbar vertebral level (L3) using a CT scanner and SliceOmatic

program. Low muscle mass was defined as SMI < 39 cm2/m2 in females and < 50cm2/m2 in males. Myosteatosis was assessed by skeletal muscle radiodensity attenuation (SM-RA) and the cut-off were SM-RA < 41 HU for patients with a BMI < 24.9 kg/m2 and < 33 HU for patients with a BMI 25 kg/m2. Frailty was calculated using the Liver Frailty Index (LFI). This score consists in evaluating grip strength, chair stands, and balance testing. Time-to-event analysis was performed using Kaplan-Meier method to investigate the impact of nutritional and function variables on outcome. One-year survival was determined after censoring for patients who underwent LT during this period. Univariate and multivariate Cox proportional hazard regressions were computed to identify predictors of morbidity and mortality on the waiting list for LT.

Results: 103 patients were screened during this period, of which 84 were placed on the Eurotransplant liver transplant waiting list. The mean age was 54 years and 67,7% were males. The primary etiology of liver disease was alcohol and 38% of patients were listed for hepatocellular carcinoma. 26.6% of patients had low muscle mass and 31% had myosteatosis. Most patients were pre-frail (54.4%) and 15.5% were frail based on LFI. The one-year patient survival probability on the waiting list was 76,9±7,2%. The patients presented a one-year risk of 33% for the development of a cirrhosis decompensation needing a hospitalization. In univariate analysis, the presence of myosteatosis was strongly associated with one-year mortality (HR 10.22 (2.16-48.29, p=0.003)). Patients with myosteatosis were frailer (LFI 3.96±0.72 vs 3.51±0.72 p= 0.014). Their grip test was also lower compared with patients without myosteatosis (26.3±8.08 vs 31.7±11.4 p=0.02) The survival probability was significantly reduced in patients with myosteatosis compared with patients with higher SM-RA values (43±17% vs 95±4%, p<0.001). However, this was not significant after adjustment for cirrhosis severity assessed by the MELD score (HR = 4,65 (0,93-23,2) p=0,06). The probability of urgent hospitalization for liver decompensation was also increased in the myosteatotic patients (59±18% vs 23±8%, p=0.012).

Conclusions: Among all muscle parameters and beside the MELD score, myosteatosis is a strong predictor of morbidity and mortality on the waiting list for LT. It is associated with lower functional capacity and higher frailty. A composite score including parameters of liver function on the one hand and myosteatosis on the other hand would probably make it possible to better discriminate and prioritize patients on the LT waiting list. Appropriate cut-offs for cirrhotic patients should also be determined.

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APPLICATION OF UPDATED DIAGNOSTIC CRITERIA FOR CIRRHOTIC CARDIOMYOPATHY: EVALUATION OF ITS CLINICAL IMPACT IN LIVER TRANSPLANTATION CANDIDATES. F. Voet (1), M. Khalenkow (1), E. Vander Straeten (1), M. De Pauw (2), H. Degroote (3), X. Verhelst (3), A. Geerts (3), H. Van Vlierberghe (3), S. Raevens (3) / [1] Ghent University, Ghent, Belgium, Student, [2] Ghent University, Ghent, Belgium, Cardiology, [3] Ghent University, Ghent, Belgium, Gastroenterology and hepatology.

Introduction: Cirrhotic cardiomyopathy (CCMP) is a liver-related cardiac complication that can occur in patients with cirrhosis. CCMP is characterized by the presence of diastolic dysfunction and/or systolic dysfunction (DD and SD). Diagnostic criteria were first established by the Montréal consensus in 2005, however, they substantially lacked specificity. With the application of tissue Doppler imaging, the evaluation of DD has significantly evolved, and diagnostic criteria have been revised since 2019. The prevalence and the clinical impact of CCMP in liver transplantation (LT) candidates are not well studied.

Aim: In this single-center retrospective study, we aimed to estimate the prevalence of CCMP, applying the 2019 criteria, in our population of LT candidates. We assessed the impact of DD and CCMP on waitlist mortality and post-LT outcome and explored if DD and CCMP can improve after LT.

Methods: Demographic, clinical, echocardiographic and outcome data of 522 adult patients on the waitlist for LT between 01/01/2005 and 31/03/2017 in the Ghent University Hospital were analyzed. CCMP, DD and SD were diagnosed based on the diagnostic criteria established in 2019, using tricuspid regurgitation velocity, e' lateral, and ejection fraction. Data were analyzed using SPSS.

Results: DD, SD and CCMP were diagnosed in respectively 5,7%, 1,5% and 8,1% of our patients evaluated for LT. This study further focused on DD and CCMP given the low prevalence of SD. Patients with DD and CCMP were significantly older compared to patients without DD or CCMP (mean age 65y versus 60y, and 63y versus 57y respectively, P<0.001). Other demographic data and clinical characteristics, e.g. etiology and severity of the underlying liver disease, were similar between LT candidates with and without CCMP/DD. The presence of DD did not significantly affect waitlist mortality: 8,9% without DD died on the waitlist versus 21,1% with DD. Patients who died on the waitlist were significantly older, had more severe liver disease, and more frequently had pulmonary comorbidities. A similar amount of LT candidates without DD underwent LT as LT candidates with DD (85.4% versus 73.6% respectively). The mean follow-up time in patients with and without DD was 1395 and 988 days (P=0,44) respectively. Post-LT survival was similar in both groups: 14,3% of patients with DD and 15,2% of patients without DD died during follow-up. Pulmonary comorbidities and higher e' lateral were more frequently seen in deceased patients. Follow-up echocardiographic data post-LT were available in 10 patients who were diagnosed with DD before LT: only 1 of them fulfilled the diagnostic criteria of DD post-LT.