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VORTRÄGE

V01 Alcohol consumption and the risk for colorectal adenoma

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Background and Aims Significant alcohol consumption (≥20g/day for female and ≥30g for male) has been proposed as a risk factor for colorectal cancer. However, results from meta-analyses are inconclusive. Thus, we aimed to clarify the role of alcohol consumption on the risk of colorectal adenoma.

Methods 4686 patients undergoing colonoscopy were included as part of a colorectal carcinoma colonoscopy screening program. Patients were characterized using biochemical and metabolic parameters. Data on alcohol consumption was extracted from detailed food frequency questionnaires and denoted as gramm (g)/week. For group comparison, patients were stratified according to their alcohol consumption into insignificant (none or <10g/week), moderate (10-130g/week) and significant (≥140g/week) alcohol consumption.

Results 52.0 % of patients were male with a mean age of 59.0 ± 10years and a mean BMI of 27.2 ± 4.7 kg/m^2. Overall, any polyp was present in 1789 patients (38.2 %), any adenoma in 1480 patients (31.6 %) and any advanced adenoma in 343 patients (7.3 %). Among patients grouped according to their alcohol consumption, prevalence increased for any polyp (35.4 % vs. 42.1 % vs. 54.6 %), any adenoma (28.6 % vs. 35.9 % vs. 48.1 %) and any advanced adenoma (6.7 % vs. 8.7 % vs. 13.5 %, all p<0.001). On multivariate linear regression analyses correcting for established risk factors such as age, gender, BMI, smoking status, physical activity, read meat intake, fruit and vegetable intake, alcohol consumption was associated with a significantly increased risk for any polyp (adjusted odds ratio [aOR] per 10g: 1.025, 95 % confidence interval [CI]: 1.004-1.046, p = 0.018), any adenoma (aOR: 1.028, 95 %CI: 1.007-1.050, p = 0.009), but not any advanced adenoma (aOR: 1.026, 95 %CI: 0.993-1.060, p = 0.123).

Conclusion We demonstrate an independent linear relationship between alcohol consumption and risk for colorectal adenoma. However, this was not confirmed for advanced adenoma. Thus, even low or moderate amounts of alcohol might contribute to the risk profile for colorectal adenoma.

V02 Selektive Effekte des JAK-Inhibitors Tofacitinib auf die T-Zell Immunität

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Hintergrund Mit Tofacitinib steht der‚first-in-class" Januskinase (JAK) Inhibitor zur Therapie der Colitis Ulcerosa (CU) zur Verfügung. Tofacitinib hemmt JAK1, JAK3 und in geringerem Ausmaß JAK2. Bezüglich der Wirkweise von JAK Inhibitoren gibt es noch vielen offene Fragen. Unter anderem bleibt unklar, warum Tofacitinib bei Morbus Crohn nicht wirksam war. Eine mögliche Erklärung wäre eine Zelltyp-spezifische Selektivität von Tofacitinib. Ziel dieser Grundlagenarbeit ist es, solche potentiell Zell-spezifische Effekt von Tofacitinib zu identifizieren und definieren.

Methodik Um die Zelltyp-spezifische Effekte von Tofacitinib im‚steady-state" und bei im Rahmen intestinaler Entzündung zu untersuchen, wurden vier Gruppen 8 Wochen alten Balb/c Mäuse verglichen, Tofacitinib- bzw. Kontrollbehandelt (2x täglich in therapeutischer Dosierung) mit oder ohne einer durch Dextran-Natriumsulfat (DSS) induzierten Colitis. Anschließend wurde das Colon der Mäuse entnommen und klinisch, histologisch, zytometrisch und molekularbiologisch aufgearbeitet. Die in vivo Effekte auf den adaptiven Schenkel des Immunsystems, wurden dann in vitro in primären menschlichen T-Zellen verifiziert.

Resultate In unserem Setup war Tofacitinib bei DSS-induzierter Kolitis in Bezug auf unterschiedliche Parameter wie Dickdarmlänge, Histologie und fäkales Lipocalin-2 wirksam. Dabei zeigte Tofacitinib eine ausgeprägte antiproliferative Wirkung auf CD45RO$^+$ activated memory T-Zellen und eine starke Suppression der T-Helfer-Zell-Differenzierung, vor allem von CD4$^+$/IFNγ$^+$/T-bet$^+$ T_H1 (14,4 % vs. 3,82 %) und CD4$^+$/RORγT$^+$/IL-17$^+$ T_H17 Zellen (12,43 % vs. 6,11 %). Im Unterschied dazu waren die Effekte auf T_H2 Zellen sowie T_{reg} deutlich geringer ausgeprägt. Diese Effekte konnten in primären humanen T Zellen nachvollzogen werden.

Konklusionen Unsere Daten legen eine Zelltyp-spezifische Selektivität des JAK Inhibitors Tofacitinib nahe, mit deutlich stärkeren Effekten auf die T Zell Immunität als auf Zellen des angeborenen Immunsystems wie Monozyten, Makrophagen oder intestinale Epithelzellen. Weitere Untersuchungen sollen nun klären, welchen Mechanismen dieser Selektivität zugrunde liegen und ob sich daraus eine mögliche Erklärung für die unterschiedliche Wirksamkeit bei Colitis ulcerosa und Morbus Crohn ableiten lässt.

V03 Assessment of coagulopathy by rotational thromboelastometry in patients with cirrhosis and portal hypertension

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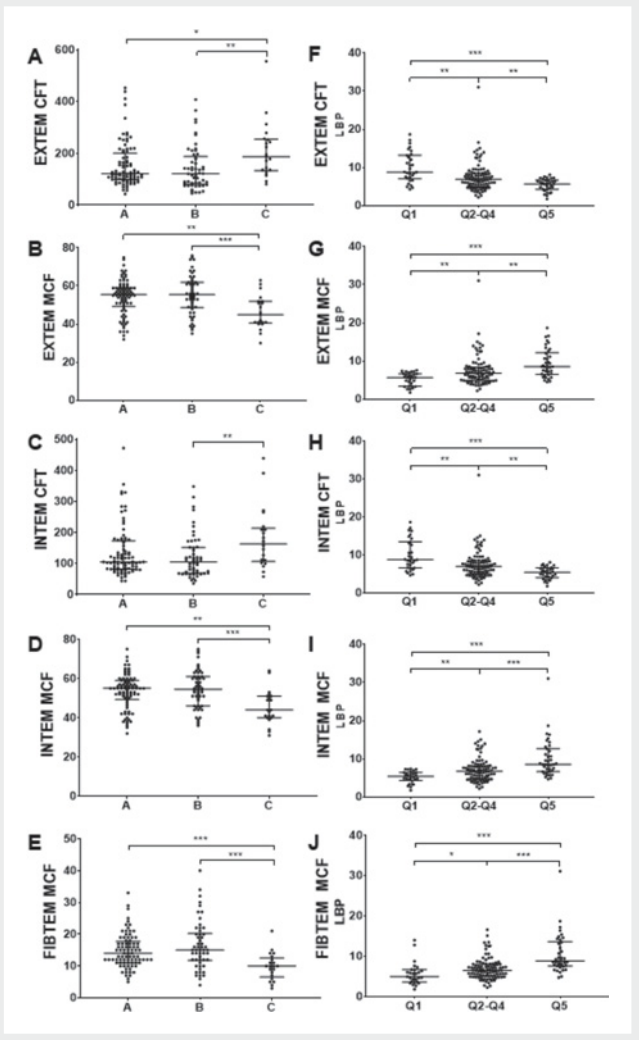
Background and Aims Patients with advanced chronic liver disease(ACLD) display complex coagulopathies, and the actual state of hemostasis is often not reflected by conventional coagulation tests. Rotational thromboelastometry (ROTEM) measures clot formation and dissolution in real-time. This study aims to assess the relation of portal hypertension (PH) with ROTEM.

Methods ROTEM data, serum levels of C-reactive protein(CRP), lipopolysaccharide binding protein(LBP), procalcitonin(PCT), and epinephrine-stimulated platelet function assay(Epi-PFA) were analyzed in 159 prospectively recruited patients with a hepatic venous pressure gradient(HVPG) ≥ 6mmHg. Patients with clinically stable ACLD and without pre-/posthepatic portal hypertension, previous liver transplantation, or hepatocellular carcinoma were included.

Results Patients were stratified by PH severity, i.e. HVPG 6-9mmHg vs.10-19mmHg vs.≥ 20mmHg. Neither EXTEM clot formation time (CFT, P = 0.804), EXTEM maximum clot firmness (MCF, P = 0.347), INTEM clotting time (CT, P = 0.561),INTEM CFT (P = 0.653), INTEM MCF (P = 0.271), or FIBTEM MCF (P = 0.921) differed between different degrees of PH. Patients with stage Child-C showed higher EXTEM CFT, INTEM CT, INTEM CFT, while EXTEM MCF, INTEM MCF, and FIBTEM MCF were significantly lower as compared to Child-A and/or Child-B patients (all P < 0.05; **Figure A-E** $^{*}p < 0.05, ^{**}p < 0.01, ^{***}p < 0.001$). In Child-A patients MCF decreased with rising severity of PH (EXTEM MCF: 6-9mmHg: 59[54-68] vs. 10-19mmHg: 56[48-59] vs. ≥ 20mmHg: 54[45-58], P = 0.023; INTEM MCF:6-9mmHg:57[53-67] vs. 10-19mmHg: 55[48-59] vs. ≥ 20mmHg: 52[44-55],P = 0.009). Conversely, ROTEM results were similar in Child-B and Child-C patients across HVPG strata. Patients with shortest CFT (EXTEM and INTEM, lowest quintile) had higher levels of LBP, CRP and PCT as well as shorter closing time on Epi-PFA (all P < 0.05). Similarly, serum levels of LBP (**Figure F-J**), CRP and PCT were higher and Epi-PFA closing time was shorter (all P < 0.05) in patients with highest MCF values (EXTEM and INTEM, highest quintile).

Conclusion Results of ROTEM link the severity of portal hypertension to coagulation in Child-A patients.Increased CFT and reduced MCF are in line with previously reported bleeding propensity in Child-C patients.Bacterial translocation and systemic inflammation are associated with a procoagulant state.



▶ **Abb. 1**

V04 Der NAD+ salvage pathway in NK-Zellen bei intestinaler Inflammation

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Hintergrund In aktivierten Immunzellen spielt der *NAD+ salvage pathway* und sein Schlüsselenzym Nicotinamide -Phosphoribosyltransferase (NAMPT; PBEF/Visfatin) eine essentielle Rolle. Beispielsweise beeinflusst die Blockade von NAMPT die Makrophagendifferenzierung in Richtung eines anti-inflammatorischen M2-Phänotyps. Natürliche Killerzellen (NK Zellen) sind ein spezifisches Subset von innate lymphoid cells (ILCs), die sowohl direkt cytotoxisch als auch regulierend auf andere Immunzellen wirken. NK-Zellen des Darms sind hauptsächlich $CD56^{+}CD16^{-}$ und scheinen hauptsächlich immunmodulatorisch zu wirken. Über ihre pathophysiologische Bedeutung bei chronisch entzündlichen Darmerkrankungen (CED) ist nur wenig bekannt.

Methodik Um die Aktivierung des *NAD+ salvage pathway* in NK-Zellen zu untersuchen wurden $CD56^{+}$- positive Zellen aus humanen peripheren mononukleären Zellen isoliert und mit IL-2 stimuliert. Die Expression und Regulation von IFN-γ und NAMPT wurde mittels RT-qPCR analysiert. Weiters wurden IFN-γ-Spiegel im Zellkulturüberstand quantifiziert und die Zellen durchflusszytometrisch hinsichtlich ihres intrazellulären Gehalts an NAMPT und INF-γ charakterisiert. Die Killing-Aktivität von peripheren $CD56^{+}$- Zellen wurde mittels CD107a-Degranulations-Assay quantifiziert. Um die Bedeutung des *NAD+ salvage pathway* für die NK-Zell-Funktion abzuschätzen wurde NAMPT mit dem spezifischen Inhibitor FK866 blockiert. Aus intestinalen Biopsien von Patienten mit aktiver CED wurden Immunzellen isoliert und durchflusszytometrisch auf den Anteil an $CD56^{+}$ Zellen sowie deren Rezeptorprofil hin untersucht.

Ergebnisse Die Aktivierung von CD56+ Zellen führt zu einer starken Induktion des Schlüsselenzyms des *NAD+ salvage pathway*, der Nicotinamidphosphoribosyltransferase, in Verbindung mit der Produktion von IFN-γ. Der

Inhibitor FK866 konnte diesen Aktivierungszustand effektiv unterbinden. Die Blockade des NAD *salvage pathways* beeinflusste auch die von CD56+ Zellen exprimierten Rezeptorrepertoires. Im CD107a Degranulationsassay zeigten mit FK866 behandelte Zellen eine signifikante Reduktion ihrer Killing-Funktion.

Schlussfolgerung Der *NAD+ salvage pathway* und sein Schlüsselenzym NAMPT scheinen eine essentielle Rolle für die Aktivierung und Funktion von $CD56^{+}$-NK-Zellen zu spielen. Diese Zellpopulation ist in intestinalen Biopsien von CED Patienten mit aktiver Inflammation detektierbar. Die Hemmung von NAMPT in NK-Zellen erscheint vielversprechend, um intestinale Inflammation vermindern.

V05 NAFLD in lean patients is associated with an increased cardiovascular risk, prediabetes and the metabolic syndrome

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Background and Aims Non-alcoholic fatty liver disease(NAFLD) in lean patients (body mass index[BMI] < 25 kg/m^2) has been associated with an increased risk for metabolic diseases, although their phenotype is regarded more benign than NAFLD in obese patients, Here, we provide a comprehensive characterization of lean NAFLD in a screening cohort for colorectal carcinoma.

Methods 2893 individuals (mean age:58.9 ± 9.8years, 52 % male) undergoing colonoscopy between 2007-2019 were grouped by BMI and hepatic steatosis (BMI < 25 kg/m^2 and no steatosis: n = 1254; BMI < 25 kg/m^2 and steatosis: n = 251[i.e. lean NAFLD]; BMI≥ 25 kg/m^2 and steatosis: n = 1388[i.e. overweight/obese NAFLD]). Patients were characterized using biochemical and metabolic parameters. Factors of the metabolic syndrome were defined according to the International Diabetes Federation (2005).

Results Compared to lean patients without NAFLD, lean patients with NAFLD had a higher prevalence of visceral obesity (62.3 % vs. 44.7 %), diabetes (12.0 % vs. 4.6 %), dyslipidemia (38.6 % vs. 19.9 %) and the metabolic syndrome (37.1 % vs. 15.6 %, all p < 0.001). Interestingly, patients carried a higher risk for dysglycemia indicated by a higher insulin resistance (HOMA-IR:1.49 [IQR:1.11-2.11] vs. 1.13[IQR:0.80-1.57]) and higher blood sugar levels in an oral glucose tolerance test after 2 hours (115 ± 30 vs. 125 ± 39mg/dl) excluding diabetic patients, resulting in an impaired glucose tolerance in 21.9 % vs. 12.4 % and prediabetes in 39.2 % vs. 25.2 %(all p < 0.001). Moreover, chronic coronary syndrome was more prevalent (8.9 % vs. 3.7 %) and the median Framingham risk score(FRS) was higher in these patients (7[IQR:4-11] vs. 11 [IQR:7-18]points, both p < 0.001). However, lean patients with NAFLD had a milder phenotype than overweight/obese NAFLD patients in all characteristics mentioned above. On multivariate analyses investigating only patients with BMI < 25 kg/m^2, NAFLD was associated with a higher risk for metabolic syndrome (adjusted odds ratio[aOR]: 2.288 [95CI:1.651-3.172],p < 0.001), prediabetes (aOR:1.614[95 %CI:1.179-2.209],p = 0.003) and higher FRS (regression coefficient B:1.382[95 %CI:0.592-2.172],p = 0.001) correcting for age, gender and BMI.

Conclusion NAFLD in lean patients is associated with an increased cardiovascular risk, prediabetes and the metabolic syndrome.

V06 SVR to DAA does not affect the risk of portal vein thrombosis in patients with advanced chronic liver disease

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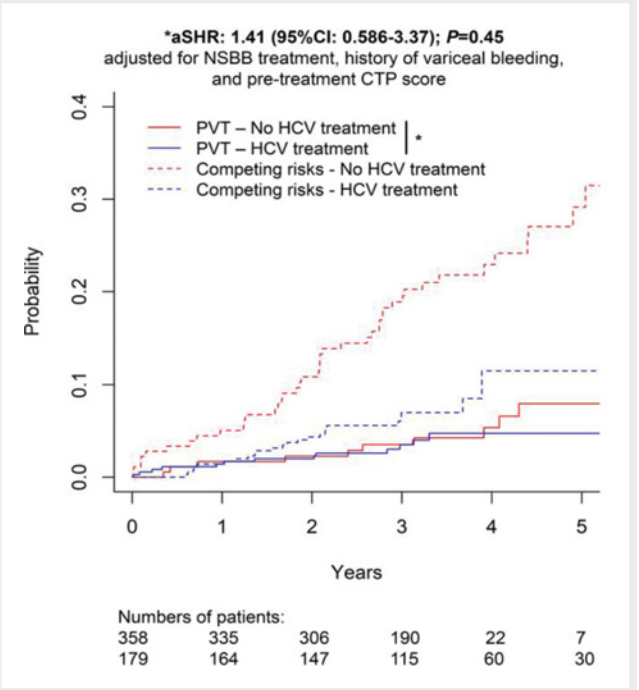
Background&aims Sustained virologic response (SVR) to direct-acting antivirals (DAA) ameliorates portal hypertension, improves hepatic function and may reverse the procoagulant imbalance observed in advanced chronic liver disease (ACLD). However, a worrisome incidence of portal vein thrombosis (PVT) immediately after antiviral therapy has recently been reported. Therefore, we analyzed the long-term impact of SVR on the development of non-tumoral PVT.

Patients&methods Our study comprised two well-characterized cohorts (‘**HCV-treatment**’:n = 358/‘**No-HCV-treatment**’:n = 179) of patients with chronic hepatitis C (CHC) and advanced ACLD who underwent standardized ultrasound surveillance. In the main analysis, the event of interest was PVT, while events hindering its observation (tumoral PVT/liver transplantation/death) or modifying the risk (transjugular intrahepatic portosystemic shunt/anticoagulation) were considered as competing risks.

Results Thirteen (3.6 %) patients in the ‘**HCV-treatment**’-cohort developed a PVT during a median follow-up of 36.9 months, while 10 (5.6 %) patients in the ‘**No-HCV-treatment**’-cohort were diagnosed with PVT during a median follow-up of 42.2 months. High pre- and post-treatment Child-Turcotte-Pugh scores were the only independent risk factors for PVT development. Importantly, HCV cure did not modify the risk of PVT in competing risk regression models adjusted for previous variceal bleeding, use of non-selective beta-blockers, as well as pre- or post-treatment Child-Turcotte-Pugh scores (‘**HCV-**



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treatment' vs. **'No-HCV-treatment'**; adjusted subdistribution hazard ratio (aSHR): 1.41 (95 % confidence interval (95 %CI): 0.589-3.39) and aSHR: 1.44 (95 %CI: 0.588-3.54), respectively) (**Figure**). In contrast, SVR was associated with a substantial reduction in competing events, most importantly, adverse liver-related outcomes and death (e.g., aSHR: 0.156 (95 %CI: 0.056-0.43).

Conclusions Although HCV cure reduces the risk of mortality it does not reduce the risk of PVT in patients who have pre-treatment ACLD. Accordingly, ACLD patients achieving SVR remain at risk for PVT, and thus, should be carefully monitored for PVT. The risk for PVT is increased in patients with impaired hepatic function pre- or post-treatment.

V07 Nampt Inhibition, ein neuer Therapieansatz bei akuter graft-versus-host-disease.

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Background Die allogene Stammzelltransplantation stellt die einzige kurative Therapieoption für Patienten mit akuten Leukämien dar. Eine schwere Transplant-Komplikation ist die akute graft-versus-host-disease (aGVHD), eine Spenderzellreaktion gegen die Haut, Leber und den Gastrointestinaltrakt. Vor allem letztere ist mit hoher Morbidität und Mortalität verbunden. Als Erstlinienbehandlung der aGVHD dienen nach wie vor hochdosierte Kortikosteroide, allerdings sind circa 40 % der Patienten Steroid-refraktär. Die Therapieoptionen für jene Patienten sind limitiert und resultieren in einer hohen Mortalität. Aktivierte T-Zellen als Haupt-Verursacher der aGVHD haben ebenso wie Tumorzellen einen erhöhten Energiebedarf. Der Ko-Faktor Nicotinamid Adenin Dinucleotid (NAD) stellt ein essentielles Substrat für viele zelluläre Energie-pathways dar. Nampt ist das geschwindigkeits-bestimmende Enzym des NAD *salvage-pathways* und ist bei einem erhöhten Bedarf sowie bei vielen entzündlichen Erkrankungen hochreguliert. Infolgedessen untersuchten wir die Nampt Spiegel in aGVHD Patienten sowie die therapeutische Nampt Blockade mittels des small-molecule Inhibitors Fk866 in einem Mausmodell für aGVHD.

Resultate aGVHD Patienten zeigten im Verlauf deutlich erhöhte Nampt-Serumlevel sowie eine starke Nampt Expression besonders in intestinalen $CD3^+$ T-Zellen. In Mausmodellen für aGVHD konnten wir zeigen, dass eine Fk866-vermittelte Nampt Blockade zu einer signifikanten Reduktion der klinischen GVHD Symptomatik als auch der histologischen Entzündung in Darm und Leber führte. Dies korrelierte mit einer erniedrigten Anzahl aktivierter T-Zellen der behandelten Tiere, wohingegen die Zahl regulatorischer T-Zellen (Treg) unverändert blieb. Fk866-vorbehandelte Tregs konnten außerdem die Proliferation aktivierter T-Zellen effektiver unterdrücken. Da T-Zellen eine bedeutende Rolle zur Kontrolle verbleibender Leukämiezellen spielen, untersuchten wir den Effekt von Fk866 zusätzlich in einem graft-versus-leukemia-Modell. Eine Nampt-Inhibition verhinderte dabei sowohl ein Wiederauftreten der Leukämie sowie die aGVHD.

Conclusion Die therapeutische Nampt-Blockade konnte die Schwere der aGVHD in Tiermodellen hoch effektiv reduzieren. Da Nampt auch in aGVHD Patienten stark erhöht ist, könnte die Nampt-Blockade einen vielversprechenden neuen Therapieansatz für Steroid-refraktäre Patienten darstellen. Zudem könnte Nampt eine Bedeutung als prognostischer Biomarker zukommen.

V08 Inflammation promotes liver fibrogenesis in humans with advanced chronic liver disease

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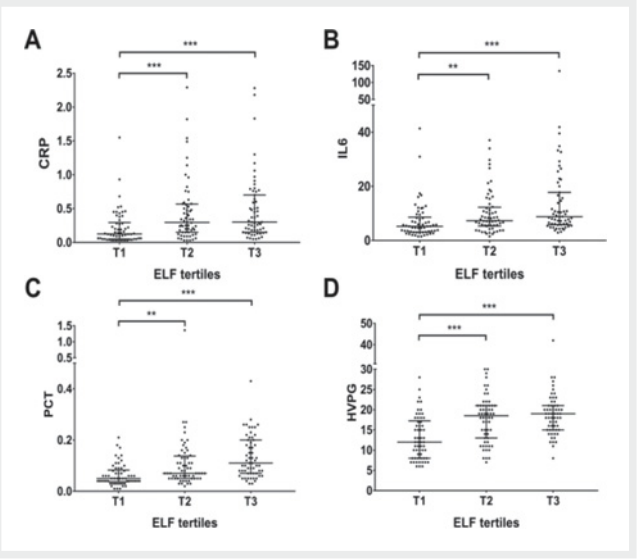
Background and Aims The enhanced liver fibrosis(ELF) score is composed by serum markers of extracellular matrix remodeling that might represent the current state of liver fibrogenesis. Experimental evidence suggests that liver disease is considerably influenced by inflammation induced by bacterial translocation, however, studies in humans are limited. Accordingly, we investigated the association between markers of systemic inflammation and liver fibrogenesis in patients with advanced chronic liver disease (ACLD)/portal hypertension.

Methods ELF score, C-reactive protein(CRP), procalcitonin(PCT), and interleukin-6(IL-6) and were assessed in 177 prospectively recruited patients with a hepatic venous pressure gradient (HVPG) ≥ 6mmHg. Patients with clinically stable ACLD, and absence of pre-/posthepatic portal hypertension, evidence of bacterial infection, hepatocellular carcinoma beyond Milan criteria, and history of liver transplantation were included.

Results Serum levels of IL-6 (Spearman's $\rho = 0.358$; $P < 0.001$), PCT ($\rho = 0.486$; $P < 0.001$), and CRP ($\rho = 0.331$; $P < 0.001$) showed significant correlations with ELF score and continuously increased across ELF tertiles (**Figure**; ** $P < 0.01$ and *** $P < 0.001$).Moreover, levels of IL-6 (6-9mmHg:5.45[3.50-9.65] vs.10-15mmHg:6.65[3.44-12.48] vs.≥ 16 mmHg:7.75[5.34-13.76];$P = 0.015$), PCT (6-9mmHg:0.06[0.03-0.10] vs.10-15mmHg:0.07[0.04-0.16] vs.≥ 16mmHg:0.09[0.05-0.14];$P = 0.009$), and CRP (6-9mmHg:0.19[0.06-0.28] vs.10-15mmHg:0.20 [0.08-0.41] vs.≥ 16 mmHg:0.29[0.14-0.59];$P = 0.009$) increased with portal hypertension severity. To investigate the association between systemic inflammation and the dynamic process of liver fibrogenesis markers, we subsequently stratified/adjusted our analysis by HVPG.In patients with subclinical portal hypertension(HVPG 6-9mmHg), only PCT showed a significant correlation with ELF. Importantly, in patients with HVPG 10-15mmHg/≥ 16mmHg, IL-6 ($\rho = 0.304$; $P = 0.026$/$\rho = 0.353$;$P < 0.001$), PCT ($\rho = 0.488$;$P < 0.001$/$\rho = 0.406$;$P < 0.001$), and CRP ($\rho = 0.456$;$P = 0.001$/$\rho = 0.232$;$P = 0.020$) were directly correlated with ELF. Moreover, IL-6 ($B = 0.022$;$P = 0.006$) and PCT ($B = 7.841$;$P < 0.001$) were linked to ELF, even after adjusting for HVPG. IL-6, PCT, and HVPG were independently associated with ELF in multiple linear regression analysis.



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Conclusion We observed a link between markers of systemic inflammation and ELF that is independent from portal hypertension severity, providing evidence for the role inflammation induced by bacterial translocation as an important driver of the dynamic process of liver fibrogenesis in humans.

POSTER

CED

P01 The need for psychological and psychotherapeutic interventions in Austrian patients with inflammatory bowel disease

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Background Inflammatory Bowel Diseases (IBD) are lifelong conditions challenging the patient not only with respect to somatic complaints but also affecting psychosocial issues. This may lead to the need for additional psychological care. The present study investigated the patients' subjective need for additional psychological care and indicators for such a need.

Materials & Methods We performed a cross-sectional multicenter study on Austrian IBD patients who were in routine care at one of the 18 participating IBD centers. The patients were asked to fill in a questionnaire booklet including the ADAPT, a validated questionnaire on the need for psychological care which gives two separate scores ("ADAPT-IPC" -need for integrated psychosomatic care, "ADAPT-PT"- need for psychotherapy), a validated questionnaire on the use of complementary and alternative medicine (CAM), the SIBDQ, and questions on clinical and sociodemographic data. The primary endpoint was the need for integrated psychosomatic care, psychotherapy or both.

Results 1286 patients returned the questionnaire. In total, 29.7 % of all patients expressed a need for additional psychological care, 19.6 % expressed a need for ADAPT-IPC and 20.2 % expressed a need for ADAPT-PT. The multivariable regression analysis revealed the two dominating factors associated with the need for both types of psychological care were the use of CAM and a low SIBDQ-score ≤ 50 (see Table for details).

Conclusion About 30 % of the Austrian IBD patients expressed a need for integrated psychosomatic therapy a/o psychotherapy. This need was especially associated with reduced quality of life and the use of CAM which may indicate the desire for an emphathetic and dedicated care. Further studies will be necessary to clarify if these results can be reproduced in other countries.

P02 Pregnancy Outcomes in Women with Psoriasis, Psoriatic Arthritis, Crohn's Disease, and Ulcerative Colitis Treated with Ustekinumab

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Background Ustekinumab (UST) is indicated for psoriasis (PSO), psoriatic arthritis (PsA), Crohn's disease (CD), and ulcerative colitis (UC). The recommended UST dose in CD and UC is generally higher than in PSO and PsA. No adverse pregnancy outcomes were observed in preclinical studies of UST. We present pregnancy outcomes in women with PSO, PsA, CD, or UC treated with UST from spontaneous reporting, clinical studies, and registries.

Methods This dataset includes pregnancies with maternal exposure to UST during pregnancy or within 3 months prior to conception which were reported to the manufacturer through April 2019.

Results Overall, 478 maternal pregnancies (334 PSO, 124 CD, 11 UC, 9 PsA) were identified. Mean maternal age was 30.5 years. Most pregnancies (71.3 %) resulted in live births (LB, including 20 preterm births [PTB]). Spontaneous abortion (SA) was reported in 18.4 % of cases. Congenital anomalies (CA) were reported in 3.8 % cases (3.3 % major CA [MCA]). Pregnancies with UST exposure throughout gestation (12.1 %) resulted in 55 (94.8 %) LB, including 4 (7.3 %) PTB and 5 (8.6 %) MCA. Among pregnancies with exposure in the first trimester (66.5 %), 207 (65.1 %) LB including 11 (5.3 %) PTB and 2 (0.6 %) MCA were reported. Among PSO and PsA maternal pregnancies, rates were 72.3 % LB, 2.0 % CA (1.4 % MCA), and 16.9 % SA; among CD and UC maternal pregnancies, rates were 68.9 % LB, 4.4 % MCA, and 22.2 % SA.

Conclusions Pregnancy outcome data following maternal exposure to UST indicated that the prevalence of LBs, SAs, and CAs were consistent with the general population and anti-tumor necrosis factor treated patients. Pregnancy outcomes in women with CD or UC versus PSO or PsA were generally comparable. No apparent safety signals were noted with UST exposure throughout pregnancy.

P03 Clinical and endoscopic response to ustekinumab in Crohn's disease: Week 16 interim analysis of the STARDUST trial

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Background/Aims Treat-to-target (T2T) strategy may optimize inflammatory bowel disease (IBD) management. We report interim analysis results of clinical and endoscopic endpoints from STARDUST study (NCT03107793) in Crohn's disease (CD) patients following ustekinumab (UST) induction.

Methods Adults with moderate to severely active CD (CD activity index [CDAI]: 220–450, simple endoscopic index [SES-CD] ≥ 3) who failed conventional therapy ± 1 biologic, were enrolled. At week-0, patients received approximately 6mg/kg ustekinumab intravenously, and at week-8, 90mg subcutaneously. At week-16, patients (CDAI reduction ≥ 70) were randomized (1:1) to T2T or standard-of-care. Endpoints (Intent-to-Treat set) at week-8 and week-16 were: percent patients in clinical remission (CREM; CDAI < 150); percent with clinical response (CR; CDAI < 150 or decrease vs baseline ≥ 100); fecal calprotectin (FCal) and C-reactive protein (CRP) levels; improvement ≥ 50 % vs BL (elevated FCal and CRP subpopulations); change vs baseline in CDAI and IBD Questionnaire (IBDQ) total scores. At week-16, T2T (CDAI70 responders) were analysed for change in SES-CD, endoscopic response (ER, decrease in SES-CD ≥ 50 % vs baseline) and endoscopic remission (EREM, SES-CD≤2).

Results Intent-to-treat set included 500 patients (baseline mean [SD] CDAI = 282.3 [65.8], SES-CD = 13.1 [8.1]; CRP = 15.7mg/L [23.4], FCal = 1741.9µg/g [2932.1]; disease duration = 9.4years [8.7]; failed 1 biologic = 58.4 %). At week-16, 79.4 % patients had CR, 66.6 % achieved CREM, about half showed ≥ 50 % improvement in FCal and CRP levels (irrespective of previous biologic failure; 83 % in CR were in CREM. Significant changes from baseline in CDAI, FCal, CRP, and IBDQ were observed. In T2T (n = 220), SES-CD was 13.4 (8.8). At week-16, 36.8 % patients achieved ER (independent of: BL SES-CD, disease duration) and 11.4 % achieved EREM. No new safety signals were reported.

Conclusion STARDUST is the first T2T trial in CD patients. At week-16 following induction, 66.6 % patients achieved CREM, and 37 % in T2T (CDAI70 responders) showed ER. Results were similar irrespective for bio-naïve or failing 1 biologic.

P04 Intestinal ultrasound response and transmural healing after ustekinumab induction in Crohn's disease: Week 16 interim analysis of the STARDUST trial substudy

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Background/Aims Intestinal ultrasound (IUS) is a non-invasive tool for evaluating transmural disease activity in Crohn's disease (CD). The STARDUST trial (NCT03107793) IUS substudy assessed changes in IUS parameters. We report interim results (week-16) from including transmural response to ustekinumab (UST) induction therapy.

Methods Adults with moderate to severe active CD (CD activity index [CDAI]: 220–450), simple endoscopic index [SES-CD] ≥ 3) who failed conventional therapy ± 1 biologic, received approximately 6mg/kg UST intravenously at week-0 and 90mg subcutaneously at week-8. At week-16, patients (CDAI reduction≥ 70) were randomized (1:1) to treat-2-target or standard-of-care. Key IUS endpoints assessed at week-4, week-8, and week-16 (central reading) included: IUS response (IUSR;≥ 25 % bowel wall thickness [BWT] reduction from baseline); BWT change from baseline (mm); IUS remission (IUSREM; transmural healing)–BWT normalization, color Doppler signal≤1, normal echo stratification, and absence inflammatory fat. Correlations/percent agreement between IUSR/IUSREM and clinical response/remission (CDAI70), biomarker (CRP/FCal levels) and endoscopy outcomes (SES-CD scores) were assessed.

Results The IUS substudy enrolled 82/94 patients; n = 76 had baseline and ≥ 1 post baseline IUS assessments. IUSR and IUSREM (transmural healing) rates at week-16 were 33.8 % and 11.3 %, respectively. Most affected segments were ileum (63.5 %) and colon (33.0 %), with better outcomes in colon. BWT and Doppler signal began normalizing at week-8; inflammatory fat and echo stratification at week-16. Mean BWT improvement from baseline was significant at week-4 (p≤0.0002). Moderate agreement was observed between IUS parameters and biomarkers/endoscopic improvement.

Conclusion STARDUST was the first study to use IUS in CD. IUS response to UST was detected as early as week-4, and a clinically meaningful percentage of patients achieved transmural healing, primarily in colon, at week-16, indicating IUS could be a valuable tool to detect early-treatment response. Future studies can confirm whether early IUS response is predictive of long-term outcomes for CD patients.

P05 Efficacy of Ustekinumab for Ulcerative Colitis Through 2 Years: Results of the UNIFI Maintenance Study and Long-term Extension

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Background/Aims The UNIFI maintenancestudy evaluated subcutaneous ustekinumab (UST) (IL12/23p40 mAb) through 1-year in patients with moderate-to-severe ulcerative colitis (UC) who responded to UST IV induction. We report efficacy of subcutaneous UST through 92weeks for patients randomized in the UNIFI maintenancestudy.

Methods Patients in clinical response 8-weeks after UST induction were randomized to subcutaneous placebo (n = 175), UST 90mg q12w (n = 172), or UST 90mg q8w (n = 176). Patients who completed week-44 were eligible to enter and continue the long-term extension (LTE) at the investigator's discretion. Subsequent to study unblinding after all patients completed maintenance, patients on placebo were discontinued from LTE. During LTE, patients were eligible to receive dose-adjustment (q12w to q8w or q8w to q8w [sham dose-adjustment]) starting at week-56 based on investigator assessment of

UC disease-activity. Symptomatic remission (stool frequency subscore of 0 or 1, and rectal bleeding subscore of 0) and partial-Mayo remission (partial Mayo score ≤2) were evaluated through week-92. Analyses of symptomatic remission and partial Mayo score over time handled doseadjustment separately as part of treatment experience (i.e., not a treatment failure) or as a treatment failure.

Results Symptomatic and partial Mayo remission were sustained through week-92, with no clinically meaningful differences between the q12w and q8w groups. When dose-adjustment was not considered a treatmentfailure, 66.1 % (q12w) and 67.0 % (q8w) of patients were in symptomatic and partial-Mayo remission at week-92. When dose-adjustment was considered a treatment failure, 53.2 % and 54.0 % of patients were in symptomatic and partial-Mayo remission, respectively. The safety profile of UST through week-96 was consistent with that previously reported for 1-year.

Conclusion The efficacy of UST in patients with moderate-to-severe UC was maintained through 92weeks with q12w or q8w subcutaneous dosing, when dose-adjustment was considered to be part of treatment experience.

P06 Corticosteroid Sparing Effects of Ustekinumab Therapy for Ulcerative Colitis Through 2 Years: UNIFI Long-term Extension

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Background/Aims In the UNIFI maintenance-study of patients with moderatetosevere ulcerative colitis (UC) treated with ustekinumab (UST), >90 % achieved clinical response or remission at week-44 and were able to eliminate corticosteroids (CS). We report the CS sparing effects of UST treatment through week-92 among patients in the UNIFI long-term extension (LTE).

Methods UST responders, 8-weeks after intravenous induction, entered the maintenance-study and were randomized to UST 90mg subcutaneous (q12w or q8w) or placebo. UST non-responders received a dose of UST 90mg subcutaneous at week-8 and were evaluated at week-16. Patients in clinical response at week-16 (delayed-responders) were not randomized on entry into maintenance-study and received UST 90mg q8w. Patients who completed maintenance-study week-44 were eligible to enter LTE and continued the same dose. UST dose-adjustment was allowed during LTE (q12w to q8w or q8w to q8w [sham dose-adjustment]) from week-56 onward. Patients on placebo were discontinued from LTE after maintenance-study unblinding. During the maintenance-study, CS tapering was recommended for patients receiving CS at maintenance baseline. At LTE week-92, CSfree symptomatic remission rates and CS use were calculated using intention-to-treat analyses with doseadjustment considered and not-considered as treatment-failure.

Results Of 284 LTE randomized patients treated with UST, 139 received CS at maintenance baseline and 92.8 % (n = 129) were CS-free at week-92. CS-free symptomatic remission rates at week-92 were similar for q8w and q12w maintenance doses (Table). Of the UST-treated patients who were in symptomatic remission at week 92, 98.4 % (182/185) were CS-free; results were similar when dose-adjustment was not considered as treatment failure. Of 116 delayed responders, 92 achieved symptomatic remission at week-92, with 94.6 % (87/92) CS-free.

Conclusions UST maintenance-therapy (both q8w and q12w regimens) was effective in reducing and eliminating use of CS in patients with moderatetosevere UC. Majority of patients in the LTE who achieved symptomatic remission at week-92 were CS-free.

P07 Duale Biologikatherapie bei CED - eine weitere Option?

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Die Therapie mit Biologika zählt bereits seit Jahren zum festen Bestandteil der Behandlung mittelschwer und schwer verlaufender chronisch-entzündlicher Darmerkrankungen (CED). Ca. 60% der anti-TNF-alpha-naiven Patienten sprechen auf die Therapie an, aber lediglich 35-40% erreichen eine klinische Remission. Nicht selten stellen operative Eingriffe die letzte Behandlungsmöglichkeit dar. Kombinationstherapien mit Integrin-Antagonisten, TNF-alpha Blockern bzw. IL12-/IL23-Antagonisten sind bislang in der aktuellen Literatur bis auf vereinzelte Fallberichte kaum abgebildet.Wir berichten über 3 Patienten mit vorbehandelter CED und schwerem Verlauf, bei denen durch die Einleitung einer dualen Biologikatherapie ein gutes Therapieansprechen bzw. eine klinische Remission erreicht werden konnte.Patient A mit schwerer, linksseitenbetonter Colitis ulcerosa (CU) und Thiopurin- bzw. anti-TNF-alpha-refraktärem Verlauf sowie fehlendem Ansprechen einer Vedolizumab-Monotherapie und Cyclosporin-A-Rescuetherapie zeigt nun nach 8-monatiger kombinierter Biologikatherapie mit Vedolizumab und Ustekinumab ein sehr gutes klinisches Ansprechen. Patient B mit langjährigem fistulierenden Morbus Crohn (MC) Montreal A2 L3 B2, über knapp 14 Jahre dauernder Infliximab-Therapie und immer wieder auftretender Steroid-abhängiger terminaler Ileitis, erhält bei anhaltend hoher entzündlicher Aktivität Vedolizumab. Bei nur unzureichendem Ansprechen trotz Steroid-Begleittherapie wird die vorbestehende Therapie mit Infliximab als Kombinationspartner wiederbegonnen. Nach 3-monatiger konkomitanter Therapie zeigt sich nun ein ausgezeichnetes klinisches Ansprechen.Patient C mit seit 2016 bekannter, Steroid-abhängiger CU und stattgehabter Mesalazin-induzierter Pankreatitis zeigt primär ein Ansprechen auf eine Steroidtherapie. Unter Infliximab kann im Verlauf trotz Dosisintensivierung und Intervallverkürzung keine stabile steroidfreie Remission erreicht werden. Rezent wurde nun eine überlappende duale Therapie mit Infliximab und Vedolizumab eingeleitet, in einigen Wochen wird sich zeigen ob die Kombination den gewünschten Therapieerfolg bringen kann.Die vorliegenden Kasuistiken zeigen, dass bei ausgewählten CED-Patienten die duale Biologika-Therapie eine mögliche Therapieoption darstellt, deren Effektivität und Sicherheit in Zukunft in randomisierten Studien überprüft werden sollte.

P08 ETROLIZUMAB IMPROVED ENDOSCOPIC SCORE, PATIENT REPORTED OUTCOMES, AND INFLAMMATORY BIOMARKERS IN PATIENTS WITH MODERATE TO SEVERE UC WHO HAD FAILED TNF ANTAGONIST THERAPY: THE HICKORY OPEN-LABEL INDUCTION (OLI) COHORT

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BACKGROUND Patients with ulcerative colitis (UC) who have experienced failure of anti-TNF therapy are a difficult-to-treat population with a notable unmet medical need. The OLI Cohort of the Hickory Study (NCT02100696) evaluates etrolizumab in patients intolerant/refractory to anti-TNFs.
METHODS Patients received etrolizumab s.c. 105 mg every 4 weeks in a 14-week induction period. Endoscopic subscore (ES) and patient-reported rectal bleeding (RB) and stool frequency (SF) were assessed at baseline (BL) and week 14. Assessed outcomes were clinical response, clinical remission, endoscopic improvement, RB remission and SF remission. RESULTS: HICKORY OLI enrolled 130 patients with aTNF failure. 45 % with failure of > 1 aTNF. BL scores were mean MCS of 9.4 and median fecal calprotectin (FC) of 1778 mg/kg. At week 14, SF remission was achieved in 35.4 % of patients, RB remission in 52.3 %, clinical response in 50.8 %, remission in 12.3 %, and ES ≤ 1 in 23.9 %. In the 43.9 % of patients with ≥ 1-point improvement in ES, there was an association with higher rates of SF and RB remission. Among those with ES = 0, 90 % reported SF ≤ 1, and 100 % reported RB ≤ 1. Patients achieving SF remission, RB remission, or ES ≤ 1 demonstrated > 70 % geometric mean reduction in FC.
CONCLUSIONS In aTNF-failed patients with high disease burden, etrolizumab achieved clinically meaningful response, remission, and endoscopic improvement. Patients who had improved ES achieved higher rates of RB and SF remission and greater reductions in inflammatory biomarkers.
Previously presented Peyrin-Biroulet L et al. UEGW 2017

P09 ASSOCIATION BETWEEN HISTOLOGICAL INDICES AND ULCERATIVE COLITIS ACTIVITY MEASURES AMONG PATIENTS IN THE HICKORY (ETROLIZUMAB) OPEN-LABEL INDUCTION (OLI) COHORT

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BACKGROUND Cross-sectional studies in UC have shown an association between histological and clinical measures of disease activity, but few longitudinal studies have evaluated this relationship. Using open-label induction data from the HICKORY study (NCT02100696), we analyzed this correlation at end of induction.
METHODS Baseline and Week 14 biopsies were scored using the Robarts histopathology index (RHI) and the Nancy histological index (NHI) in patients who had active baseline histology (NHI > 1 and RHI > 3) (n = 97). Histological outcomes were characterized by presence or absence of neutrophils. Pairwise associations were quantified by Spearman correlation and Cohen's kappa coefficients. ΔRHI and ΔNHI comparison determined the presence of a minimal clinically important difference (MCID) in Mayo Clinic score (MCS; ΔMCS ≥ 3).
RESULTS At Week 14 22 %, 23 % and 8 % of patients achieved resolution of neutrophilic inflammation, endoscopic improvement (ES ≤ 1) and endoscopic remission (ES = 0), respectively; NHI ≤ 1 was achieved in 55 % (12/22) of patients with ES ≤ 1 and 75 % (6/8) of patients with ES = 0. ΔNHI and ΔRHI were highly correlated (ρ = 0.91). There was little to no association between laboratory results and ΔNHI/ΔRHI/ΔES. A weak correlation was seen between ΔNHI/ΔRHI and ΔES (ρ = 0.26-0.27) and between ΔNHI/ΔRHI and change in rectal bleeding and stool frequency. NHI, RHI and ES agreement with symptomatic outcomes were weak to moderate (κ = 0.28-0.45). Difference in the mean grouped by achievement of ΔMCS ≥ 3 suggests MCIDs in ΔNHI and ΔRHI of 1 and 9, respectively.
CONCLUSIONS The analysis showed no associations between changes in histological scores and in laboratory results. The correlation was weak between histologic and endoscopic score change, and weak to modest between histologic scores and symptoms at the end of induction. Previously presented: Peyrin-Biroulet L et al. ECCO 2019.

P10 Prävalenz des Folatmangels bei Patient*innen mit chron. entzündlichen Darmerkrankungen und Daten zur Effektivität eines Dauer-Substitutionsschemas.

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Hintergrund Folatmangel unter Patient*innen mit chronisch entzündlichen Darmerkrankungen ist häufig. Daher erheben wir den Folatstatus (gemeinsam mit dem Eisen und Vitamin-B12-Status) regelmäßig bei jeder Ambulanz-Kontrolle. Da keine offiziellen Empfehlungen über die Dauer und Höhe einer Folsäuretherapie existieren, haben wir ein eigenes Dosierungsschema entwickelt, mit welchem wir sowohl im stationärem als auch im ambulanten Bereich sehr gute Erfolge verzeichnen. Wir sättigen den Folatspeicher über 5-7 Tage mit 2.5 - 5 mg Folsäure auf und erhalten diesen Zustand dann mit der Gabe einer oder einer halben Tablette (= 2.5 - 5 mg) pro Woche.
Methodik Alle CED-Ambulanzkontakte des Monats Februar 2020 wurden retrospektiv analysiert. Im Februar 2020 besuchten 127 Patient*innen unsere CED-Ambulanz. Patient*innen, die gar keine CED hatten, eine Zöliakie hatten, unter MTX-Therapie standen oder bei welchen keine Laborwerte vorlagen wurden exkludiert. Danach flossen 111 Patienten (64 Männer und 47 Frauen) in die Analyse ein.
Ergebnisse Über die Hälfte unserer CED-Pat. hat einen aktiven oder substituierten Folatmangel, und erhält deshalb eine Dauertherapie nach unserem Schema. Der Großteil unserer CED-Pat. kann damit im Normbereich gehalten werden (64%). Einige Pat. benötigen eine 2 x wöchentliche Gabe. Vor Etablierung des Dauertherapieschemas bildeten unsere Patient*innen nach Beendigung der Substitutionstherapie (meist relativ rasch) wieder einen Folatmangel aus. Insgesamt hatten in dieser Analyse 15% unserer CED-Pat. eine Anämie. Ein aktiver Folatmangel war bei Männern häufiger als bei Frauen.
Diskussion Unsere Daten zeigen, wie häufig ein Folatmangel bei CED-Patienten ist. Da eine ausreichende Folatreserve maßgeblich für die Regeneration von Zellen mit rascher Zellteilung (insbes. hämatopoetische Zellen sowie Zellen des Darm- und Urogenitaltraktes) ist, könnte sich die Bemühung um ausreichend hohe Folatspiegel im neben der positiven Auswirkungen auf das Blutbild (und damit der QOL) auch positiv auf die Darmregeneration auswirken. Diesbezüglich wären randomisierte Studien wünschenswert.

P11 Impact of lesion phenotype on colorectal cancer mortality and overall mortality: insights from a nationwide screening colonoscopy program

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Background The long-term risk of colorectal cancer (CRC) mortality and overall mortality after screening colonoscopy is poorly investigated. Most studies

analyzed mixed cohorts of screening individuals, and symptomatic or individuals with positive fecal immunochemical testing.

Aim To analyze CRC mortality and overall mortality after screening colonoscopy by lesion phenotype.

Methods Screening colonoscopies performed within the quality assurance program in Austria between 11/2007 and 06/2018 were matched with a national mortality register. The following lesion phenotypes were defined: 1) negative colonoscopy, 2) low-risk adenoma, 3) high-risk adenoma, 4) hyperplastic polyps, and 5) serrated lesions. Age and sex adjusted Cox regression analyses were used to analyze the association between lesion phenotypes, CRC mortality and overall mortality.

Results 280,291 screening colonoscopies were included in the study. 7,311 deaths of any cause occurred after 55 ± 35.6 months of follow-up, 4,730 men and 2,581 women. Overall mortality rates, adjusted for age and sex, were significantly higher for individuals with high-risk adenomas (HR 1.6, 95 %CI 1.5-1.7, p < 0.01), low-risk adenomas (HR 1.1, 95 %CI 1.0-1.7, p = 0.006), and hyperplastic polyps (HR 1.1, 95 %CI 1.0-1.2, p = 0.004), but not for serrated lesions (HR 1.2, 95 %CI 1.0-1.5, p = 0.083), compared to negative colonoscopy. Among a total of 232 CRC deaths (ICD 10: C19-21), 156 were observed in men and 76 in women. High-risk adenomas (HR 8.9, 95 %CI 6.5-12.1, p < 0.001) and serrated lesions (HR 4.3, 95 %CI 1.9-10.0, p = 0.001), but not for low-risk lesions (HR 1.3, 95 %CI 0.8-2.1, p = 0.350) and hyperplastic polyps (HR 1.5, 95 %CI 0.9-2.4, p = 0.138) were at higher risk for CRC death as compared to negative colonoscopy.

Conclusion In individuals undergoing colonoscopy, the lesion phenotype is significantly associated with both CRC-related and all-cause mortality.

P12 Vorsorgekoloskopie und Sedierung im Spannungsfeld zwischen Leitlinie und Praxis im ländlichen Raum

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Einführung Darmkrebs gehört in Europa zu den häufigsten malignen Erkrankungen und hat eine sehr hohe Mortalität. Durch die gesetzliche Einführung der Vorsorgekoloskopie können zahlreiche Leben gerettet werden. Angst vor Untersuchungsschmerzen und subjektiv fehlende Notwendigkeit bei Schmerzfreiheit, reduzieren die VU-Koloskopieteilnahme. Das Angebot der, sanften Koloskopie“ mit Sedierungsmöglichkeit, ist ein Konzept zur Untersuchungsmotivation. Diese, häufig unter Propofol angebotene Prozedur, erfordert in jedem Fall eine Patientenüberwachung, wie sie in vielen ambulanten Institutionen nicht angeboten werden kann. Aktuelle Sedierungs-Leitlinien für die Endoskopie helfen hier auch nicht weiter, da sie keine speziellen Empfehlungen für den ambulanten Bereich beinhalten. Dem Patienten im Vorhinein die Untersuchungsangst zu nehmen, wäre ein alternatives Konzept ohne erforderliches Überwachungs-Monitoring. Dieser therapeutische Ansatz wird prospektiv untersucht und soll mit dem Ergebnis aufzeigen, dass er sich im ländlichen Raum als individuelles Angebot für den Patienten etablieren könnte.

Patienten und Methode prospektive, unverblindete Studie zu Untersuchungsangst nach frühzeitiger Gabe von Pregabalin sowie zu Schmerzempfindung während der Koloskopie bei 60 Patienten, in 3 Gruppen, die sich von mir zwischen 12/2016 bis 04/2017 untersuchen ließen. Die Gruppen-Zugehörigkeit richtete sich nach der angenommenen anxiolytisch und sedierenden Medikation. Verglichen wurden Pregabalin als Monogabe und in Kombination mit Midazolam, gegenüber Midazolam in der Monotherapie. Relevante Unterschiede in demographischen oder klinischen Daten konnten in einem Vorgespräch ausgeschlossen werden.

Ergebnisse es ergibt sich ein signifikanter Haupteffekt (p=.034, n = 57) in Angstreduktion bei rechtzeitiger Pregabalingabe mindestens 90 Minuten vor Untersuchungsstart. Zur Schmerzempfindung ist kein signifikanter Haupteffekt (p=.639) feststellbar. Mit Pregabalin plus Midazolam ist der Effekt nur etwas geringer als unter Pregabalin oder Midazolam in der Monogabe. Haemodynamisch zeigen sich keine Unterschiede im Gruppenvergleich.

Zusammenfassung Pregabalin, wie gegeben, reduziert Angst vor der Koloskopie, ist sicher und etabliert sich in meiner Praxis. Dieser Therapieansatz zur Anxiolyse ist eine gute Alternative zu den nicht immer umsetzbaren S3 Sedierungs-Leitlinien im ambulanten Koloskopiebereich.

P13 Endoskopischer Verschluss einer Anastomosendehiszenz nach Hemikolektomie mit dem OverStitch™ Endoscopic Suturing System

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Hintergrund Anastomosendehiszenzen sind schwerwiegende postoperative Komplikationen in der kolorektalen Chirurgie und machen bei einer Inzidenz von bis zu 11 % häufig operative Revisionen erforderlich. Mit dem OverStitch™ Endoscopic Suturing System (OESS) steht ein Instrument zur endoskopischen Vollwandnaht zur Verfügung. Bisher beschriebene Einsatzbereiche dieses Systems umfassen bariatrische Eingriffe, Stent-Fixation, Übernähung von Ulcera, sowie Verschluss von Fisteln und Perforationen. Die Daten zur endoskopischen Therapie von Anastomosendehiszenzen sind limitiert und hinsichtlich der Erfolgsraten heterogen.

Methode Kasuistik über eine erfolgreiche Anwendung des endoskopischen Nahtsystems.

Kasuistik Bei einer 75-jährigen Patientin erfolgte wegen eines Sigmakarzinoms eine laparoskopische Hemicolektomie links mit Anlage eines Easy-Flow-Drains. Die Anastomose lag bei 15 cm ab ano. Eine endoskopische Kontrolle der Anastomose am 4. postoperativen Tag war unauffällig. Nachdem in der Folge eine putride Sekretion aus der Drainage und ein CRP-Anstieg zu verzeichnen waren, bestätigte sich am 9. postoperativen Tag im CT mit Kontrastmittel-Einlauf der Verdacht auf eine Anastomosendehiszenz. Bei fehlenden systemischen Entzündungszeichen und unauffälligem Stuhlgang entschloss man sich zu einem konservativen Vorgehen. Am 13. postoperativen Tag wurde die ca. 15 mm große Anastomosendehiszenz nach Sondierung und ausgiebiger Spülung der Fistelhöhle mittels OESS verschlossen. Zur Sicherung der Naht wurden mehrerer Hämoclips appliziert. Bei stetig abnehmender Sekretion aus der Drainage wurde die Patientin in der 4. postoperativen Woche mit liegendem Drain beschwerdefrei entlassen. In einer CT-Kontrolle nach 10 Tagen zeigte sich sich die Anastomose dicht und ohne parakolische Retention, sodass die Drainage entfernt wurde. Die weiteren klinischen Kontrollen waren unauffällig.

Schlussfolgerungen Der endoskopische Verschluss einer Anastomosendehiszenz mittels OESS kann aufgrund der geringen Invasivität eine sinnvolle Alternative zu einer chirurgischen Sanierung darstellen.

P14 Antitumor activity of larotrectinib in esophageal carcinoma with NTRK gene amplification

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Introduction We present a case report of a patient with metastatic esophageal carcinoma whose tumor harbored *NTRK1* gene amplification and who received targeted systemic therapy with larotrectinib. At initial diagnosis, the patient presented with tumor-obstruction of the middle esophagus and

simultaneously liver and lung metastases (UICC IV). The WHO Performance Status was 3 and the patient had a weight loss of 20 kg over 12 weeks.

Materials and Methods The solid tumor genomic profiling test was used to detect clinically-relevant genomic alterations which, in turn, might identify a targeted therapeutic approach if suggested by the findings.

Results Simultaneous biopsies of the primary tumor and liver lesions identified a metastatic squamous cell esophageal carcinoma. Comprehensive genomic profiling obtained from liver metastases identified numerous genomic alterations including amplification of *NTRK1*. Due to the reduced performance status of the patient, chemotherapy could not be applicated and was denied. Although larotrectinib is only approved for the treatment of cancers with *NTRK* gene fusions, treatment was started and led to a shrinkage of the primary tumor as well as the liver and lung metastases within 6 weeks according to RECIST criteria accompanied by tumor marker decrease. The *NTRK1* gene amplification was below the limit of detection in a subsequent liver biopsy.

Conclusions This case suggests that larotrectinib is not only effective in *NTRK* fusions, but may be efficacious in cases with gene amplification. Today, there are only limited data on the frequency of *NTRK* alterations in squamous cell carcinoma of the esophagus. Longitudinal tumor sequencing during the course of the disease could be suitable to analyze the molecular genetic cause of disease progression and should be investigated in further studies.

P15 Bislang vernachlässigte Parameter bei EPE, EMR und ESD und die Rolle der Endoskopischen Submukosa Resektion (ESR)

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Einleitung Immer noch sind relevante Probleme der üblichen Abtragungsverfahren EPE, EMR und ESD ungelöst:

1. Mangelnde Repräsentanz der diagnostischen Methoden,
2. Kritische Fragen bezüglich der Abtragungsmodalitäten selbst
3. Der Einfluss HF-chirurgischer Parameter (Schnittspalt, thermische Artefakte)

Material/Methoden Die Details der oben genannten Probleme, z.B. Fragen der Aufarbeitung der Resektate und die Submukosa-Dicke in verschiedenen Bereichen des GIT werden analysiert und als Lösung die neue Methode der **E**ndoskopischen **S**ubmukosa **R**esektion **(ESR)** mit neuen Instrumenten zur Umschneidung und zur Resektion evaluiert.

Ergebnisse

1. Die Repräsentanz üblicher histologischen Aufarbeitung liegt unter 10 %
2. Die gemessene Dicke der Submukosa an verschiedenen Stellen des Gastrointestinaltraktes schwankt zwischen 30 (!) µm und 3000 µm. Zudem ist der Einfluss der Unterspritzung bislang noch ganz unzureichend untersucht
3. HF-chirurgische Parameter spielen eine größere Rolle als bisher angenommen
4. Erste klinische Ergebnisse mit den neuen ESR-Instrumenten an 32 Patienten mit Läsionen im Colorektum (35-50 mm Durchmesser) sind ermutigend (Metter et al 2019).

Diskussion Die Repräsentanz diagnostischer Methoden muss kritisch hinterfragt werden.Bei den gemessenen extremen Schwankungen der Submukosa-Dicke müssen Absolutwerte (500 µm bzw. 1000 µm), sehr kritisch diskutiert und die Notwendigkeit einer Muscularis-nahen Resektiongewürdigt werden. Die ESR erlaubt eine anatomisch und ergonomisch sinnvolle, schnell erlernbare und sehr zeitsparende Umschneidung und Resektion auch großer Läsionen tief an der Muscularis propria (d.h. mit weitgehender Resektion der Submukosa) ohne Perforationsgefahr mit fast artefaktfreien glatten Schnittflächen.In einer entsprechenden Studie sollen die genannten, bislang vernachlässigte Parameter grundlegend angegangen werden.

Resümee Es ist an der Zeit, über bislang vernachlässigte Parameter für die Abtragung von Läsionen im Gastrointestinaltrakt neu nachzudenken und die Konsequenzen daraus zu ziehen. Die neu entwickelte ESR könnte dabei - auch durch ihre besondere Praktikabilität im klinischen Einsatz - eine Schlüsselrolle spielen.

P16 Bleeding risk after endosonographic (EUS) puncture of pancreas masses- comparison between aspiration (FNA) and biopsy (FNB) fine needles

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AIM To compare the bleeding rate between EUS-FNA and -FNB for solid and cystic pancreatic masses regarding coagulation parameters and use of antithrombotic agents in two Austrian centers.

METHODS Our retrospective analysis included EUS-FNA/FNB of pancreatic masses performed between 02/2017-03/2019 in Klagenfurt and 11/2018-03/2019 in St. Pölten. Bleeding rate was assessed separately for solid and cystic pancreatic masses. Minor bleeding was defined as an event with a duration of at least one minute, no need for intervention, large coagulum on puncture side or decrease in hemoglobin > 1.5g/dL (< 3 g/dL). Major bleeding was defined as reduction in hemoglobin ≥ 3g/dL or need of transfusion and interventional hemostasis.

RESULTS 202 patients were assessed (141 with solid and 61 with cystic pancreatic masses). FNA was performed in 54.6 % of cases with solid pancreatic masses and in 73.7 % of cysts.Bleeding with hemodynamic instability was not observed in our cohort.In pancreatic cysts minor bleeding was observed in 8.2 % of cases and was associated with use of FNB needles and lower platelets

►**Tab. 1**

Factor	Solid tumors with (n = 23) vs.without bleeding (n = 118)	p value	Cystic tumors with (n = 5) vs. without bleeding(n = 56)	p value
Use of anticoagulants				
-ASA (%)	21.7 % vs.12.7 %	0.42	0 % vs.21.4 %	0.57
-LMWH (%)	8.7 % vs.10.2 %	0.87	20 % vs.8.9 %	0.98
Platelets (cells/mm^3)	260.565 ± 78.748 vs. 266.777 ± 164.299	0.20	134.600 ± 96.975 vs. 268.538 ± 140.984	**0.04**
Prothrombin time (%)	85.7 ± 18.9 vs.90.1 ± 15.8	0.24	98.4 ± 26.8 vs.97.2 ± 18.5	0.84
Use of FNB needles (%)	65.2 % vs.41.5 %	**0.04**	80 % vs.21.4 %	**0.02**

count (Table).In solid tumors one major bleeding (0.7 %) from duodenal vessel occurred and was immediately treated with hemoclip. In this group minor bleeding was observed in 15.6 % of cases. The bleeding rate seems to correlate with use of FNB needles in these patients (table).

CONCLUSION Use of EUS-FNB needles increase the rate of minor bleeding for both solid and cystic pancreatic tumors, while major bleeding is a rare occurrence, irrespective of the needle typ.

P17 RGB Image analysis of pancreatic mass-elastographies in endoscopic ultrasound (EUS) can predict malignancy- a pilot study

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INTRODUCTION Image analysis using RGB (red-green-blue) image profiling is a well-accepted technique, especially in histopathological image analysis.

AIM To investigate the accuracy of quantitative image analysis of EUS-elastographies (tissue elasticity) to predict malignancy of solid pancreatic lesions.

METHODS Elastographies of solid pancreatic masses obtained with EUS between 01/2014-06/2019 were extracted from our ultrasound device (Hitachi V70) and analyzed retrospectively. Quantitative RGB based analysis was performed using a Java image processing program (ImageJ, NIH). Red indicates soft tissue, blue hard tissue, and green intermediate tissue-elasticity. The exact amount of blue, red and green color was measured and expressed in pixels and percentages. After calibration of each image, the color intensity was measured on a scale of 0-255 for an 8-bit image. The intensity ratio for each color was defined as the relation between absolute value for this color and the intensity of the sum of all three colors (R+G+B). The tissue surrounding the tumor outside the well-defined margins of the lesion on ultrasound was not included in the analysis. The final diagnosis was made either by histopathology or radiological findings in combination with tumor markers and clinical follow-up.

RESULTS 59 solid pancreas tumors evaluated by strain elastography were analyzed: 45 (75 %) malignant (60 % adenocarcinoma, 8.3 % metastasis and 6.6 % neuroendocrine tumors) and 14 (23.3 %) benign masses. Cut-offs values to differentiate between malignant and benign pancreatic tumors were calculated for parameters with good correlation for the presence of malignancy (criteria, Table). Risk of malignancy according to these criteria was: 4/4 (15 cases)-100 %, 3/4 (24 cases)- 87.5 %, combined 3 or 4/4 (39 cases)-92.3 %; 2/4(11 cases)-54.5 %, 1/4(4 cases)-75 % and 0/4 (5 images)-0 %.

CONCLUSION Quantitative image analysis of solid pancreatic lesion elastographies obtained in EUS may predict (3 or 4/4 criteria) or exclude (0/4 criteria) malignancy with high accuracy.

▶ **Tab. 1**

Parameter (criteria)	Cut-offs (%)	Sensitivity (%)	Specificity (%)	AUC
Blue color (%)(Spearman r = 0.192, p = 0.10)	> 55	93.3	35.7	0.62
Green color (%)(r=-0.218,p = 0.09)	< 42.5	97.8	42.5	0.64
Green color Intensity Ratio(r=-0.391, p = 0.002)	< 56	71.1	78.6	0.76
Red color Intensity Ratio(r=-0.194, p = 0.10)	< 18.5	42.2	92.9	0.63

P18 Incidence of sedation-related complications and risk factors associated with non-anesthesiologist administration of sedation in endoscopic ultrasound (EUS)- prospective study

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AIM To investigate the incidence of adverse events related to non-anesthesiologist sedation during EUS and associated risk factors.

METHODS Our prospective study included EUS investigations performed between 11/2018-10/2019 in two Austrian centers (Klagenfurt and St. Pölten). An "experienced" endosonographer has performed at least 225 EUS examinations including 50 interventions. Propofol and Midazolam were used for sedation and administered by specially trained nurses or physicians. Adverse events were defined according to the ESGE recommendations: hypoxemia (oxygen saturation < 90 %) and hypotonia (systolic blood pressure < 90 mmHg).

RESULTS 554 (311 Klagenfurt+243 St. Pölten) EUS in 514 patients were analyzed (mean age 63.6 ± 15.7 years, 52.3 % male). Non-anesthesiologist sedation was performed with a combination of Propofol und Midazolam in 95.6 %

▶ **Tab. 1**

Parameter	EUS without complications(n = 520)	EUS with complications(n = 34)	p value
Age (years)	63.3 ± 15.4	65.6 ± 17.4	0.40
Age > 75 years (%)	24.4	41.1	**0.04**
Male gender (%)	54.6	50	0.73
BMI (kg/m2)	26.3 ± 5.4	27.2 ± 5.6	0.40
Total Propofol dose (mg)	160(20-760)	140(20-440)	0.10
Propofol dose/kg body weight (mg/kg)	2.4 ± 1.4	2.1 ± 1.3	0.17
Midazolam dose per patient (mg)	3(1-6)	3(1-5)	0.24
Interventional EUS (%)	31.8	21.6	0.29
ASA III	25.7	50	**0.003**
EUS duration (min)	23(3-71)	20(3-60)	0.30
EUS performed by trainees (%)	45.9	55.8	0.34

of cases. The median dose (range) of Propofol and Midazolam were: 160 (20-760) mg and 3 (1-6) mg, respectively. Sedation related complications were observed in 34/554 (6.1 %) of EUS: hypotonia in 24/554 (4.3 %), hypoxemia in 10/554 (1.8 %) and respiratory or hemodynamic instability in 7/554 (1.6 %) of cases. One patient (0.18 %) needed intubation and died in the intensive care unit. The presence of comorbidities and older age were associated with the occurrence of sedation related complications (table).

CONCLUSION Sedation related adverse events were registered in 6.1 % of EUS in our prospective study, but only 1.6 % of cases showed clinically significant impairment. The presence of comorbidities and older age were associated with a higher incidence of hypoxemia and/or hypotonia. These patients should be evaluated more carefully for the need of an anesthesiologist during the procedure.

P19 The gastrointestinal bleeding registry at the University Hospital St. Pölten, Austria-A prospective evaluation

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Introduction In 2018 we started to register every patient with any kind of GI bleeding in a database. In the context of data evaluation, we obtained findings on incidence, prevalence, mortality and morbidity. In addition, this registry serves to evaluate predictive (both clinical and laboratory) parameters for the survival of patients with GI bleeding.

Methods All patients over the age of 18 years, who present with melena, hematochezia, hematemesis, or positive fecal occult blood test (FOBT) and who have been excluded from variceal bleeding were included into the registry after giving a declaration of informed consent. The majority obtained an endoscopy to conduct research regarding the bleeding cause.

Results Up to now data of 540 patients were analyzed of whom 57.4 % were male (n = 310). The mean age was 71.0 (CI95 % 69.7-72.4 [range: 19.1-97.8]). 528 (97.8 %) patients underwent endoscopy and 202 (38.3 %) of them received any endoscopic intervention for hemostasis. Despite endoscopic examination bleeding source could not be detected in 92 patients (17.0 %). Bleeding was most frequently located in the upper gastrointestinal tract (n = 273 [50.6 %]). Overall, 247 (45.7 %) patients received a blood transfusion with a mean hemoglobin nadir of 8.8 g/dl (CI95 % 8.6-9.1. In 121 (49.0 %) cases a cardiovascular disease was known. Forty-two (7.8 %) patients died within the observation period and in twelve (28.6 %) patients' death was directly related to GI bleeding. Only one of the deceased received a blood transfusion, although the hemoglobin nadir was > 7 mg/dl and no cardiovascular disease was known.

Conclusion Non-variceal GI bleeding is a common cause for hospital admission and often leads to the necessity of blood transfusions. Nevertheless, in many cases transfusion policy should be critically questioned as the patients' outcome may be declined. Further analyses are in progress.

P20 Endoscopic ultrasound (EUS) in elderly patients

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AIM to assess the indications, safety and clinical utility of EUS in patients over 75 years of age.

METHODS Our retrospective study included EUS investigations performed between 01/2015-10/2019 in our GI-Department. Propofol and Midazolam were used for non-anesthesiologist sedation during endosonographies. The following information was recorded:EUS indication, EUS type (diagnostic or interventional) and occurrence of complications(sedation-related or procedure-related).

RESULTS 239/843(28.3 %) of EUS performed were done in patients >75years and included in our analysis. These 239 EUS-examinations where performed in 219 patients with a mean age of 82.8 ± 4.9 years(39.7 % male). The main EUS indications were:suspicion of choledocholithiasis-43.5 %, solid pancreatic masses-22.1 %, subepithelial tumors-14.2 % and pancreatic cystic lesions-8.8 %. Choledocholithiasis was diagnosed in 42.7 % of suspected cases and confirmed by ERCP.Only one patient (1.6 %) with negative EUS needed ERCP in follow-up. EUS diagnosed a biliary etiology in 2/4(50 %) cases with initially acute pancreatitis of unknown etiology. Interventions were performed in 69/239(28.8 %) of the EUS-investigations. 76.8 % of interventions were performed for pancreatic pathology(55.1 % for solid pancreatic masses and 21.7 % for pancreatic cysts). Drainage of an infected cysts/walled-of necrosis was performed in 7.2 % of interventional EUS. No complications were registered in these patients. Overall complications were observed in 20/239 (8.4 %)EUS-examinations. Sedation related complication occurred in 10/239 (4.2 %) of EUS. 9/10 patients suffered a transient, non-fatal respiratory insufficiency and one had hypotension. No intensive or respiratory care facility was needed. Slight, spontaneously stopping intraluminal bleeding was observed in 13 % of interventional EUS.

CONCLUSION EUS is safe and usefulness by patients over 75 years.EUS is very accurate for diagnosis of choledocholithiasis in these patients, avoiding unnecessary ERCPs and shortening of hospital stay. EUS drainage is safe and efficient in elderly patients with infected pancreatic cysts or walled-of necrosis.

P21 Comparison between accuracy of flexible nitinol fine needle aspiration(FNA) and fine needle biopsy (FNB) endoscopic ultrasound (EUS) needles for solid pancreatic masses-retrospective bicentric analysis

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AIM To investigate the accuracy of flexible nitinol FNA and EUS-FNB needle for pancreatic masses in 2 Austrian centers(Klagenfurt and St.Pölten).

METHODS Our bicentric study included EUS biopsies of pancreatic masses performed between 02/2017-10/2019-Klagenfurt and between 11/2018-10/2019-St.Pölten. Olympus (19 or 22 G)flexible nitinol needle were used for EUS-FNA and SharkCore™(19 or 22G) or Boston Acquire™(22G) were used for EUS-FNB. Needles were chosen according to the availability in the centers or endoscopist preference. 124patients with 134EUS-FNA/FNB(Klagenfurt -90,St. Pölten-44) of solid pancreatic masses were enrolled in this retrospective study.Final diagnosis was established through a combination of histopathology, surgery, radiological findings, autopsy and clinical follow-up. The accuracy was calculated as the proportion of true positive+true negative cases/total number of cases, while Se for malignancy represented the rate of true positive samples/all malignant cases. Positive EUS-FNA/FNB was defined as the finding of at least atypical cells with dysplasia. An"experienced"endosonographer had performed at least 225 EUS including 50 interventions(at least 25 performed for pancreatic tumors).

RESULTS The most common final diagnosis was adenocarcinoma(61,2 %), following by and pseudotumor due to chronic pancreatitis(11.2 %) and inflammation(10.4 %).Overall, 70.9 % of cases presented with malignancy. The EUS-FNA needle were used in 64/83(56.7 %) cases.Trainees performed 51.4 % of all EUS. The overall accuracy and Se for detecting malignancy were:77.6 % and 66.1 %,respectively. The accuracy and Se for malignancy for EUS-FNB was significantly higher as compared with EUS-FNA needles: 86.2 % vs.71 %, p = 0.04 and 85 % vs.64.2 %, p = 0.04. The use of EUS-FNB needles by experienced endosonographers was associated with 90 % Se for malignancy(Table).

CONCLUSION The use of EUS-FNB needles in centers without on-site pathologist is associated with increased accuracy for EUS-guided biopsy of solid pancreatic masses, especially when there are used by experienced endosonographers.

▶ **Tab. 1**

	Accuracy	Se for malignancy
Experienced endosonographers	-FNA:14/19(73.6 %) -FNB:41/46**(89.1 %)** p = 0.23	-FNA:9/14(64.2 %) -FNB:27/30**(90 %)** p = 0.09
Trainees	-FNA:40/57(70.1 %) -FNB:9/12(75 %) p = 0.99	-FNA:27/42(64.2 %) -FNB:7/10(70 %) p = 0.78

P22 Usefullness of Endoscopic Ultrasound (EUS) in early biliary pancreatitis without cholestasis on conventional imaging

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AIM to assess the outcome of acute biliary pancreatitis (ABP) using EUS for deciding to perform an ERCP.

METHODS Our retrospective study included ABP patients without cholangitis or cholestasis on imaging admitted in our Department between 07/2017-10/2019. Biliary etiology of pancreatitis was defined as presence of gallstones/sludge on imaging or history of cholecystectomy with elevated liver enzymes (ALT,AST and/or alkaline phosphatase > 2xULN). ABP patients were first evaluated by EUS and if choledocholithiasis was diagnosed ERCP was subsequently performed.

RESULTS Our study included 49 ABP patients with a mean age of 64.6 ± 19.4years.Obesity was present in 34.6 % of cases.Gallbladder stones were diagnosed in 77.5 % of patients and 22.5 % undergo previously cholecystectomy. Ranson score at admission ≥ 3 was present in 20.4 % of patients, C reactive protein > 150 mg/dl at admission in 16.3 % . Choledocholithiasis was diagnosed in 18/49(36.7 %) by EUS. ERCP could be successfully performed in 15/18(83.3 %) of patients. We did not have ABP related mortality in our study cohort.Development of severe pancreatitis,organ failure, cholangitis, readmission because of biliary complications and hospital stay were similar in patients with ruled-outcholedocholithiasis in EUS(and no ERCP) and these with positive EUS and consequently performed ERCP with successfully removal of biliary tract stones(Table). Two from three patients(66.6 %) with choledocholithiasis by EUS and unsuccessfully ERCP developed severe pancreatitis with persistent organ failure and need of intensive care admission.

CONCLUSION EUS is a very good method for diagnosing choledocholithiasis in ABP patients without obvious cholestasis and helps to decide if ERCP is needed.

▶ **Tab. 1**

	Positive EUS and successfully ERCP (n = 15)	Negative EUS, no ERCP (n = 31)	p
Severity -mild -moderately severe -severe	93.3 % 6.7 % 0 %	90.3 % 9.7 % 0 %	0.81 0.82 -
Organ failure/ICU admissionCholangitis/Pancreatic necrosis	0 %/0 %6.6 %/ 6.6 %	0 %/0 %0 %/ 6.4 %	-/-0.71/0.53
Readmission (biliary complications) Hospital stay	6.6 % 7 ± 1.3	3.2 % 6.5 ± 1.3	0.80 0.97

P23 Interventionsfähiges Trainingsmodell für die flexible Endoskopie bei postoperativ veränderter Anatomie des oberen GI-Traktes

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Einleitung Viele Operationen im oberen Gastrointestinaltrakt, nicht zuletzt die stetig zunehmenden bariatrischen Eingriffe, haben zum Teil eine erheblich veränderte Anatomie zur Folge. Unzureichende Kenntnis der veränderten Anatomie führt bei einer Folgeendoskopie, beispielsweise aufgrund einer Cholelithiasis nach bariatrischen Eingriffen, zu einem erhöhten Risiko. Ein realitätsnahes und patientenanaloges Trainingsmodell ist bislang nicht existent, könnte aber die Qualität der diagnostischen und vor allen der therapeutischen Endoskopie bei Patienten mit postoperativ veränderter Anatomie verbessern.

Material/Methode Zunächst wurde die veränderte Anatomie anhand patientenanaloger Daten vollständig mit digitalen 3D-Programmen rekonstruiert. Verwendet wurden Materialien aus der Textilforschung sowie starre und flexible 3D-Druck Materialien für die Gewebsnachbildung. Weiter kamen bereits entwickelte und patentierte artifizielle Gewebe, Kunststoffe wie Latex, Acryl, Silikon und unterschiedliche Elastomere zur Anwendung um tiermaterialfreie, realitätsnahe und interventionsfähige Organstrukturen des oberen Gastrointestinaltrakts nachzubilden.

Ergebnisse Es wurde ein modulares hands-on Trainingsphantom erstellt, welches eine Situation nach Magenteilresektion mit Roux-Y Rekonstruktion aufweist. Weitere anatomische Varianten (Magenbypass, Billroth II, Rekonstruktion nach Whipple-OP) werden aktuell entwickelt. Das Modell ist realitätsgerecht aufgebaut. Interventionell kann eine ERCP unter Durchleuchtung mit Papillen- und Gallengangsintervention mit verschiedenen Zugangstechniken (z.B. Device Assisted Enteroscopy, DAE) trainiert werden.

Schlussfolgerung Das Training der flexiblen Endoskopie für Patienten mit postoperativ veränderter Anatomie ist mit neuentwickelten Phantomen möglich. Eine Evaluation des Phantoms an Probanden mit unterschiedlichen Erfahrungsstufen wird durchgeführt.

P24 Die Endosonographie-gezielte Gastroenterostomie bei maligner Magenausgangsstenose - erste Erfahrungswerte

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Einleitung Die maligne Magenausgangsstenose kann zu einem hohen Ileus führen; ein Zustand, der mit dem Überleben des Patienten nicht vereinbar ist. Lange galten die chirurgische Gastroenterostomie (GE) oder das endoskopische Platzieren eines Metallstents in das Duodenum als gängige palliative Therapieoptionen für dieses Krankheitsbild. Die Endosonographie-gezielte GE (EUS-GE) gewinnt als wenig invasive alternative Behandlungsoption zunehmend an Bedeutung. Hierbei wird unter endosonographischer Sicht, ein vollständig beschichteter und selbstexpandierender Metallstent (Hot AXIOS™ Stent, Ø 20mm) so platziert, dass er Magen und Dünndarm verbindet. Ziel ist es, den Betroffenen durch Schaffung einer Umgehung der Magenausgangsstenose, wieder eine orale Nahrungsaufnahme zu ermöglichen.

Patienten/Methode Erhebung klinischer Daten aller Indikationen zur EUS-GE bei malignen Magenausgangsstenosen im Zeitraum von Februar 2019 bis Ende Februar 2020 an der klinischen Abteilung für Gastroenterologie und Hepatologie des Univ. Klinikums Graz.

▶ **Tab. 1**

Patient	Indikation	Stent Liegedauer/ Follow-up	Komplikationen
W, 73a	Stenosierendes Pankreas-Ca	8 Monate/Pat. verstorben	- Aspiration- 2x Stentverschluss durch Speisereste
W, 67a	Magenausgangsstenose bei Papillen-Ca	10 Monate/Pat. verstorben	keine
M, 52a	Stenosierendes Pankreas-Ca	1,5 Monate/Pat. verstorben	keine
M, 63a	Magenausgangsstenose bei Colon-Ca	Chir. GE am 17.05.2019,Pat. nach 0,5 Monaten verstorben	EUS-GE am 09.05.2019 frustran
W, 61a	Stenosierendes Pankreas-Ca	Pat. am Tag nach der Endoskopie verstorben	EUS-GE am 05.07.2019 frustran
W, 80a	Stenosierendes Pankreas-Ca	0,5 Monate/Pat. verstorben	keine
W, 86a	Stenosierendes Pankreas-Ca	1,5 Monate/Pat. verstorben	keine
M, 66a	Stenosierendes Pankreas-Ca	Chir. GE am 20.12.2019,Pat. nach 1,5 Monaten verstorben	EUS-GE am 17.12.2019 frustran
M, 65a	Stenosierendes Pankreas-Ca	Seit 2 Monaten/ Pat. zu EOF am Leben	keine

Ergebnisse Innerhalb von 13 Monaten wurde bei insgesamt neun PatientInnen die Indikation zur EUS-GE mittels Hot AXIOS™ Stent bei maligner Magenausgangsstenose gestellt. Das mittlere Alter betrug hierbei 68 Jahre (52 bis 86 Jahre). In sechs Fällen gelang die EUS-GE, die übrigen drei Interventionsversuche verliefen frustran, da es nicht möglich war, die Magenausgangsstenose mit dem Führungsdraht zu passieren. Bei zwei dieser Patienten wurde im Anschluss eine chirurgische Gastroenterostomie durchgeführt, der dritte ist am Folgetag der Endoskopie aufgrund der fortgeschrittenen Grunderkrankung verstorben. Als Komplikation der EUS-GE wurde einmal eine Aspiration von Mageninhalt noch während des Eingriffes dokumentiert. Im Verlaufe des Follow-Ups kam es bei einer Patientin zweimal zu einer Okklusion des Stents durch Speisereste, diese Komplikation konnte endoskopisch behoben werden.

Schlussfolgerung Im palliativen Setting stellt die EUS-GE eine weniger invasive Alternative zur chirurgischen Gastrojejunostomie bei maligner Magenausgangsstenose dar. Der Eingriff muss jedoch zu einem Zeitpunkt erfolgen, an dem die Passage der Stenose mit dem Führungsdraht noch möglich ist.

P25 Endosonographisch gezielte Radiofrequenzablation zur Behandlung benigner Insulinome

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Einleitung Insulinome sind seltene und oft schwer detektierbare funktionelle neuroendokrine Tumore des Pankreas (pNET) mit einer Inzidenz von etwa 1/250000. Da Insulinome zu den kleinen pNETs zählen, ist die Detektion mittels konventioneller Schnittbildverfahren in vielen Fällen nicht zielführend. 90% der Insulinome sind gutartig. Die Endosonographie (EUS) ist in bis zu 95% der Fälle positiv und somit das bildgebende Verfahren der Wahl. Die Therapieempfehlung bei solitären Insulinomen stellt derzeit die primäre chirurgische Resektion (Tumorenukleation oder limitierte Pankreasresektion) dar. Die endosonographiegezielte Radiofrequenzablation (EUS-RFA) als minimalinvasives, lokal ablatives Verfahren wurde für pNETs in den letzten Jahren zunehmend als komplikationsarme Therapieoption mit gutem Sicherheitsprofil für ausgewählte Patientengruppen beschrieben.

Patienten/Methode Ziel dieser Arbeit ist, die Effektivität und Sicherheit der EUS-RFA bei Insulinomen aufzuzeigen.

Ergebnisse Es wurden Daten zu 6 Insulinomen, welche zwischen Juli 2019 und Februar 2020 diagnostiziert wurden, retrospektiv analysiert. Bei zwei Patienten wurde eine chirurgische Enukleation durchgeführt, 4 Patienten wurden, nach eingehender Aufklärung, mit EUS-RFA behandelt. Zum Einsatz kamen zwei RFA-Sondensysteme: die 19G Habib-Sonde (10W, 90s, Boston Scientific) und die impedanzkontrollierte 19G EUSRA-Sonde (50W, Taewong). Die durchschnittliche Größe der radiofrequenzablierten Läsionen betrug 12,25mm. Alle Läsionen waren solitär und wiesen eine Ki67 <2% auf. Die Nachbeobachtungsdauer lag zwischen 1,5 und 6,5 Monaten. Bei 3 Patienten kam es zu einem raschen klinischen Ansprechen mit Normalisierung der Blutglukosespiegel unmittelbar postinterventionell. Bei einer Patientin kam es zu einem Primärversagen nach Einsatz der Habib-Sonde, weshalb in einer zweiten Sitzung eine Reablation mit der EUSRA-Sonde durchgeführt wurde; nachfolgend konnten auch bei dieser Patientin keine Hypoglykämien mehr aufgezeichnet werden. Unerwünschte Nebenwirkungen, respektive Komplikationen traten bei keinem Patienten auf.

Schlussfolgerung Zusammenfassend könnte die endosonographiegezielte Radiofrequenzablation in Zukunft eine effektive und sichere Therapiealternative für gut differenzierte Insulinome darstellen, es sind jedoch größere, prospektive Studien notwendig.

P26 Endoskopische Raritäten - eine kleine Sammlung.

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Die Endoskopie der 1. Med. Abt. des KH Hietzing freut sich, eine kleine Auswahl der spektakulärsten endoskopischen Raritäten der letzten Monate präsentieren zu dürfen:1. Ein echter Fall von "Clipolithiasis" oder der versteinerte Clip im Gallengang. Postoperative Clip-Migration at it's best...2. In der falschen Röhre! Eine Endo-Kapsel auf dem Irrweg, und wie sie letztendlich doch noch Ihren Weg fand.3. Metallsprialen im Duodenum - wenn Gefäßcoils auf Reisen gehen.4. Gastro-Rätsel: Wie kann der Wechsel von einer PEG-Sonde auf einen Gastro-Tube plötzlich Durchfall verursachen. Die Antwort ist vermutlich einzigartig!5. Das nasale Endoskop auf biliären Abwegen - tolle Bilder, aber wie geht es den Seilzügen dabei?

P27 Respiratorische Infekte in den nächsten 14 Tagen unter Teilnehmern eines zweitägigen medizinischen Treffens

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Einleitung Es ist nicht bekannt, wie viele respiratorische Infekte in der Zeit nach einem Zusammentreffen von medizinischem Personal auftreten. Am 30. und 31. 1. 2020 fand im Linzer Power Tower „EndoLinz" statt. Dabei kamen 220 Teilnehmer für insgesamt 12 Stunden an zwei Tagen in einem Saal und zu einem gemeinsamen Abendessen in einem Gasthaus zusammen.
Methode Die Teilnehmer wurden zwei Wochen später online anonym mittels Survey Monkey befragt.
Ergebnisse 99 Personen (45 %) antworteten. 21 (21,2 %) von ihnen erkrankten in den zwei Wochen nach Ende des Meetings an einem respiratorischen Infekt, im Schnitt nach 6 Tagen. Sechs (31,6 %) von ihnen hatten Fieber, 16 (84,2 %) einen oberen, zwei einen unteren und eine Person einen oberen und unteren Infekt der Atemwege. Eine Person kam bereits mit Symptomen zum Kongress und vier der 21 Erkrankten waren in dieser Saison gegen Grippe geimpft. COVID19 war zu dieser Zeit in Österreich noch kein großes Thema (erster Fall in Österreich erkrankte am 17.2. und wurde am 25. 2. positiv getestet).
Schlussfolgerung Leider wurden nicht alle Teilnehmer nach dem Influenza-Impfstatus befragt und die Erkrankungs- und Krankenstanddauer wurde nicht erhoben. Außerdem fehlte ein valides Vergleichskollektiv (Ärzte und Pflegepersonen ohne Gruppentreffen). Zudem wäre es interessant gewesen, auch nach gastrointestinalen Infekten zu fragen. Die zeitgleiche Krankenstandinzidenz in Österreich wird noch recherchiert.
Diese präliminären Daten könnten Anstoß für eine größere Studie sein. Davon könnte Entscheidungshilfe gewonnen werden, ob Kongresse in Risikozeiten (Grippesaison) geplant werden sollen. Alternative Formen der Fortbildung (livestreams, Videokonferenzen etc.) sind überlegenswert.

Gastroenterologie

P28 Where have all the women gone? - Die Repräsentation von Frauen in der Gastroenterologie und Hepatologie in Österreich

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Einleitung In der jüngeren Vergangenheit wurde zahlreiche Studien veröffentlicht, die die systematische Diskriminierung von Frauen in den medizinischen Wissenschaften vor allem in den Bereichen des Publizierens, Einwerben von Drittmitteln und Stellenbesetzungen aufzeigen. Diese Ungleichbehandlung wird auch bei der Auswahl von Vortragenden bemerkbar, die zu einem überwiegenden Teil männlich sind. Diese Praktiken sind auch in der Gastroenterologie/Hepatologie zu beobachten, aber spiegeln sich diese auch in der österreichischen Fachgesellschaft wider?
Methode Um dieser Frage nachzugehen, haben wir die Jahrestagungen der Österreichischen Gesellschaften für Gastroenterologie und Hepatologie (ÖGGH) anhand der archivierten Hauptprogramme zwischen 2002 und 2019 hinsichtlich ihrer Geschlechterverteilung bei Vorträgen, Vorsitzen und freien Vorträgen analysiert und mit der Österreichischen Diabetes Gesellschaft (ÖDG) verglichen.
Ergebnisse Bei den Jahrestagungen der ÖGGH im Zeitraum 2002 bis 2019 lag der Frauenanteil bei eingeladenen Vorträgen bei 8,4 % (± 7,5), bei Vorsitzen bei 9,9 % (± 7,5 %) und bei freien Vorträgen bei 37,7 % (± 17,5). Im Vergleich dazu kommen die Jahrestagungen der ÖDG in einem vergleichbaren Zeitraum auf einen signifikant höheren Frauenanteil bei eingeladenen Vorträgen [27,5 % (± 7,9), $p < 0,001$] und bei Vorsitzenden [30,7 % (14,6), [$p < 0,001$], und zu einem vergleichbaren Frauenanteil bei freien Vorträgen [42,9 % (8,9), $p = 0,533$]. Eine Zunahme des Frauenanteils mit der Zeit ist bei den Jahrestagungen der ÖGGH nicht zu vermerken, während die ÖDG einen signifikanten Anstieg von weiblichen Vortragenden ($rs = 0.626$, $p = 0,009$) sowie Vorsitzenden ($rs = 0.802$, $p < 0,001$) seit 2004 verzeichnen kann.
Diskussion Frauen sind bei der Vergabe von Vorträgen und Vorsitzen für die Jahrestagung der ÖGGH unterrepräsentiert, selbst unter Berücksichtigung der Geschlechterverteilung in der Gesellschaft selbst. Auch im nationalen Vergleich hat die ÖGGH Aufholbedarf in der Geschlechterparität. Es besteht akuter Handlungsbedarf, um auch den weiblichen Expertinnen eine Bühne zu bieten und somit zukunftsorientierte Rollenbilder für die nachkommende Generation an Gastroenterologinnen und Hepatologinnen zu schaffen

P29 Dysbiosis in dementia is associated with gut barrier dysfunction and linked to malnutrition and prescription drug use

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Background Dementia is an increasing public health threat worldwide. The pathogenesis of dementia has not been fully elucidated yet. Inflammatory processes are hypothesized to play an important role as a driver for cognitive decline but the origin of inflammation is not clear. We hypothesize that disturbances in gut microbiome composition, gut barrier dysfunction, bacterial translocation and resulting inflammation are associated with cognitive dysfunction in dementia.
Methods To test this hypothesis, a cohort of 23 patients with dementia and 18 age and sex matched controls without cognitive impairments were studied. Gut microbiome composition, gut barrier dysfunction, bacterial translocation and inflammation were assessed from stool and serum samples. Malnutrition was assessed by Mini Nutritional Assessment Short Form (MNA-SF), additionally, detailed information on drug use was collected. Microbiome composition was assessed by 16S sequencing, QIIME 2 and Calypso 7.14 tools.
Results Dementia was associated with dysbiosis characterized by differences in beta diversity and changes in taxonomic composition.

Potentially butyrate producing bacteria, including Eubacterium rectale and members of the Lachnospiraceae genus, were less abundant in demented individuals. Gut permeability was increased as evidenced by increased serum diamine oxidase levels, and systemic inflammation was confirmed by increased soluble cluster of differentiation 14 levels (sCD14). BMI and statin use influenced microbiome composition. Notably, demented individuals took three times more prescription drugs than control, and three quarters of this group were malnourished.

Conclusion Dementia is associated with changes in gut microbiome composition and increased biomarkers of gut permeability and inflammation. Demented individuals harbored less potentially butyrate producing bacteria, further promoting butyrate as a link between dysbiosis, gut barrier dysfunction and cognitive decline. Moreover, malnutrition and drug intake were factors impacting microbiome composition. Taken together, increasing butyrate producing bacteria and targeting malnutrition may present promising therapeutic targets in dementia.

P30 Should colonoscopy screening recommendations be sex-specific and age adjusted?

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Introduction The ideal age for the first screening colonoscopy is under debate. The rates of adenoma detection were reported to differ between male and female patients. We, therefore, performed a sex specific comparison of advanced adenoma detection rates in distinct age groups in a real-world screening cohort.

Methods In total, 2824 asymptomatic patients (46 % female) undergoing screening colonoscopy at a single center in Austria were evaluated. All patients had a negative family history for colorectal carcinoma and were divided into age group 1 if being between 45 and 49 (n = 521, 18 %), group 2 if they were 50 to 54 (n = 1164, 41 %) or in group 3 if between 55 and 60 (n = 1139, 40 %) years. Sex-specific associations of age groups with the primary endpoint, detection of advanced adenoma was evaluated with logistic regression. A multivariable model adjusting for relevant cofounders was built.

Results Baseline characteristics are shown in Table 1-3. In male and female patients, the rates of advanced adenoma were 7 % and 3 % (p < 0.001). In male patients rates of advanced adenoma were similar in group 1 (5 %; aOR 1,58 95 %CI 0,81-3,08; p = 0.18) and group 3 (8 %; aOR 0,95 95 %CI 0,59-1,52; p = 0,83) compared to group 2 (8 %) and remained so after adjustment for confounders. In female patients, compared to group 2 rates of advanced adenoma were similar in group 1 (2 %; aOR 1,23 95 %CI 0,33-4,53; p = 0,76) but significantly higher in group 3 (4 %; aOR 2,34 95 %CI 1,09-5,02; p = 0,03).

Conclusion The rates of advanced adenoma were similar in male patients throughout the age groups. Female patients had a significantly lower rate of advanced adenoma compared to men and an increased risk for advanced adenoma starting at the age of 55. We support sex-specific age adjusted colonoscopy screening recommendations and propose lowering the screening age for men to 45.

►**Tab. 1** Baseline Characteristics and colonoscopy results for female patients.

Female patients	45-49	50-54	55-60	Total	p-value
Number of patients (%)	216 (16,7 %)	551 (42,6 %)	526 (40,7 %)	1293 (100 %)	
Ever smoker (%)	51,2	55,2	51,2	52,9	p = 0,4-40
Prediabetic or diabetic (%)	25,5	27,9	38,4	31,8	p < 0,0-01
BMI mean kg/m^2 (SD)	25,4 (4,9)	25,8 (5,2)	26,9 (5,4)	26,2 (5,3)	p < 0,0-01
Any adenoma (%)	7,9	14,3	22,6	16,6	p < 0,0-01
Advanced adenoma (%)	2,3	1,8	4,4	2,9	p = 0,0-38

►**Tab. 2** Baseline Characteristics and colonoscopy results for male patients.

Male patients	45-49	50-54	55-60	Total	p-value
Number of patients (%)	305 (19,9 %)	613 (40 %)	613 (40 %)	1531 (100 %)	
Ever smoker (%)	61,3	60,9	60,1	60,7	p = 0,9-43
Prediabetic or diabetic (%)	45,9	49,1	54,1	50,5	p = 0,0-45
BMI mean kg/m^2 (SD)	27,7 (4,1)	27,6 (4,1)	27,9 (4,2)	27,7 (4,2)	p = 0,5-78
Any adenoma (%)	23,0	29,5	35,1	30,4	p = 0,0-01
Advanced adenoma (%)	5,2	8,0	8,0	7,4	p = 0,2-62

P31 The use of and knowledge about proton pump inhibitors in the general population of Austria

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DOI 10.1055/s-0040-1712282

Background Proton pump inhibitors (PPI) rank among the most prescribed drugs worldwide and are valuable tools in the therapy of acid related diseases. However, they are often prescribed without evident indication and the therapy often exceeds the recommended duration. Motivated by sky-high sales of PPI in Austria and the unparalleled compliance of patients during PPI usage, we inquired the patients' motivation and knowledge regarding their PPI use.

Methods We constructed an anonymous personal interview questionnaire and asked a total of 441 consecutive PPI-buying costumers of 2 pharmacies in Carinthia and one in Styria to participate in the poll.

Results The data collected through the questionnaires showed that 57.3 % of the questioned population took a PPI daily for over 12 months, some even as long as 20 years. 47,7% of long-term users considered to stop PPI intake and 55,6% of this group would consider stopping if their general practitioner recommended it. Regarding their knowledge about PPI therapy, 88.4% of the participants did not know how PPIs work and only 13.9% knew about and could name side effects.

Conclusions Long term intake of PPI is common in Austria. Additionally, patients are oblivious about the working mechanism and possible side effect of PPI. This points toward a negligent amount of medical oversight and calls for a more stringent adherence to the prescription guidelines.

P32 Acute pancreatitis in the northeast of Austria. First epidemiological data from the Pancreas Outpatient Clinic St. Pölten.

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Background Acute pancreatitis is a potentially life-threatening disease and a great economic burden of health care systems around the world, particularly considering the risk of chronification in recurrent diseases. The aim of this register is the evaluation of therapy, aetiopathology, endoscopic interventions and prognosis in these subjects in this region of Lower Austria. Following the positive vote of the ethics committee, work could be started in November 2018.

Methods After informed consent all patients treated at our outpatient clinic who suffered from one or more episodes of acute pancreatitis were included in the register. Basic data (age, gender, BMI), aetiology/risk factors, radio morphological patterns of organ damage and resulting insufficiencies were recorded.

Results In the first six months 25 patients (11 male, 14 female), mean age: 59 (SD ± 12) years, mean BMI: 32 (SD ± 11) kg/m2 were included. Recurrent acute pancreatitis was observed in nine cases. Imaging was documented in 20 patients, 15 showed edematous and five necrotizing processes. Leading cause of acute pancreatitis was biliary obstruction followed by alcohol abuse, often combined with nicotine (details are presented in Table 1). In three cases a pancreoprive diabetes occurred, exocrine insufficiency was present in six patients. In 11 cases no clear trigger could be found.

Conclusion Our first analysis of aetiology in our patients showed a similar distribution as reported in other registers. Investigating the underlying cause can be a challenge and is often a fruitless endeavour. A structured diagnostic workup is particularly necessary in recurrent disease in order to prevent chronification if possible.

▶**Tab. 1** Aetiology of acute pancreatitis in the area of Lower Austria (n = 25).

Primary cause	n	Additional risk factors present (n)	comment
Obstructive (Choledocholithiasis)	7	3 (nicotine abuse, anatomical abnormality, post-ERCP pancreatitis)	
Alcohol related	4	3 (nicotine abuse)	
Nicotine related	(2)	2 (also alcohol related)	
Iatrogenic (ERCP)	1		
Hypertriglyceridemia	1	1 (moderate alcohol/nicotine consumption)	DD mixed genesis
Viral (CMV)	1	no other risk factor	DD idiopathic

P33 Die Auswirkungen eines multispezies-Synbiotikums auf Mikrobiom-assoziierte Nebenwirkungen einer Langzeit-Protonen-Pumpen-Hemmer Therapie: Eine Pilotstudie

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Einleitung Protonenpumpenhemmer (PPI), oder umgangssprachlich auch, Magenschutz" genannt, sind eine unverzichtbare therapeutische Maßnahme in der Gastroenterologie. Trotz allgemein guter Verträglichkeit, treten vor allem bei längerer Einnahme Nebenwirkungen auf, die teilweise mit den einhergehenden Veränderungen des Darmmikrobioms verbunden sind. Der Frage, inwiefern Probiotika die Veränderungen im Mikrobiom und somit das Nebenwirkungsprofil von PPI reduzieren können, wurde in dieser Studie nachgegangen.

Patienten/Methode In einer unverblindeten Pilotstudie wurden 56 PatientInnen mit Langzeit-PPI-Therapie (>6 Monate) rekrutiert, die für drei Monate zusätzlich täglich ein Multispezies-Probiotikum einnahmen. Fäkale Calprotectin- und Zonulin-Werte, Zusammensetzung des Darmmikrobioms, Lebensqualität, Vitamin B12-Spiegel, sowie Routinelaborparameter wurden analysiert.

Ergebnisse Sechsunddreißig PatientInnen, davon 17 Frauen und 19 Männer, beendeten die Studie laut Protokoll. PatientInnen wiesen erhöhte Calprotectin-Werte auf, die durch die Intervention nicht signifikant gesenkt werden konnten (−18.8 ng/mg; 95 %CI: −50.5; 12.9, p = 0.2). Lediglich 17 % der PatientInnen erreichten normale Calprotectin-Werte nach dreimonatiger Intervention. Die Reduktion des fäkalen Zonulins in der gesamten Kohorte erreichte keine statistische Signifikanz, erhöhte fäkale Zonulin-Werte konnten jedoch signifikant reduziert werden (−46.3 ng/mg; 95 %CI: −71.4; −21.2; p < 0.001). Im Mikrobiom wurden nach der Intervention weniger Stomatobaculum (ein Mundkeim) sowie mehr Bacillus (durch das Studienprodukt zugeführt) festgestellt. Aspartat-Transaminase (AST)-Spiegel wurden signifikant reduziert. Die gastrointestinale Lebensqualität verbesserte sich signifikant, vor allem im Bereich der GI-Symptome. PatientInnen zeigten normale Vitamin B12-Spiegel, die sich durch die Intervention nicht veränderten. Albumin, Alkalische Phosphatase und Thrombozytenzahl wurden durch die Intervention innerhalb ihrer Normwerte erhöht.

Schlussfolgerung Zusammenfassend konnten durch die Gabe eines Multispezies-Probiotikums manche Nebenwirkungen einer Langzeit-PPI-Therapie, vor allem GI-Symptome, in Schach gehalten werden. Dennoch sind größere, Placebo-kontrollierte Studien notwendig, um die optimale Dosierung und Dauer der Intervention zu finden.

P34 Konsekutive rechtsanhängige fachspezifische Komplikationen über 5 Jahrean einer Abteilung für Gastroenterologie und Hepatologie

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Methode Dargestellt werden konsekutive medizinische Beschwerdefälle von 2015 bis 2019 einer Abteilung für Innere Medizin und Gastroenterologie und Hepatologie, die zum Schiedsgericht bei der OÖÄK (SG) oder Zivilgericht (ZG) führten. Der Ausgang der Verfahren wird dargestellt und es wird versucht, aus den einzelnen Fällen eine Lehre zu ziehen.

Ergebnisse Es wurden 11 Fälle identifiziert. Je 5 der 11 Fälle hatten mit Endoskopie zu tun und 5 stammten aus der Pankreatologie, zwei aus der Hepatologie und einer aus dem CED-Bereich, 3 Fälle berührten auch oder vorwiegend chirurgische Aspekte.6 der 11 Fälle waren eigentlich ein Kommunikationsproblem, 6 Patienten hegten Zweifel an der korrekten technischen Durchführung der Endoskopie und 3 Fälle stellten Indikationen in Frage, einmal war die Dokumentation nach Patientenmeinung nicht korrekt. Zweimal verzichteten die Patienten auf eine Weiterverfolgung der Beschwerde, einmal erst nach einem Schreiben des Rechtsanwalts des Krankenhauses. Sechsmal kam die Beschwerde zur Patientenanwaltschaft, die daraufhin prüfte (Einholung einer Stellungnahme der Abteilung und des Anwalts des Krankenhauses), dreimal davon wurde daraufhin eine weitere Verfolgung eingestellt, einmal davon mit einer Zahlung aus dem Patienten-Entschädigungsfond; drei Verfahren sind bei der Patientenanwaltschaft noch anhängig. Eine Beschwerde mündete in eine Anklage beim Zivilgericht und endete mit einem klagsabweisenden Urteil. Wir weisen darauf hin, dass es zeitgleich eine Reihe weiterer Komplikationen gab, die nicht angezeigt wurden oder nicht fachspezifisch waren oder nicht-medizinische Aspekte betrafen.

Schlussfolgerung Endoskopie und Pankreatologie sind an unserer Abteilung am stärksten von Klagerisiko behaftet. Verbesserungen bei uns sind in der Indikationsstellung, in der Dokumentation und vor allem in der Kommunikation möglich.

P35 Diagnosespezifische Handlungsempfehlungen für Hausärzte

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Zielsetzung Diagnosespezifische Empfehlungen sollen niedergelassene Allgemeinmediziner bei der Betreuung von Patienten mit komplexen gastroenterologischen, hepatologischen und metabolischen Erkrankungen unterstützen. Dadurch soll der Bedarf der Patienten an Kontakten zu Spitalsambulanzen vermindert werden. Die selbständige Tätigkeit des Allgemeinmediziners soll aufgewertet und unterstützt werden. Dem Patient soll so mehr wohnortnahe kompetente Betreuung angeboten werden.

Methodik Die Inhalte werden laufend in Zusammenarbeit mit Hausärzten korrigiert und mit Fachleuten aus anderen Bereichen ergänzt (Checklisten; Diätologie, Psychologie, Sport). Die einzelnen Blätter können Arztbriefen beigelegt, elektronisch angehängt oder unabhängig verteilt werden. Es gibt sie als „Booklet“ zusammengefasst und sie stehen auch online zur Verfügung. Auf das Urheberrecht wird verzichtet, die Inhalte können unentgeltlich von allen verwendet werden.

Ergebnisse Zurzeit gibt es Artikel zu Refluxkrankheit und Barrett, Dyspepsie, chronische Pankreatitis, Pankreaszysten, Durchfall, Gewichtsverlust, Obstipation, Mb. Crohn, Colitis ulzerosa, colorektale Polypen, Reizdarm, Divertikulitis, erhöhte Leberwerte, Leberherde, Leberzirrhose, Fettleber, Primär biliäre Cholangitis, Primär und Sekundär Sklerosierende Cholangitis, Diabetes mellitus und Hyperlipidämie. Kolleginnen und Kollegen anderer Fachbereiche haben bewegungstherapeutische, ernährungstherapeutische und psychologische Aspekte beigesteuert. Fünf Beispiele werden gezeigt.Um die Wirksamkeit der Maßnahme zu evaluieren wurden qualitative Interviews mit 13 Hausärzten geführt: auf einer Notenskala von 1 (trifft vollständig zu) bis 5 (trifft gar nicht zu) wurde „informativ“ mit 1,23 +/- 0,6 und „hilfreich“ mit 1,77 +/- 0,73 bewertet.

Schlussfolgerung Wir hoffen, dass diese Initiative bei entsprechender Verbreitung – gemeinsam mit der Übertragung von Tätigkeiten an speziell ausgebildete Pflege-ExpertInnen – auch die Wartezeiten in unseren Spezialambulanzen verringern wird, sodass mehr neue Patienten früher gesehen werden können.

P36 Diagnosespezifische Gesundheitsinformationen für Laien

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Vorsorgeangebote werden nur von wenigen in Anspruch genommen, Medikamente werden nicht oder nicht lange genug eingenommen oder Kontrolluntersuchungen werden vergessen. Zumindest zum Teil passiert das wegen mangelndem Wissen der Betroffenen um Gesundheit, um Krankheit und um die Zusammenhänge von Früherkennung, Compliance und Kontrollen mit Lebensqualität, Komplikationen oder Mortalität.

Wir haben laienverständliche Informationen zu Themen unseres Fachbereichs erstellt. Bisher wurden Informationen zu Refluxkrankheit/Barrett, Dyspepsie/Ulkus, Gallensteine, chronische Pankreatitis, Reizdarm, Divertikel/Divertikulitis, Darmpolypen, Fettleber und Leberzirrhose fertig gestellt. Darin wird neben einer kurzen Darstellung des Wesens der Krankheit besonders auf folgende Fragen eingegangen: „kann ich selber Entstehung und Verlauf beeinflussen?“, „wann soll ich den Hausarzt aufsuchen?“, „welche Impfungen sind ratsam?“, „wann soll ich mich an eine spezialisierte Stelle (Spitalsambulanz, Ambulatorium, Facharztordination) wenden?“, „welche Routinekontrollen sind sinnvoll?“. - Kolleginnen und Kollegen anderer Fachbereiche haben bewegungstherapeutische, ernährungstherapeutische und psychologische Aspekte beigesteuert.

Die einzelnen Blätter liegen in den Ambulanzen zur freien Entnahme auf, können Arztbriefen beigelegt und elektronisch angeboten werden. Auf das Urheberrecht wird verzichtet, die Inhalte können unentgeltlich von allen verwendet werden.

Fünf Beispiele werden gezeigt. Die Wirksamkeit der Maßnahme soll durch qualitativeInterviews mit Patienten evaluiert werden.

P37 Ein seltener und lange Zeit unklarer Fall: IgG4 - assoziierte Ösophagitis

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Einleitung Obwohl IgG4 nur einen geringen Anteil der Serum-Immunglobuline ausmacht und bei immunologischen Mechanismen eine untergeordnete Rolle spielt, steigt die Prävalenz der IgG4- assoziierten Erkrankungen. Nahezu alle Organe können betroffen sein, wobei ein Befall der Speiseröhre selten auftritt. Anhand eines rezenten Falls berichten wir über die Schwierigkeiten der Diagnosestellung sowie der Therapie.

Fallbericht Ein 52-jähriger männlicher Patient wurde 2017 auf Grund rezidivierender oraler Läsionen sowie einer zunehmender Odynophagie erstmals an unsere Abteilung vorstellig. Anamnestisch waren bei dem kaufmännischen Angestellten keine Vorerkrankungen zu erheben. Im Status fielen buccal ein kleines fibrinbelegtes Ulcus sowie weißliche, streifige Veränderungen auf. Die initiale Gastroskopie zeigte im proximalen und distalen Drittel der Speiseröhre mehrere tiefe fibrinbelegte Ulzerationen mit Randwall. Die entsprechende Histologie zeigte eine hochgradig chronisch und aktiv entzündliche Veränderung unklarer Ursache . Zur Diagnosestellung wurden in den

darauffolgenden 2 Jahren zahlreiche laborchemische sowie bildgebende Verfahren zur Abklärung einer ulzerösen Ösophagitis durchgeführt. Diese waren alle unauffällig. Nach mehrmaligen Falldiskussionen mit der Pathologie sowie Rücksprache mit internationalen PathologenInnen waren mittels immunhistochemischer Untersuchung der Biopsien zahlreiche IgG4-positive Plasmazellen am Grund eines Ulcus des proximalen Ösophagus nachweisbar. Nach Einleitung einer Steroidtherapie kam es zu einem vollständigen Rückgang der Beschwerden sowie der endoskopischen Läsionen. Nach Absetzen der Therapie traten die Läsionen jedoch nach wenigen Wochen erneut auf. Eine Therapie mit Azathioprin erbrachte keinen Effekt. Um eine dauerhafte systemische Steroidtherapie zu vermeiden, wurde ein Therapieversuch mit Jorveza® unternommen, worunter der Patient derzeit beschwerdefrei ist.

Diskussion In der rezenten Literatur finden sich 9 Fallberichte einer IgG4-assoziierten Ösophagitis. Neben ösophagealen Ulzerationen werden Strikturen sowie Pseudotumore beschrieben. Die Diagnosestellung erfolgt gleich wie bei anderer Organbeteiligung anhand folgender Kriterien: Organvergrößerung, Serum-IgG4-Spiegel >135 mg/dL, typische histopathologische Veränderungen mit >10 IgG4+ Plasmazellen/HPF und IgG4+/IgG+ Zell-Ratio von >40 %. Die meisten PatientenInnen sprechen gut auf Steroide an. Ein Therapieversuch mit Jorveza® stellt eine neue Behandlungsoption für diese Patientengruppe dar.

P38 Chronic pancreatitis in the northeast of Austria. First epidemiological data from the Pancreas Outpatient Clinic St. Pölten

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Background Chronic pancreatitis is a lifelong disease and sufficient patient treatment is a challenging issue. Diagnosis is often difficult and we expect a high number of cases of unknown origin. It is associated with potentially massive restriction in quality of life and can occur with severe adverse events. Treatment is difficult and resource-consuming, without any known potential cure. Pain, exocrine and endocrine insufficiency, related with malnutrition and pancreatic carcinoma are some of the well-known long term complications.

Methods In 2018 we established an outpatient clinic for pancreatic related diseases and a register for pancreatitis. We want to accompany patients who are suffering from pancreatic disease, managing complex courses and working out advanced treatment strategies. In this abstract we want to give an epidemiological overview from our cohort between November 2018 and May 2019. In the analysed period 15 people suffering from chronic pancreatitis were included after informed consent. Basic data (etiology, risc factors, radiomorphological patterns of organ damage and resulting insufficiencies) were acquired.

Results 12 male patients and 3 female patients were registered. 11 patients out of 13 were smoking. 9 patients suffered from exocrine insufficiency at first outpatient visit. Two patients had a severe exocrine insufficiency. Three patients had an endocrine insufficiency, two had a pre-diabetic metabolism. According to the M-ANNHEIM classification 5 patients had a pain level of 1 or higher.

▶**Tab. 1** BMI at initial presentation.

BMI <18,5	BMI 18,5-24,9	BMI 25-29.9	BMI >30
0	7	2	4

ConclusionPatients with chronic pancreatitis are a heterogenous collective. Many patients are already suffering of severe complications at inclusion. Our goal for the future is to gain more patients at earlier stages of the disease, so that we are able to preserve quality of life as long as possible.

Hepatologie

P39 Comparison of the diagnostic quality of aspiration and core-biopsy needles for transjugular liver biopsy

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Aim Liver biopsy remains essential for diagnostic work-up of patients with liver disease. Here we compared aspiration vs. core-biopsy needles for transjugular liver biopsy (TJLB) in patients undergoing hepatic venous pressure gradient (HVPG) measurements in regard to the diagnostic value of the obtained samples

Methods 84 patients undergoing TJLB between 06/2017-12/2018 were prospectively included. Liver biopsy specimens were systematically evaluated for quantitative and qualitative criteria such as number of portal tracts (PT), sample length and fragmentation. These quality parameters of liver biopsy specimens obtained by aspiration needle vs. core-biopsy needle were compared, including sub-groups of patients stratified according to liver stiffness measurements (LSM) and HVPG.

Results In direct comparison of paired TJLB specimens, core-biopsy samples were significantly longer (median 12 vs. 9mm, $p = 0.012$), tended to contain more PT (median 8 vs. 6, $p = 0.064$) and were less fragmented ($p < 0.001$), which resulted in better confidence for liver fibrosis assessment ($p = 0.035$). However, a superior quality in terms of less fragmentation of core-biopsy specimens ($p < 0.05$) was only confirmed in patients with HVPG ≥10mmHg or LSM >40kPa. In contrast, the aspiration needle provided significantly longer samples in patients with HVPG <10mmHg (median 21 vs. 12mm, $p = 0.007$) or with LSM <20kPa (median 21 vs. 11mm, $p = 0.025$).

Conclusions In patients with HVPG ≥10mmHg or LSM >40kPa TJLB should be performed by core-biopsy needles, while the aspiration needle provides high quality liver biopsy specimens in patients with HVPG <10mmHg or LSM <20kPa.

P40 Non-invasive risk stratification by VCTE and VITRO after HCV eradication

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Background & Aims Risk stratification after cure from hepatitis C virus (HCV) infection remains a clinical challenge. We investigated the predictive value of non-invasive surrogates of portal hypertension (liver stiffness measurement (LSM) by vibration-controlled transient elastography (VCTE) and von

Willebrand factor/platelet count ratio (VITRO)) for development of hepatic decompensation and hepatocellular carcinoma in patients with pre-treatment advanced chronic liver disease (ACLD) who achieved HCV-cure.

Methods 276 patients with pre-treatment ACLD and information on pre- and post-treatment (follow-up (FU)) LSM and VITRO were followed for a median of 36.6 months after the end of interferon-free therapy.

Results FU-LSM (AUROC: 0.875 (95 %CI: 0.796-0.954)) and FU-VITRO (AUROC: 0.925 (95 %CI: 0.874-0.977)) showed an excellent predictive performance for hepatic decompensation. Both parameters provided incremental information and were significantly associated with hepatic decompensation in models adjusted for previous hepatic decompensation and FU-MELD/-albumin.

A previously proposed combined approach (FU-LSM < 12.4kPa and/or FU-VITRO < 0.95) to rule-out clinically significant portal hypertension (CSPH, HVPG≥ 10mmHg) at FU assigned the majority (57.3 %) of patients to the low-risk group - none of these patients developed hepatic decompensation. In contrast, in patients in whom FU-CSPH was ruled-in (FU-LSM > 25.3kPa and/or FU-VITRO > 3.3; 25.0 % of patients), the risk of hepatic decompensation at 3-years post-treatment was high (17.4 %). Patients within the diagnostic grey-zone for FU-CSPH (17.8 % of patients) had a very low risk of hepatic decompensation during FU (2.6 %).

Finally, VITRO also predicted hepatocellular carcinoma development.

Conclusion FU-LSM/FU-VITRO are strongly and independently predictive of post-treatment hepatic decompensation in HCV-induced ACLD. An algorithm combining these non-invasive markers not only rules-in or rules-out FU-CSPH, but also identifies populations at negligible vs. high risk for hepatic decompensation. FU-LSM/FU-VITRO are readily accessible and enable risk stratification after SVR, and thus, facilitate personalized management.

P41 Personalisierte Ernährungsmedizin am Beispiel einer Patientin mit Propionazidämie

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Einleitung Die Propionazidämie ist eine autosomal-rezessiv vererbte Stoffwechselstörung, bei der es durch eine Defizienz der Propionyl-CoA-Carboxylase zu einer Akkumulation von Propionyl-CoA und anderen toxischen Abbauprodukten verzweigtkettiger Aminosäuren kommt. Die anfallenden Metabolite führen zu Organschäden. Die Prävalenz dieser Erkrankung liegt bei etwa 1:50.000. In den letzten Jahren konnte die Mortalität signifikant verringert werden. Nach wie vor haben die betroffenen Kinder (und jungen Erwachsenen) eine hohe Morbidität. Die empfohlene Therapie ist eine angepasste Ernährungstherapie, bei der neben der Vermeidung von Katabolie auf eine protein-arme Ernährung geachtet wird (1,2). Ziel ist die ausreichende, altersentsprechende und regelmäßige Zufuhr von Kalorien, um den Abbau von körpereigenem Protein und damit dem Anfall verzweigtkettiger Aminosäuren zu vermeiden (1,2).

Kasuistik Wir präsentieren eine 34-jährige Patientin, welche im Rahmen einer kardialen Dekompensation aufgenommen wurde. Diese vermutlich durch eine chronische Katabolie verursacht. Vorbekannte Endorganschäden waren eine Einschränkung der Herzfunktion sowie mehrere epileptische Anfälle. Vor dem jetzigen Aufenthalt war die Patientin mehrere Jahre stabil, es kam lediglich zu einzelnen fokal epileptischen Anfällen, meist durch emotionalen Stress ausgelöst. Initial präsentiert sich die Patientin im reduzierten Allgemeinzustand, ist jedoch nicht sauerstoffpflichtig und hat in der Aufnahmeechokardiographie eine EF von 21 %. Es wird eine angepasste parenterale Ernährung begonnen (Tabelle 1). Unter dieser mit zusätzlicher kardial medikamentöser Maßnahmen (Levosimendan, i.v. Diurese) stabilisiert sich der Zustand der Patientin. Anfänglich wird die Hälfte des Kalorienbedarfes parenteral gedeckt (ca. 750 kCal), und der mit ca. 0,8 bis 0,9 g Protein pro kg Körpergewicht angenommene Proteinbedarf teilweise durch orale Proteinzusätze ohne verzweigtkettige Aminosäuren gedeckt. Da anamnestisch nur ca. 25 % des Kalorienbedarfes verlässlich oral gedeckt werden, wird zur Unterstützung im Verlauf des Aufenthaltes eine PEG-Sonde angelegt. Insgesamt kommt es nach 15 Tagen zu einer Besserung der kardialen Situation (EF 30 %, FS 19,5 %).

Zusammenfassung Die hier präsentierte Patientin mit einer Propionazidämie zeigt beispielhaft wie eine personalisierte Ernährungsmedizin therapeutisch eingesetzt werden kann.

►**Tab. 1** Zusammensetzung parenterale Ernährung.

Glucose 20 %	**1000 ml**	**800 kcal**
NaCl 1 Molar	120 ml	
KCl 1 Molar	20 ml	
L-Carnitin 1g/5ml	10 ml	
Smoflipid 20 % (Sojaöl, Olea europaea, Omega-3-Triglycerid, Triglyceride)	250 ml (50 g Fett)	500 kcal
Pädamin 7,4 % (Acetylcystein, Glycin, Methionin, Tryptophan, Valin, Threonin, Phenylalanin, Isoleucin, Alanin, Histidin, Asparaginsäure, Taurin, Ornithin, Aspartat, N-Acetyltyrosin, Lysin Glutamat, Serin, Prolin, Leucin, Tyrosin, Arginin, Glutaminsäure)	250 ml (18,5 g EW)	74 kcal
1 A Vitalipid f. Erwachsene (Ergocalciferol, Phytomenadion, Retinol, Tocopherol)	10 ml	
1 A Soluvit (Biotin, Cyanocobalamin, Folsäure, Pyridoxin, Thiamin, Pantothensäure, Ascorbinsäure, Natrium Riboflavinphosphat)	10 ml	
Tracel (Kalium, Natriumfluorid, Zink, Dinatrium Selenit, Molybdänsäure, Manganchlorid, Kupferdichlorid, Eisen)	10 ml	
Gesamt	1680 ml	1374 kcal

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P42 Increased resting respiratory burst and decreased phagocytosis and chemotaxis: how bile acids impair neutrophil response in liver cirrhosis

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Background Mortality in liver cirrhosis is highly increased upon the development of extrahepatic complications. Bacterial infections are a frequent and life-threatening complication of liver cirrhosis, reflecting the immune response deficiency of these patients. Neutrophils of liver cirrhotic patients were reported to have impaired function, including changes in phagocytosis, respiratory burst and chemotaxis. The possible triggers of this dysfunction are actively studied to find the ways for prevention of infectious complications. Our hypothesis is that serum bile acids (BA) may disturb normal functioning of circulating neutrophils in liver cirrhosis. Our aim was to study functional response of neutrophils under the influence of cirrhotic concentrations of BA.

Methods Human neutrophils from healthy volunteers were exposed to different concentrations of BA (Sigma-Aldrich, Vienna) in a cirrhotic range from 45min to 1hour at 37C. Phagocytosis was measured with Phagotest kit (Glycotope, Heidelberg) by flow cytometry. Total respiratory burst was assessed by chemiluminescence reading in the presence of horseradish peroxidase and luminol. Chemotaxis was measured with ChemoTx® Disposable Chemotaxis Systems (Neuro Probe, Gaithersburg) and ibidi chemotaxis chambers (ibidi GmbH, Gräfelfing), fMLP (N-formyl-Met-Leu-Phe) was used as a chemoattractant.

Results Phagocytic activity of neutrophils was significantly depressed by chenodeoxycholic acid (CDCA) up to 60 % (p = 0.029). Resting neutrophils started to produce reactive oxygen species in response to CDCA and lithocholic acid (LCA), resulting in overall increased resting respiratory burst in the presence of BA mixture mimicking cirrhotic serum BA composition (p = 0.003). Neutrophil chemotaxis was decreased in presence of deoxycholic acid (p = 0.043), CDCA (p = 0.030), LCA (p = 0.018) and their tauro and glyco conjugates, tauro (p = 0.014) and glyco (p = 0.044) ursodeoxycholic acids.

Conclusion Neutrophil function is affected by exposure to the elevated concentrations of BA, predominantly CDCA and LCA. This suggests that the modification of BA composition can serve as a potential target for treatment of immune dysfunction in liver cirrhosis.

P43 Vitamin A deficiency is associated with disease severity and portal hypertension in patients with advanced chronic liver disease

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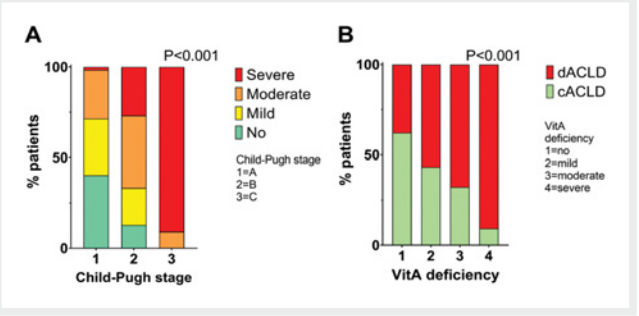
Background & Aims The liver regulates vitamin A (VitA) homeostasis under physiological conditions, however the impact of chronic liver disease is unknown. Thus, we investigated the relation between severity of liver disease, portal hypertension (PHT) and VitA deficiency ($VitA_{Def}$).

Methods VitA serum levels were assessed in 219 patients with advanced chronic liver disease (ACLD with hepatic venous pressure gradient [HVPG] ≥ 6mmHg). Patients with hepatocellular carcinoma, pre- or posthepatic portal hypertension, TIPS or liver transplantation were excluded.

Results Most patients were male (n = 139; 63.5 %), median age was 57.5 (49.4-64.9) years, and alcoholic liver disease (n = 91; 41.6 %) as well as viral hepatitis (n = 42; 19.2 %) were the main etiologies of ACLD. 28(12.8 %) patients had HVPG 6-9mmHg, 59(26.9 %) 10-15mmHg, and 132(60.3 %) ≥ 16mmHg.Only 58(26.5 %) patients had normal VitA serum levels (1.05-2.45µmol/L), while 53(24.2 %) had mild (0.67-1.04µmol/L), 65(29.7 %) had moderate (0.35-0.66µmol/L), and 43(19.6 %) had severe $VitA_{Def}$ (< 0.35µmol/L). The proportion of patients with decompensated ACLD (dACLD) steadily increased with severity of $VitA_{Def}$: Decompensated ACLD was present in 37.9 % with no, 56.6 % with mild, 67.7 % with moderate, and 90.7 % with severe $VitA_{Def}$ (P < 0.001).VitA levels correlated with HVPG (R=-0.394), MELD (R=-0.575) and Child-Pugh (CP) score (R=-0.661; all P < 0.001). CP score (per point; OR 2.31; 95 %CI 1.61-3.31; P < 0.001), but not HVPG, was independently associated with $VitA_{Def}$.

Conclusion $VitA_{Def}$ is common in ACLD and strongly associated with hepatic dysfunction and portal hypertension. The prevalence of hepatic decompensation increases with severity of $VitA_{Def}$.



▶ **Abb. 1**

P44 Fibroscan® probe selection for lean adults

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Background&Aims Fibroscan® (Echosens, France) to assess liver stiffness (LS) non-invasively and painlessly is commonly used to determine the degree of fibrosis/cirrhosis. The manufacturer proposes to use the S-probe in patients with a thoracic circumference (TC) between 45cm and 75cm (TC < 75 group) and the M-probe for patients above 75cm (TC > 75 group), always in fasting condition. We compared the influence of TC as well as the impact of a standardized liquid meal on the LS of the S- and M-probe in healthy volunteers.

Methods Healthy volunteers were assessed with the S- and the M-probe in fasted state and 30, 60 and 120 minutes after a standardized meal (200 ml Fresubin Energy Drink, Fresenius-Kabi, Germany). Liver stiffness and controlled attenuation parameter (CAP) was assessed.

Results 50 heathy volunteers (26 female, 24+/-3 years) 22 with a TC < 75 and 28 with a TC > 75 (range 58-99cm) were included. The TC < 75 group was mainly female (n = 19, p < 0.001) with lower BMI (p < 0.001). LS

▶ **Tab. 1**

	TC <75	TC>75
LS S-Probe baseline	4.6 (3.7;5.2)	5.3 (4.6;5.6)*
LS S-Probe 30min	5.0 (4.3; 5.4)	5.6 (5.0;6.8)*
LS S-Probe 60min	4.6 (3.7;5.2)	4.5 (4.1;5.1)$
LS S-Probe 120min	4.2 (3.7;5.4)	5.0 (4.8;5.1)
LS M-Probe baseline	3.8 (3.3;4.6)	4.6 (4.2; 5.3)*
LS M-Probe 30min	4.3 (3.8;4.6)	4.8 (3.8;5.2)
LS M-Probe 60min	3.8 (3.7;4.3)	4.6 (4.1;4.8)*
LS M-Probe 120min	3.6 (3.5;4.4)	4.4 (3.8;4.8)*
CAP M-Probe baseline	185 (170;194)	199 (172;220)
CAP M-Probe 30min	176 (152;192)	189 (175;214)
CAP M-Probe 60min	165 (143;181)	197 (182;211)*
CAP M-Probe 120min	156 (144;174)§	195 (182;209)*

LS (kPa) and CAP (dB/m).
p<0.05 compared to TC<75; $p<0.05 compared to baseline

measurements were significantly higher in the TC>75 group. Comparison of the measurements obtained with the S-probe and the M-probe showed excellent agreement with minimal bias on various tests (Spearman correlation r=0.754, p<0.001, Bland-Altman bias 0.6 +/- 0.9 kPa, linear regression r^2=0.557, p<0.001). After a standardized meal, no changes in LS were observed compared to baseline in any group. In volunteers with TC>75. CAP remained unchanged in the TC>75 group after the meal, but decreased slightly in the TC<75 group after 120min. (Table)

Conclusion The S- and M-probe show good agreement in lean adults both in subjects below and above 75cm TC and the intake of the standardized meal did not have a relevant influence on LS. In conclusion the probes may be used interchangeable in lean adults.

P45 Beta blocker therapy seems to reduce systemic inflammation in cirrhotic patients with portal hypertension - a paired HVPG study

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Background and Aims Non-selective beta-blockers (NSBBs) decrease portal pressure - as clinically assessed by measurement of the hepatic venous pressure gradient (HVPG). NSBBs may also exert anti-inflammatory activity.

Method We assessed markers of systemic inflammation (WBC, CRP, IL-6, PCT) at sequential HVPG measurements, i.e. without NSBB at baseline and with NSBB at follow-up. The impact of NSBB on these biomarkers was evaluated by paired analyses stratified by Child-Turcotte-Pugh stage (CTP) and HVPG-response (≥20% relative decrease/decrease to an absolute value of <12mmHg).

Results 307 patients were included: median age: 55 years; CTP-A = 82 (26.7%), B = 163 (53.1%), C = 62 (20.2%). 107 patients achieved HVPG-response (34.9%). NSBB therapy resulted in a significant decrease of WBC (median: -2%; median 4.78 [IQR 3.12] to 4.65 [2.95] G/L; p=0.011), and of CRP levels (-14%; 0.48 [0.99] to 0.35 [0.72] mg/dL; p < 0.001), while overall no significant effects were observed on IL-6 (10.83 [17.16] to 12.27 [15.06] pg/mL; p=0.578) and PCT (0.13 [0.14] to 0.11 [0.10] ng/mL; p=0.292). CTP-C patients showed the most pronounced reductions in WBC (-16%; 5.87 [4.14] to 5.09 [2.78] G/L; p < 0.001), CRP (-26%; 1.34 [1.89] to 0.92 [1.31] mg/L; p = 0.007), and PCT levels (-17%; 0.20 [0.07] to 0.15 [0.08] ng/mL; p=0.022). HVPG responders showed significantly stronger decreases of WBC (-7%; 5.01 [3.12] to 4.67 [3.13] G/L vs. ±0%; 4.53 [2.96] to 4.60 [2.77] G/L; p=0.008) but similar decreases of CRP (-17%; 0.48 [1.33] to 0.35 [0.82] mg/dL vs. -13%; 0.49 [0.82] to 0.35 [0.58] mg/dL; p=0.574), as compared to HVPG non-responders.

Conclusion NSBB therapy seems to exert systemic anti-inflammatory activity as evidenced by reductions of WBC and CRP levels. Interestingly, this effect was most pronounced in CTP-C patients and HVPG-responders. The potential impact on outcomes should be further investigated.

P46 Humoral biomarkers of hemodynamic derangement in distinct stages of portal hypertension

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Background Portal hypertension affects systemic hemodynamics and thus, impacts on the renin/aldosterone, natriuretic peptide (proBNP), and arginine-vasopressin (AVP) systems.

Method Plasma levels of renin/aldosterone, proBNP and copeptin (AVP biomarker) were assessed in cirrhotic patients undergoing measurement of the hepatic venous pressure gradient (HVPG): n=115 patients (17.3%) showed an HVPG 6-9mmHg, n=170 (25.6%) of 10-15mmHg and n=379 (57.1%) of ≥16mmHg.

Results 664 patients (median age 56.7 years; Child-A: 51.7%, B: 31.9%, C: 16.4%) without non-selective beta-blocker therapy were included. With increasing severity of PH, we recorded lower mean arterial pressure (MAP) (p=0.031), higher heart rate (p<0.001) and lower serum sodium (p<0.001) levels.

Hepatic dysfunction resulted in higher renin (Child-A: median 17.7 [IQR 31.4], B: 90.0 [247.1], C: 238.0 [833.1] µIU/mL; p<0.001), aldosterone (Child-A: 75.5 [76.5], B: 217.0 [270.0], C: 209.0 [704.2] pg/mL, p<0.001) and proBNP (Child-A: 70.3 [105.7], B: 182.4 [379.5], C: 259.2 [524.6] pg/mL; p<0.001) levels.When stratifying patients by HVPG (6-9, 10-15 and ≥16mmHg), levels of proBNP (86.1 [134.0], 63.6 [118.0], 132.2 [208.9] pg/mL; p=0.002), renin (21.4 [53.4], 25.1 [70.9], 65.4 [219.6] µIU/mL; p<0.001) and aldosterone (73.0 [82.0], 88.0 [122.7], 127.5 [431.2] pg/mL; p=0.024) progressively increased with PH severity.Copeptin increased from Child-A: 7.3 [10.8], to B: 15.7 [30.6] and C: 14.5 [42.1] pmol/L (p<0.001), but there was no linear associations with HVPG (6-9mmHg: 8.1 [11.7], 10-15mmHg: 5.6 [8.0], ≥16mmHg: 10.7 [18.6] pmol/L; p=0.031).Renin (p<0.001) and proBNP (p=0.044) were elevated in patients with arterial hypotension (MAP<82mmHg). Hyponatremia (<130mmol/L) was associated with increased levels of copeptin (p=0.025), renin (p<0.001) and aldosterone (p=0.003).

Conclusion PH severity affects humoral compensatory pathways of hemodynamic homeostasis as evident by proBNP and renin/aldosterone activation, while AVP is mostly activated by hepatic dysfunction. In ACLD patients, arterial hypotension is linked to renin and proBNP release, whereas hyponatremia is associated with renin/aldosterone and AVP secretion.

P47 Impact of genetic variants on regression of portal hypertension and clinical outcomes in ACLD patients after SVR

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Objectives Single nucleotide polymorphisms (SNPs) including PNPLA3 rs738409 C>G, TM6SF2 rs58542926 C>T, MBOAT7 rs641738 C>T, and HSD17B13 rs72613567 T>TA impact on progression to advanced chronic liver disease(ACLD) in patients with hepatitis C virus (HCV) infection. However, their impact on disease regression after HCV cure remains unclear.

Methods We investigated the impact of genetic variants in PNPLA3, TM6SF2, MBOAT7, and HSD17B13 on the regression of portal hypertension, as assessed by (I) changes in hepatic venous pressure gradient(HVPG), (II) non-invasive surrogates such as liver stiffness measurement (LSM), von Willebrand factor (VWF), and the VWF/platelet count ratio (VITRO), and (III) clinical events in 339 HCV patients with pre-treatment ACLD who achieved sustained virologic response (SVR) to interferon-free therapies.

Results Patients harboring a PNPLA3 risk allele had more advanced liver disease at baseline, confirming its impact on liver disease progression.In a subgroup of 88 patients undergoing paired HVPG measurements the PNPLA3/TM6SF2/MBOAT7/HSD17B13 genotypes were not associated with changes in HVPG. In line, changes of LSM, VWF and VITRO as non-invasive surrogates of portal hypertension were comparable between carriers and non-carriers of the PNPLA3 rs738409 G-allele in the overall cohort.Finally, carriage of PNPLA3 rs738409 G-allele was not associated an increased risk for development of hepatic decompensation or hepatocellular carcinoma, nor with liver-related mortality during a median follow-up of 38 months after SVR.

Conclusions Genetic variants in PNPLA3/TM6SF2/MBOAT7/HSD17B13 do not impact on the regression of portal hypertension and clinical outcomes after HCV cure in patients with pre-treatment ACLD.

P48 Real-Life Perceptions on the management and prevention of variceal bleeding in Specialized Gastroenterology Units in Austria

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Background Variceal bleeding is a serious complication of portal hypertension in cirrhotic patients. Here we aimed to evaluated the perceptions of Spezialized Gastroenterologists/Hepatologists in regard to the management and prevention of variceal bleeding. **Methods** We designed a standardized written survey for physicians specialized or currently specializing for Gastroenterology/Hepatology in secondary/tertiary Care Centers in Austria. The physicians were asked to provide their responses spontaneously and anonymously.

Results 70 physicians completed the survey. After a gastroscopy with no varices, most endoscopists (30 %) would recommend a follow-up gastroscopy in 1 year in patients with compensated liver cirrhosis. In the case of small varices, 81.5 % would use non-selective betablockers (NSBB) for primary prophylaxis (PP). Additional endoscopic band ligation for patients with large varices and red spots would be recommended by 51.4 % even in PP. The majority (57.7 %) of physicians would perform a surveillance gastroscopy in patients with adequate HVPG-response to NSBB. Knowledge on inclusion criteria of early-TIPS was reported in 54.3 %, but only 20 % of them could report these inclusion criteria correctly. The majority (87.1 %) reported to use a combination of NSBB and EBL for secondary prophylaxis (SP). More than half of the physicians (57.1 %) would not recommend a TIPS implantation in case of NSBB intolerance in SP. In case of spontaneous bacterial peritonitis, 45.7 % would pause NSBB therapy, 37.1 % would continue NSBB therapy, and 17.2 % would terminate the therapy.

Conclusion The results of this survey indicate that current portal hypertension guidelines seem to be widely known. However, endoscopic surveillance and EBL is overused in the setting of PP. Knowledge on the correct use of early-TIPS needs to be improved.

P49 Real-Life Perceptions on the Use of Albumin in Patients with Liver Cirrhosis in Specialized Gastroenterology Units in Austria

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Background Human albumin (HA) is widely used in patients with liver cirrhosis. Guidelines on the evidence-based use of HA have been published. However, data on the adherence to guidelines by Specialists for Gastroenterology/Hepatology in Austrian Secondary/Tertiary Care centers is scarce.

Methods We designed a standardized written survey on the use of HA. Specialists for Gastroenterology/Hepatology at secondary/tertiary Care Centers in Austria were asked to provide their responses spontaneously and anonymously.

Results 88 physicians completed the survey. 89.8 % of them had unrestricted access to HA in their Center. Most physicians would use HA for hepatorenal syndrome (n = 53, 60.2 %), after paracentesis (n = 46, 52.3 %) and for hypalbuminemia (n = 32, 36.3 %). The majority (86.4 %) would use HA in hepatorenal

syndrome in doses suggested by the austrian guidelines. 73.3 % would give 200mL of 20 % HA after paracentesis of 5L ascites. Two-third (n = 56, 63.6 %) of the interviewed specialists would use HA in patients with spontaneous bacterial peritonitis (SBP), but only 11.4 % would use the recommended doses.In addition, 45.5 % would use HA for acute kidney injury (AKI) in cirrhotic patients. 20.5 % would use HA for infections/septic shock in patients with cirrhosis, even if serum albumin is in normal range. 48.9 % (n = 43) would not use HA in cirrhotic patients with hyponatremia.One-third (n = 26, 29.5 %) of the physicians also administer HA in patients with acute variceal bleeding and new onset hepatic encephalopathy.

Conclusion HA is largely available without restrictions in Austrian Secondary/Tertiary Care centers for patients with cirrhosis. While there is good knowledge about HA indications in the setting of cirrhosis, HA dosing is not well standardized and mostly underdosed. Considerable variability exists with the use of HA for AKI, septic shock/infections, hyponatremia, variceal bleeding and hepatic encephalopathy.

P50 Factors associated with the presence of cirrhotic cardiomyopathy defined according to the new Multidisciplinary Diagnostic Criteria

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Background and aim Recently published new criteria of cirrhotic cardiomyopathy from a multidisciplinary consortium define systolic dysfunction of the left ventricle as ejection fraction (EF)≤50 % and/or global longitudinal strain (GLS) < -18 or > -22 %,while the diastolic dysfunction is diagnosed when three of the following conditions are present: average E/e' > 14, peak tricuspid regurgitation velocity > 2.8 m/s, septal e' < 7cm/s, left atrial volume index > 34 ml/m^2.Our **aim** was to assess the factors associated with the presence of cirrhotic cardiomyopathy defined according to the new diagnostic criteria.

Methods Consecutive patients with liver cirrhosis without structural heart disease,HCC outside Milan criteria,presence of TIPS and with optimal acoustic echocardiography window were included.Conventional and speckle-tracking echocardiography (Vendor GE, EchoPAC PC software) was performed by EACVI TTE certified investigator.Liver stiffness (LS) was assessed by transient elastography (TE, Fibroscan®, Echosens) and share wave elastography (SWE; Hitachi Arietta V70).Reliable results were defined as median value of 10 valid measurements with an IQR/Med < 30 % and expressed in kPa.Control attenuation parameter (CAP) assessed by TE was used to quantify liver steatosis.

Results 100 patients were evaluated, but 10 did not fulfill the inclusion criteria.The final analysis included 90 patients, with mean age of 56.6 ± 11.1 years (67.7 % males),70 % with alcoholic etiology and 57.8 % with compensated cirrhosis.LS could be evaluated in 83.3 % of cases by TE and in 97.7 % of patients by Hitachi SWE.According to the new criteria, cirrhotic cardiomyopathy was diagnosed in 55/90(61.1 %) of patients:systolic dysfunction in 57.7 % (reduced EF < 50 % in 3.3 %) and diastolic dysfunction in 6.7 % of cases.The presence of systolic dysfunction with reduced contractility (EF≤50 % and/or GLS < -18 %) seems to correlate with LS as assessed by Hitachi SWE and liver steatosis.

Conclusion According to the new criteria > 60 % of the cirrhotic patients were diagnosed with cirrhotic cardiomyopathy.LS assessed by Hitachi SWE and liver steatosis seems to correlate with reduced systolic contractility.

▶ **Tab. 1**

	Systolic dysfunction with reduced contractility (EF≤50 % and/or GLS < -18 %)(n = 13)(A)	No systolic dysfunction (GLS between-18 and -22 %)(n = 37)(B)	Systolic dysfunction with hyper-contractility(GLS > -22 %)(n = 39)(C)	All patients with systolic dysfunction (n = 52)(D)	Diastolic dysfunction (n = 6)(E)	p value
Age (years)	63 ± 10.3	56.8 ± 10.1	54.1 ± 11.5	56.3 ± 11.8	66.1 ± 11.1	A vs C: **p= 0.0001**other p > 0.25
Male (%)	n = 10 (76.9 %)	n = 25 (67.5 %)	n = 25 (64.1 %)	n = 35 (67.3 %)	n = 4 (66.6 %)	n.s.
Alcholic etiology (%)	n = 7(53.8 %)	n = 29 (78.3 %)	n = 26 (66.6 %)	n = 33 (63.4 %)	n = 4 (66.6 %)	n.s.
Child-Pugh-A-B+C	n = 9(69.2 %)n = 4(30.8 %)	n = 19(51.3 %)n = 18 (48.7 %)	n = 24(61.5 %)n = 15 (38.5 %)	n = 33(63.4 %) n = 19(36.6 %)	n = 3 (50 %)n = 3 (50 %)	n.s.
MELD	9.9 ± 3.3	10.6 ± 4.1	11.1 ± 4.5	10.8 ± 4.2	11.3 ± 3.8	n.s.
BNP (pg/ml)	131 (46-225)	85 (8.8-2629)	105 (26.8-2208)	112 (26.8-2208)	166 (78.5-525)	n.s.
LS by TE (kPa)	52.9 ± 27.1	34.4 ± 19.3	39.4 ± 23.5	41.5 ± 24.3	39.7 ± 24.8	A vs B: p = 0.07Other n.s.
CAP by TE (dB/m)	313 ± 57.7	251.5 ± 58.1	247.3 ± 59.1	263.9 ± 64.8	215.8 ± 45.6	A vs B: **p = 0.004**A vs C: **p = 0.002**A vs D: **p = 0.02**Other n.s.
LS by Hitachi SWE (kPa)	11 ± 0.54	14.6 ± 6.8	15.3 ± 4.6	14.7 ± 4.6	12.4 ± 4.5	A vs B: **p = 0.007**A vs C: **p < 0.0001**A vs D: **p = 0.0001**Other n.s.
Cardiac output CO (L/min)	5.6 ± 1.6	5.3 ± 5	5.3 ± 1.9	5.4 ± 1.8	5.9 ± 1	n.s.

P51 Screening for chronic liver diseases in the general population reveals an unexpectedly high prevalence of hepatitis c and advanced NAFLD

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Background Hepatitis C virus (HCV) infection and non-alcoholic fatty liver disease (NAFLD) are common causes for chronic liver disease. Data on the prevalence in particular are limited. The cost-effectiveness of population-based HCV screening to achieve eradication of HCV is under debate. We provide preliminary data of a population-based combined Hepatitis C and NAFLD screening program in Austria.

Method As part of a colorectal carcinoma colonoscopy screening program (SAKKOPI), we investigated 661 asymptomatic subjects (median age 58.8 years, 56 % males). Diagnosis of NAFLD was established by abdominal ultrasound and transient elastography-based controlled attenuation parameter (CAP) ≥ 280 dB/m after exclusion of alcohol mediated, autoimmune, viral and hereditary liver diseases. Assessment of fibrosis using transient elastography (≥ 7 kPa for significant fibrosis [≥ F2] and ≥ 10 kPa for cirrhosis [F4]) as well as biochemical and metabolic parameters plus a detailed questionnaire of dietary habits and physical activity was performed.

Results In 661 patients, median BMI was 25.9. 200 patients (30 %) had elevated liver enzymes (GGT/ALT) and 246 (37 %) had (pre-) diabetes. 42 % of patients showed increased echogenicity on ultrasound. Mean CAP-value was 265 dB/m (221 - 311), whereas 269 (42 %) patients had CAP-values above 280 dB/m. 63 (10 %) of NAFLD patients had significant fibrosis (≥ F2) and 16 (2.5 %) had liver cirrhosis. 6 patients (0.9 %) had HCV antibodies and 5 of them (0.8 %) had chronic HCV infection confirmed. Notably, two patients with chronic HCV infection had completely normal laboratory, ultrasound and transient elastography findings.

Conclusion We show an unexpectedly high prevalence of chronic HCV infection and advanced NAFLD in a large, well-characterized cohort of asymptomatic patients. Especially the high prevalence of undetected HCV infections (0.8 %) emphasizes the need for HCV screening in a population-based manner. Importantly, 40 % of individuals with unknown HCV infection did not show any evidence for chronic liver disease.

P52 The natural course of anti-mitochondrial antibody positive subjects is similar in confirmatory immunoblot-M2 positive and negative subjects

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Background Anti-mitochondrial antibodies (AMA) are a key diagnostic criterion for primary biliary cholangitis (PBC). The AMA-M2-subtype is the main antibody in PBC development. It is the common clinical interpretation that negative M2-AMA-immunoblotting demonstrates absence of specific autoimmunity not necessarily indicating liver disease. However, this distinction is not based on clinical data since it is unknown whether immunoblot confirmation is linked to clinical outcomes. We conducted a follow-up (FU) study comparing the natural course of AMA-M2-positive and M2-negative patients.

Methods 302 patients were tested AMA-positive over a ten-year-period. Immunoblotting confirmed M2-specificity in 184 (60.9 %; 29/155 male/female, age 59.6 ± 14.1 years). 118 subjects tested M2-negative (39.1 %; 25/97 male/female, 60.4 ± 16.0 years). All subjects were invited to a liver outpatient FU visit. FU data including causes of mortality, predominant medical condition and PBC treatment response were determined in 236 patients (78.1 %).

Results After a mean duration of 6.8 years, 28 patients (15.2 % of 184) had died in the M2-positive group, while 27 AMA-M2-negatives (24.6 % of 118) were deceased. Thirty-four M2-positives (18.5 %), 32 M2-negatives (27.1 %) were unavailable for FU. We defined five subgroups according to the clinical course at FU. These were known PBC (adequate/inadequate treatment response), de novo PBC, AMA-positives without PBC, AMA-negatives (negative AMA at FU). Regarding M2-positives, 63 patients (51.6 %) had known PBC with 67.7 % sufficient treatment response, 6 new PBC cases (10.2 % of 59 subjects at risk), 42 (34.4 %) AMA-positives without PBC and 11 (9.0 %) AMA-negatives were found. Concerning M2-negatives, we counted 34 known PBC cases (50.6 %) with 47.1 % UDCA responders, 1 de-novo PBC (4.3 % of n = 23 at risk), 13 (22.8 %) AMA-positives without PBC, 9 AMA-negatives (15.8 %) at FU.

Conclusion AMA-M2-negative and positive patients show a similar long-term course. The value of immunoblotting in PBC diagnostic routine may be overestimated as the clinical course appears to be unrelated to the test result.

P53 Predictors of response to immunotherapy in patients with hepatocellular carcinoma - a retrospective single-center experience

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Background While immunotherapy (IT) in combination with anti-angiogenic therapy will soon be the new standard-of-care for treatment of advanced hepatocellular carcinoma (HCC), still less than one-third of patients show objective response (defined as partial or complete response). Thus, we aimed to evaluate potential predictors of objective response in HCC patients treated with IT.

Methods Retrospective assessment of derived neutrophil to lymphocyte ratio (dNLR) as a marker of treatment response to IT with nivolumab or pembrolizumab in HCC patients treated at the Vienna General Hospital between 06/2016 and 02/2020

Results In total, 23 patients (n = 19, 83 % male; age: 64 ± 15 years) with intermediate and advanced HCC (BCLC B: n = 5, C: n = 17, D: n = 1) received IT (Pembrolizumab: n = 19, Nivolumab: n = 4). Median time-to-progression (TTP) was 6.5 (95 % confidence interval (CI):0.3-12.8) months, median progression-free survival (PFS) was 5.7 (95 %CI:0.4-11.0) months and median overall survival (OS) was 22.1 (95 %CI:9.0-35.2) months. When using a Youden-optimized cut-off (for OS; ≤ vs. > 1.76), patients with a dNLR below this cut-off at baseline showed both a better objective response rate (50 % vs. 9 %;p = 0.11) and a longer OS (28.0 (95 %CI:not evaluable) vs. 11.1 (95 % CI:2.2-20.0) months; p = 0.091). Interestingly, patients with C-reactive protein (CRP) level < 1mg/dL at baseline also showed a numerically improved

ORR (36 % vs. 11 %;p = 0.319) which was associated with a significantly longer OS (23.1 (95 %CI:20.0-26.2) vs. 7.0 (95 %CI:4.5-9.4) months; p = 0.008).

Conclusions IT represents a promising treatment option for patients with advanced HCC. Inflammation seems to play an important role in HCC outcome and markers of inflammation may allow response prediction and potentially patient selection for IT.

P54 Effect of nut consumption on prevalence and severity of NAFLD, cardiovascular diseases and metabolic disorders

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Background Nut consumption has been associated with reduced inflammation, insulin resistance, and oxidative stress due to polyphenolic acids and phytosterols. Therefore, we aimed to investigate the influence of nut consumption on cardiovascular diseases, metabolic disorders and non-alcoholic fatty liver disease (NAFLD).

Method 4655 patients were included as part of a colorectal carcinoma colonoscopy screening program (SAKKOPI) between 03/2007 and 07/2019. Patients were characterized using biochemical and metabolic parameters, as well as a detailed questionnaire on dietary and lifestyle habits. The diagnosis of NAFLD was established using ultrasound. Patients with excess alcohol consumption, autoimmune/viral/hereditary liver diseases were excluded. Consumption of nuts was graded as: no consumption or < 1 time/week; ≥ 1 time/week; ≥ 1 time/day and ≥ 2 times/day.

Results Mean age was 58.5 ± 9.8years with a mean BMI of 26.5 ± 4.7 kg/m^2. 2058 (44.2 %) patients suffered from the metabolic syndrome or its components (hypertension: 2407 [51.6 %]; prediabetes/diabetes: 2287 [49.1 %]; dyslipidemia: 1854 [39.4 %]) and 1984 patients (43.5 %) from NAFLD. On multivariate binary logistic regression analysis adjusting for sex, age, BMI, hypertension, diabetes, dyslipidemia, hepatic steatosis, alcohol consumption, smoking status and dietary patterns, nut consumption ≥ 1 time/week was associated with reduced risk of obesity, hypertension, diabetes, chronic coronary syndrome, peripheral arterial disease(PAD) and stroke (adjusted odds ratio [aOR]s: 0.513-0.845, all p < 0.05). Nut consumption ≥ 1 time/day was associated with reduced risk for NAFLD (aOR: 0.729 [95 %CI: 0.573-0.928], p = 0.010). Importantly, this association was confirmed in sub-group analysis of male patients (aOR:0.591 [95 %CI: 0.419-0.833], p = 0.003) but not in females (aOR:0.900 [95 %CI: 0.639-1.266], p = 0.544). Gender differences were also evident for effects on adiposity, hypertension, diabetes, PAD and stroke. Finally, NAFLD patients who consumed nuts ≥ 1time/week had a significantly lower risk of significant fibrosis (Fib-4 score > 2.67: aOR:0.437 [95 %CI:0.214-0.892], p = 0.023; > 3.25: aOR: 0.409 [95 %CI:0.167-0.998], p = 0.050).

Conclusion Nut consumption exerts beneficial effect on the prevalence and severity of NAFLD, cardiovascular health and metabolic disorders.

P55 The impact of novel systemic treatment options on the outcome of patients with hepatocellular carcinoma

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Background The approval of effective novel therapeutic options, including targeted therapies (lenvatinib, cabozantinib, regorafenib, ramucirumab) as well as immunotherapy has increased our therapeutic armamentarium for hepatocellular carcinoma (HCC). The aim of this study was to compare two HCC cohorts receiving systemic treatment: a recent cohort of patients diagnosed and treated in the era of novel therapeutic options and a historic cohort of patients treated with sorafenib only.

Methods Comparison of two cohorts of patients with Child-Pugh stage (CPS) A and B cirrhosis and HCC who received systemic therapy at the Medical University of Vienna. Patients with CPS C were excluded as prognosis in these patients is mainly determined by underlying liver disease. Cohort 1 (including patients who received at least one novel systemic therapy) were treated between 07/2013 - 07/2019 and cohort 2 (received sorafenib only) between 05/2006 - 07/2013.

Results Thirty patients (25 male, 5 female) were included in the recent cohort 1, while 60 patients (46 male, 14 female) were included in the historic control cohort 2. Mean age was 65 ± 9 years, and 79 % were male. The proportion of patients with vascular invasion (70 % vs. 30 %; p < 0.001) and symptomatic tumors (ECOG 1: 53 % vs. 30 %; p = 0.036) was higher in cohort 2, while the proportion of patients with intermediate stage HCC (BCLC B: 33 % vs. 13 %; p = 0.025) was higher in cohort 1. Overall survival (calculated from the time of systemic treatment initiation) was significantly longer in cohort 1: 28 (95 %CI: 26-30) months vs. 10 (95 %CI:7-12) months (p < 0.001).

Conclusions The improved survival observed with the newly approved systemic therapies may have two main reasons. First, patients received systemic treatment earlier in the course of their disease as reflected by a higher proportion of BCLC B patients. Second, the availability of several systemic treatment options allowed for effective treatment sequencing.

P56 Gastric banding-associated weight loss diminishes hepatic *Tsukushi* expression

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Background Obesity has emerged as a substantial global healthcare issue that is frequently associated with insulin resistance and non-alcoholic fatty liver disease (NAFLD). Tsukushi (TSK), a liver-derived molecule, was recently identified as a major driver of NAFLD. Laparoscopic adjustable gastric banding (LAGB) has proven effective in reducing body weight and improving NAFLD. We therefore aimed to investigate the relation between LAGB-induced weight loss and *TSK* expression.

Methods Twenty-six obese patients undergoing LAGB were included in the study and metabolic parameters were assessed before (t0) and six months after LAGB (t6). The expression of *TSK* in liver and subcutaneous adipose tissue (AT) specimens was determined at both time points. To unravel regulatory mechanisms of *TSK* expression, human peripheral blood mononuclear cells (PBMCs) were stimulated with pro-inflammatory cytokines and *TSK* mRNA levels were analyzed by quantitative polymerase chain reaction.

Results LAGB induced pronounced weight loss which was paralleled by amelioration of metabolic disturbances and histologically defined NAFLD. While hepatic *TSK* expression was markedly decreased after LAGB, adipose tissue *TSK* expression remained comparable to baseline. The decline in hepatic *TSK* expression after LAGB positively correlated with weight loss and the reduction in BMI, while *TSK* expression negatively correlated with NAFLD activity score (NAS). In human PBMCs, pro-inflammatory cytokines such as IL-1β and TNFα induced the expression of *TSK*.

Conclusions Concluding, LAGB-induced weight loss reduces hepatic *TSK* expression. Inhibiting TSK might represent a promising target for treating NAFLD in the future.

P57 Challenges in hepatitis C elimination despite highly effective antiviral agents - experience of a tertiary Hepatology center

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Aim to investigate the adherence to treatment, SVR rate, and reinfection rate in hepatitis C patients with and without intravenous drug use.

Methods Our retrospective study included patients with hepatitis C, which were evaluated between 01/2014-08/2019.

Results We included 431 hepatitis C patients(234 PWIDs and 197 non-PWIDs). The percentage of men was higher in the PWIDs as compared with non-PWIDs group:71.8 % vs.55.4 %,p = 0.0006. HIV coinfection rate was similar between the two cohorts:0.8 % vs.1 %,p = 0.76. Positive viral load rate was lower in the PWIDs group. Genotype 1b was predominant in patients without i.v. drug use, while genotype 3 was more common in the PWIDs group. Most of the patients were treated with DAAs only (Table). The proportion of patients not starting therapy was significantly higher in the PWIDs cohort: 19.4 % vs.8.9 %,p = 0.003. Non-compliance(did not show up to start therapy) rate or refusal of therapy was also significantly higher in the PWIDs cohort:15 % vs.6.7 %,p = 0.01. In the PWIDs cohort, younger age and recent (in the last 6 months) or ongoing i.v. drug use was associated with non-compliance: 31.1 ± 8.4 vs.35.8 ± 10.6 years, p = 0.02 and 33.3 % vs. 12.8 %respectively,p = 0.0008. Ongoing OST was associated with better compliance:61.1 % vs.46.1 %,p = 0.04.

Conclusion To achieve hepatitis C elimination, better strategies especially regarding PWIDs are needed.

▶**Tab. 1**

	PWIDs (n = 234)	Non-PWIDs (n = 197)
Positive viral loadHCV genotype	n = 206 (88 %)3: n = 97 (48.1 %) 1a:n = 67 (33.1 %) 1b:n = 18 (8.9 %)	n = 192 (97.4 %) 1b:n = 85 (44.5 %) 1a:n = 52 (27.2 %) 3: n = 24 (12.5 %)
First therapy regime: -PegIFN+Ribavirin -DAA +PegIFN+Ribavirin -DAA +Ribavirin -DAAReinfection	n = 12(7.2 %) n = 5(3 %) n = 23 (13.9 %) n = 126 (75.9 %)n = 9 (4.3 %)	n = 1(0.6 %) n = 5 (2.8 %) n = 49 (28 %) n = 120 (68.6 %)n = 0(0 %)
Currently therapy status -SVR - Viral load negative EOT, but patients did not show up to SVR12 visit - Viral load negative at EOT and SVR12 visit will follow - Therapy discontinued -Relapse (without further therapy) -Under therapy -without therapy	n = 97(47.2 %) n = 47(22.8 %) n = 11(5.3 %) n = 2(0.9 %) n = 0 (0 %) n = 9(4.4 %) n = 40(19.4 %)	n = 151(78.7 %) n = 10(5.3 %) n = 7(3.6 %) n = 1 (0.5 %) n = 2(1 %) n = 4(2 %) n = 17 (8.9 %)

P58 Elevation of liver enzyme under immunotherapy with checkpoint inhibitors

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Aim to assess the incidence and management of liver enzyme elevation in these patients.

Methods Our retrospective study included tumor patients treated with ICIs between 01/2016-05/2019 in our hospital. Patients with significant elevation of liver enzymes(ALT/AST > 3xupper limit of normal(ULN) and/or bilirubin > 1.5xULN) were identified and analyzed for cause, management and clinical outcome.

Results We identified 208 tumor patients treated with ICIs(59.1 % Nivolumab;40.9 % Pembrolizumab) with a mean age of 66.1 ± 10.7years(69.8 % male).Most of the patients were treated for lung cancer(41.8 %),followed by melanoma(27,4 %),urologic cancers(11,1 %). Significant elevation of liver enzyme was diagnosed in 12 % of patients(Nivolumab-11.3 % vs. Pembrolizumab-13 %,p = 0.87):ALT/AST in 10.1 %,bilirubin-6.2 % and both in 4.8 % of patients. ALT/AST was elevated between 3-5xULN in 1.9 %, 5-10xULN in 1.9 % and > 10xULN in 1.4 % of cases,while bilirubin was elevated between 1.5-3xULN in 4.3 %, 3-5xULN-0.9 %,between 5-10xULN-0.9 % and > 10xULN in 0.4 %of patients. Abdominal ultrasounds or CT scans were performed in all the patients at the time of liver enzyme elevation. Steroid therapy was administered in 32 %of patients,28 % patients were presented to a hepatologist and liver biopsy was performed in none of the patients(2 patients rejected the performance of liver biopsy). The most probable cause of liver enzyme elevation were:ICIs induced liver injury-60 %, disease progression-32 %, combination of ICIs+progression of liver metastasis-4 % and choledocholithiasis-4 % of cases. ICIs were discontinued in 76 % of patients with elevated liver enzyme.ICIs were restarted after steroids in 8 %of patients(no further elevation of liver enzymes was observed). Liver enzyme dynamic after ICIs discontinuation by hepatotoxicity:normalization-53.3 %, declining but not achieving baseline values-33.3 %, stable-6.7 %.One patient(6.7 %) presented with an increase of 10xULN in ALT, AST and bilirubin with further increase even after discontinuation of ICIs-resulting in liver failure leading to death without response to the steroids.

Conclusion Significant elevation of liver enzymes under ICIs was observed in 12 % patients in our cohort, in 60 % of which ICIs hepatotoxicity was being suspected.

P59 Achieving hepatitis C elimination in people who inject drugs - interim results of an innovative screen-and-treat program in Austria

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Background People who inject drugs(PWIDs) represent a high-prevalence population for HCV infection. We aimed to eliminate HCV in this population by a combined screen-and-treat strategy.

Methods Study part 1: HCV-infected PWIDs are often reluctant to attend tertiary care centers providing HCV therapy. Next to poor adherence, they are unlikely to maintain a regular drug intake if provided with DAAs for self-administration. Therefore, HCV treatment was performed as "directly observed therapy"(DOT) since 2014: Patients received DAA together with OST under direct supervision of medical staff at a pharmacy or low-threshold facility.Study part 2: In Vienna, long-term OST-prescriptions have to be renewed monthly at one of nine awarding authority centers – rendering these institutions as ideal interfaces for HCV screening. We offer all PWIDs saliva-based testing for anti-HCV antibodies (OraQuick®) - followed by HCV-RNA PCR in case of a positive anti-HCV result. HCV-RNA(+) PWIDs are referred to a low-threshold facility for initiation of DAA therapy.

Results Study part 1: Using the concept of DOT, only 0.3 % of scheduled dates for DAA intake were missed by n = 409 patients. 289 of 290(99.7 %) PWIDs who finished treatment and 12 weeks of follow-up achieved SVR12; one patient with genotype 3 HCV infection showed nonresponse. Reinfection occurred in 18/289(6.2 %) patients. 89/409(21.8 %) patients are still on treatment and n = 30/409(7.3 %) were lost to follow-up.Study part 2: Screening at awarding authority centers was well accepted by PWIDs. So far, 2810 patients were included: 34.6 % already knew about their HCV-status and were sent to the low-threshold facility for further evaluation and treatment. Of the tested population 46.5 % showed anti-HCV(+) and 34.4 % were viremic.

Conclusion DOT is highly effective in PWIDs on OST with a high risk of non-adherence to DAA therapy. HCV-screening of PWIDs at public institutions is well accepted and may identify a considerable number of unknown HCV cases.

P60 Directly observed therapy for hepatitis C with sofosbuvir/velpatasvir alongside opioid substitution as an effective micro elimination strategy in PWIDs at high risk of non-adherence to antiviral therapy - real world data from Vienna, Austria

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Background We evaluated the effectiveness of sofosbuvir/velpatasvir (SOF/VEL) in difficult-to-treat persons who inject drugs (PWIDs) with presumed "borderline compliance" using an innovative concept involving their opioid substitution therapy (OST) facility.

Methods N = 273 patients (m/f: 201/72; median age: 44.7 (IQR 17.0) years; HCV-genotype (GT) 1/2/3/4: 134/6/115/10, GT3: 42.1 %; cirrhosis: n = 96; 35.2 %) treated with SOF/VEL were included. PWIDs at high risk for non-adherence to DAA therapy received HCV treatment together with their OST under the supervision of medical staff ("directly observed therapy", DOT). The effectiveness of SOF/VEL given as DOT in PWIDs with presumed "borderline compliance" was compared to patients with presumed "sufficient compliance" in the "standard setting" (SS) of SOF/VEL prescription at a tertiary care center and self-managed SOF/VEL intake at home. Treatment duration was 12 weeks according to the SOF/VEL drug label.

Results DOT-patients (n = 168) were younger than SS-patients (n = 105) (median: 41.3 (IQR 13.5) vs. 53.8 (IQR 14.7) years), all had psychiatric co-morbidities and most had a poor socioeconomic status. 91/168 (54.2 %) reported ongoing intravenous drug use (IDU). By time of abstract submission, SVR was achieved in 100 % according to mITT analysis (n = 94/94), while n = 74/273 (44.0 %) remain under surveillance. 6 patients showed HCV reinfection during follow-up.SS-patients achieved SVR in 93.8 % according to mITT analysis (n = 76/81) with n = 10/105 patients being lost to FU and n = 14/105 remaining under surveillance. 3 patients experienced HCV relapse during treatment with SOF/VEL and n = 2 died for reasons not related to therapy. No reinfections were recorded in the SS-group.

Conclusion SOF/VEL given as DOT along with OST in PWIDs at high risk of non-adherence to antiviral therapy resulted in excellent SVR rates. Despite some reinfections, DAA treatment using the concept of DOT represents an effective HCV-elimination strategy among PWIDs on OST.

P61 "Let's end hepatitis C in Vienna" - the first HCV elimination program targeting homeless and people without medical insurance in Vienna

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Background Homeless and/or people without medical insurance are often not considered in epidemiological models for HCV elimination despite their important role for ongoing viral transmission. We conduct an HCV screening and elimination project specifically targeting the homeless and/or non-insured HCV population.

Methods "neunerhaus" is a social organization in Vienna providing integrative care for homeless people and people without medical insurance. It provides a range of medical services as well as non-medical support through social workers, and is associated with apartment buildings for temporary housing. Mobile teams of physicians regularly visit 27 different housing institutions for homeless in Vienna offering medical services to temporary and permanent residents. 5.000 patients are seen at the "neunerhaus" institutions every year, making the organization an important screening platform for HCV patients.Starting in March 2020, all individuals visiting one of the "neunerhaus" institutions are included in this study. Socioeconomic parameters and medical conditions are recorded using a questionnaire. All patients undergo HCV-serology testing followed by HCV-RNA PCR in anti-HCV(+) patients. Patients with HCV-RNA viremia receive DAA therapy and are provided with housing for the duration of therapy. In patients with suspected high risk of non-adherence to therapy, DAA are administered according to the concept of directly observed therapy. Treatment for patients without medical insurance is generously provided by Abbvie® and Gilead®.

Results Preliminary results will be presented at the conference.

Conclusion Here we present a promising HCV screening and treatment approach targeting homeless people and patients without medical insurance. This specific concept of screening and treatment may help to eliminate HCV in this previously underreported group of patients.

Medication for uninsured patients will be kindly by Abbvie® and Gilead®.

P62 Regorafenib dosing in patients with advanced hepatocellular carcinoma (HCC) - a retrospective real-world experience

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DOI 10.1055/s-0040-1712313

Background The multityrosine-kinase-inhibitor regorafenib is approved for the treatment of hepatocellular carcinoma (HCC) and colorectal cancer (CRC). A recent trial in patients with CRC showed that starting with lower dose than recommended led to better drug tolerability and outcome. Here, we evaluated the association between regorafenib starting dose, side effects and outcome in a retrospective real-world cohort of HCC patients.

Methods Patients with HCC treated at the Medical University of Vienna between 04/2015 and 02/2020 were studied.

Results Of 29 patients (27 male, 93 %) included, most patients received regorafenib as second line treatment (n = 22, 76 %) and all were pre-treated with sorafenib. Only in 9 patients (31 %) regorafenib was started with the full dose (160mg/d), resulting in a mean starting dose of 105 ± 39mg. Adverse events (AEs) were reported in 22 patients (76 %), which were severe (grade ≥ 3) in 6 patients (21 %). AEs included pain (n = 10, 34 %), hand-foot-skin reaction (n = 9, 31 %), fatigue (n = 8, 28 %), and diarrhoea (n = 8, 28 %). Interestingly, proportion of patients with AE was comparable between patients who were started with full vs. reduced dose (67 % vs. 70 %;p = 0.642). Dose reductions were required in 44 % started full dose, while dose could be escalated in 45 % of patients started lower. Final dose was 124 ± 42mg (full starting dose) and 116 ± 41mg (lower starting dose), respectively (p = 0.614). Median time on regorafenib was numerically longer in the lower starting dose group (3.1 (95 %CI: 1.9-4.4) vs. 4.3 (95 %CI: 2.6-6.0) months; p = 0.522). Furthermore, disease control rate (DCR = proportion of patients achieving stable disease, partial or complete response) was double in patients started on reduced dose (25 % vs. 53 %;p = 0.582).

Conclusions Starting with reduced regorafenib dose was associated with longer time on treatment and better disease control. The lack of statistical significance may be explained by low patient numbers. This finding needs further evaluation in a larger cohort.

P63 DAA therapy for chronic hepatitis c infection: risk factors for nonadherence and relapse

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DOI 10.1055/s-0040-1712314

Background and Aims Antiviral therapy of HCV infection was revolutionized by the advent of direct antiviral agents. With pan-genotypic fix-dose drug combination, treatment is now offered to all patients with chronic HCV infection, with the goal of HCV elimination. Therefore, patients in marginalized groups at high risk of nonadherence must be reached. Data on risk factors for nonadherence and lost to follow up are scarce. Hall in Tirol is a HCV therapy centre with a large service for the treatment of opioid dependency, offering the opportunity to link opioid subsitution therapy (OST) to HCV treatment.

Method Retrospective cohort study on adherence to scheduled visits, virologic outcome, demographic data, data on risk factors for HCV infection, baseline virus load, virus genotype, and concurrent medical conditions. Lost to follow up (LTFU) was defined as disruption of documentation before SVR12 was reached.

Results Out of 216 patients referred, 50 persons did not start with treatment. 166 patients started DAA therapy. In 30 patients, follow up was incomplete. 61 patients had a history of IVDA, of which 37 were under OST. 53 patients were IFN treatment experienced. LTFU was most frequent in patients in active OST (13 out of 37), whereas patients with a history of IVDA, but no need for subsitution, exhibited comparable risks of LTFU. Patients with LTFU were younger, but did not differ significantly in other demographic criteria. Genotype 3 was more frequent in the subgroup of IVDA patients completing follow-up, their relapse rates were not elevated.

Conclusion Patients with intravenous drug abuse with a need for OST are at high risk for nonadherence to visits and prone to LTFU. Measures such as a close link of OST and DAA dispense as well as close communication between hepatologic and psychiatric services should be ensured to limit the risk of ineffective therapies.

P64 Absence of BSEP (ABCB11) protects MDR2 (ABCB4) KO mice from cholestatic liver and bile duct injury through modulating the inflammatory signaling

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Background Bsep KO mice are protected from acquired cholestasis by metabolic precondition with a hydrophilic bile acid (BA) pool with tetrahydroxylated bile acids (THBAs) being the most prominent BA species. We aimed to explore whether increased BA detoxification/THBAs alters inflammatory signaling, thereby improving liver injury in the Mdr2 KO mouse model of sclerosing cholangitis.

Methods Cholestatic liver injury, hepatic inflammation and fibrosis in Mdr2/Bsep DKO and Mdr2 KO mice was studied for comparison. Additionally, Mdr2 KO mice were treated with a THBA. Gene expression profiles of inflammatory/fibrotic markers were investigated by RT-PCR and Western blotting. Liver T-cell numbers were quantified by FACS. Microbiota analysis was also performed. In vitro, the impact of THBA on RORgt as well as NFkB-signaling in Jurcat cells were analyzed.

Results In contrast to Mdr2 KO, DKO mice displayed increased BA hydroxylation and lacked histological features of sclerosing cholangitis. 67 % of serum BAs in DKO mice were polyhydroxylated, with THBAs being most prominent, while Mdr2 KO mice had no such BAs. In contrast to profoundly increased gene expression of inflammatory and fibrotic markers in Mdr2 KO, no increases were seen in DKO. Increased levels of PHBAs were associated with reduced RORgt+ cells but increased FOXP3+ within the CD4+CD3+ T-cell population. Microbiota composition points also towards less inflammation in DKO vs. Mdr2 KO mice. In vitro, THBA attenuated RORgt-signaling at mRNA level in Jurcat cells. It also attenuated CDCA-induced NFkB activation in GFP-NFkB transfected Jurcat cells. THBA feeding reduced inflammatory and fibrotic genes in Mdr2 KO.

Conclusion Increased formation of THBA (due to absence of Bsep) or THBA administration represses key pro-inflammatory signals such as NFkB and RORgt in immune cells, protecting Mdr2 KO mice from cholestasis-associated inflammation and fibrosis. Therefore, THBA and their downstream targets may be a new potential treatment strategy for cholestatic liver diseases.

P65 The *PNPLA3* G-allele is common in patients with HCC but does not affect tumor characteristics and tumor biology

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Background and Aims The G-allele of the of patatin-like phospholipase domain-containing protein 3 (*PNPLA3*) is an established risk factor for hepatic lipid accumulation and the development of advanced liver disease and HCC. This study explores a possible link between the *PNPLA3* G-allele and HCC tumor characteristics and biology.

Method Patients referred for *PNPLA3* genotyping to the Hepatology Laboratory at the Medical University of Innsbruck were retrospectively assessed and included if the diagnosis HCC was made with multiphasic CT and/or dynamic contrast-enhanced MRI (n = 197). Tumor characteristics were assessed independently by two radiologists. An unselected *PNPLA3* genotyped cohort of cirrhotic patients without HCC (n = 1489) was used as a control group. Demographic, clinical and biochemical parameters were extracted from patient records.

Results Of 197 (31 women) unselected HCC patients the G-allele prevalence was 70.6 % (46.2 % homozygous and 24.4 % heterozygous). The allele frequency was not significantly different in an unselected cohort of cirrhotic patients (64.6 %, p = 0.137) but far more frequent as in the general European population (allele frequency 0.228). At baseline (time of genotyping) age, median MELD scores and BMI did not differ between groups. When patients were grouped according to *PNPLA3* genotype no significant difference was observed in BCLC tumor stage, mRECIST defined tumor progression, tumor diameter and number, vascular tumor invasion and occurrence of extrahepatic metastasis. No association between *PNPLA3* and the combined endpoint death/liver transplantation was found. All before mentioned endpoints did also not differ between heterozygous and homozygous carriers.

Conclusion Although G allele carriers in rs738409 of *PNPLA3* are known to be at increased risk of developing advanced fibrosis and HCC, no association between *PNPLA3* genotype and tumor characteristics, tumor biology or treatment response were found.

P67 *Sarcopenia and liver cirrhosis- Comparison of the* European Working group on Sarcopenia criteria *2010 and 2019*

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Background and Aims Sarcopenia occurs in 30-70 % of cirrhotic patients. However, criteria for the diagnosis of sarcopenia are not universally accepted and several different definitions coexist. In 2010, the European Working Group on Sarcopenia in Older People provided consensus definition criteria for the diagnosis of sarcopenia using muscle mass, strength and performance. In 2019, a revised definition was published. It is yet unclear how these modified criteria influence the rate of diagnosis in high risk populations, such as liver cirrhosis.

Method We therefore assessed if the new diagnostic criteria for sarcopenia impact on sarcopenia prevalence in liver cirrhosis. Within 2 years 114 cirrhotic patients were prospectively enrolled in the study. Sarcopenia was determined by muscle strength (handgrip strength), muscle mass (lumbal muscle index) and muscle performance (gait speed). We assessed the absence of sarcopenia or the presence of pre-sarcopenia or sarcopenia using both 2010 and 2019 definitions.

Results Based on the 2010 definition, 38/114 (33.3 %) patients had no sarcopenia, 35/114 (30.7 %) suffered from pre-sarcopenia and 41/114 (36 %) from sarcopenia. With the 2019 definition, significantly more patients 91/114 (79.8 %) were diagnosed as non-sarcopenic, whereas only 4/114 (3.5 %) were diagnosed as pre-sarcopenia and 19/114 (16.7 %) as sarcopenic (p < 0.0001). Indeed, when applying the 2010 definition, significantly more men were diagnosed as pre-sarcopenic (80 % of 35, p = 0.042) and sarcopenic (87.8 % of 41, p = 0.003) compared to the non-sarcopenic group. Using the 2019 definition, the rate of pre-sarcopenia was significantly lower (30.7 % vs. 3.5 %) due to the different starting points (2010 muscle mass, 2019 muscle strength) and cut-off values (muscle strength).

Conclusion The change of the starting point of diagnostic criteria for sarcopenia drastically influences the rate of pre-sarcopenia and sarcopenia in cirrhotics. To evaluate, which diagnostic criteria should be chosen to diagnose sarcopenia in liver cirrhosis patients, prospective studies are needed.

P68 Ramucirumab for patients with intermediate-stage hepatocellular carcinoma (HCC) and elevated alpha fetoprotein (AFP): pooled results from two phase 3 studies (REACH and REACH-2)

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Background REACH and REACH-2 investigated ramucirumab in patients with HCC after sorafenib. An exploratory analysis of outcomes by Barcelona Clinic Liver Cancer (BCLC) stage was performed.

Methods Patients with HCC (BCLC stage C or B disease refractory/not amenable to locoregional therapy), Child-Pugh A, ECOG PS 0-1, and prior sorafenib were randomized to ramucirumab 8mg/kg or placebo Q2W. A pooled meta-analysis of independent patient data (stratified by study) from REACH-2 and REACH (AFP≥ 400mg/mL) was performed. Prognosis of BCLC staging in OS was evaluated by multivariate Cox PH model (adjusted for baseline AFP and treatment arm); treatment effects in BCLC stage B/C by Cox PH model; median OS/PFS by Kaplan-Meier method. Objective response rate (ORR; RECIST v1.1), disease control rate (DCR), and AEs were reported by BCLC. Liver function was assessed at baseline and before treatments with Albumin-Bilirubin (ALBI) linear predictor.

Results Baseline characteristics were similar between arms in BCLC stages. BCLC staging trended as independent prognosis factor for OS (B vs C; HR = 0.756 [0.546, 1.046]). Consistent ramucirumab treatment benefit vs placebo was observed across staging (Table). Grade≥ 3 AEs were consistent in both studies (most frequently hypertension). No difference in liver function (measured by ALBI) was observed between arms in BCLC stages.

Conclusions Acknowledging limitations of sample size, ramucirumab provided survival benefit irrespective of BCLC stage. Ramucirumab did not alter liver function vs placebo.

BCLC	B	C
Pooled Population (Ramucirumab vs Placebo)	**N = 52(Ramucirumab 30/Placebo 22)**	**N = 490(Ramucirumab 286/Placebo 204)**
OS median, months	13.7/8.2	7.7/4.8
HR (95 %CI)	0.43 (0.23, 0.83)	0.72 (0.59, 0.89)
PFS median, months	4.2/2.8	2.8/1.5
HR (95 %CI)	0.33 (0.17, 0.64)	0.60 (0.49, 074)
ORR, %	17/5	4/1
DCR, %	80/59	54/35

P69 A novel score to predict mortality after transjugular intrahepatic portosystemic shunt in patients with renal insufficiency

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Background and Aims The model for end-stage liver disease (MELD) is the best validated mortality predicting tool for patients undergoing transjugular intrahepatic portosystemic shunt (TIPS). However, with creatinine being one of three parameters, MELD may have limited validity in patients with renal insufficiency, inter alia, because renal function improves after TIPS. We aimed to develop a modified TIPS score (MOTS), based on MELD, but easier to calculate and of higher accuracy in patients with renal insufficiency.

Methods We retrospectively analyzed 113 cases of TIPS-placement at the University Hospital Graz. A score integrating urea, INR and bilirubin was developed. MOTS ranged from 0-3 points: INR > 1.6, urea > 70 mg/dl and bilirubin > 2.2 mg/dl imply plus one point each. Prognostic capability was assessed using Area Under Receiver Operating Characteristic (AUROC) statistics. The scores were validated in an external cohort from the University Hospital Innsbruck (n = 188).

Results In the training cohort as well as the validation cohort, both models significantly predicted 90-day mortality. AUROC values were similar: MELD 0.84 (95 % CI:0.74-0.96); MOTS 0.85 (0.74-0.96) in the training cohort and MELD 0.77 (0.62-0.93); MOTS 0.80 (0.67-0.94) in the validation cohort. 37 patients in our training cohort and 61 in the validation cohort had renal insufficiency defined as Estimated Glomerular Filtration Rate (eGFR) < 60. In the training cohort, both scores predicted 90-day mortality in patients with eGFR < 60, whereas MOTS had a higher AUROC value (MELD 0.77 (0.57-0.97); MOTS 0.85 (0.68-1.00)). In the validation cohort, only MOTS significantly predicted 90-day mortality in patients with eGFR < 60 (MELD 0.76 (0.46-1.00), not significant; MOTS 0.81 (0.64-0.98), significant).

Conclusion With the simple MOTS, we developed a valuable tool to predict post-TIPS mortality, with higher accuracy than MELD in patients with renal impairment. To optimize future patient selection, prospective validation of MOTS is crucial.

P70 Features of the portal hypertensive syndrome in patients with advanced PBC

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Background and Aims Primary biliary cholangitis (PBC) is a rare liver disease that may progress to cirrhosis and portal hypertension. Therefore, we aimed to characterize the prevalence and features of the portal hypertensive syndrome (PH) in patients with PBC.

Methods PBC patients presenting at the Medical University of Vienna were screened for features of clinically significant portal hypertension (CSPH): (i) gastroesophageal varices, (ii) splenomegaly > 11cm, (iii) ascites (excluding non-hepatic causes), (iv) portosystemic collaterals, (v) hepatic venous pressure gradient (HVPG) ≥ 10 mmHg, or (vi) medical record documented a serious complication attributed to portal hypertension.

Results N = 249 PBC patients were included, of whom 22.1 % had PBC-AIH Overlap. 97 patients (39 %) showed features of CSPH: varices in 18.5 % (N = 46), splenomegaly in 30.5 % (N = 76), ascites in 18.9 % (N = 47), HVPG ≥ 10mmHg in 4.4 % (N = 11) and 11.6 % had a liver stiffness measurement > 15kPa. The median duration between PBC diagnosis and development of CSPH was 1.51 years (IQR -0.1 to -8.93), and in 39 patients only the occurrence of CSPH-related complications led to the diagnosis of PBC. No statistically significant differences were found between patients with and without CSPH, regarding age, AMA-M2(+) positivity, and PBC-specific ANAs. However, thrombocytopenia (< 150G/L), was more frequent (29.2 % vs. 2.7 %, p < 0.0001) and median LSM was higher (13.4 vs. 5.9 kPa, p < 0.001) in patients with CSPH. N = 17 (6.8 %) of the patients developed variceal bleeding and N = 30 (12.0 %) required endoscopic variceal ligation (EVL). During a median follow-up of 6.1 years, n = 40 (16.1 %) patients died - including n = 20 (8 %) liver-related deaths of which n = 16 were attributed to complications of CSPH.

Conclusion Features of CSPH in patients with PBC are frequent and may occur early after diagnosis. Splenomegaly is the most prevalent and earliest feature of CSPH in PBC. CSPH-related complications accounted for 40 % of the deaths in our PBC cohort.

P71 Durable Response in the Markers of Cholestasis Through 5 Years of Open-Label Extension Study of Obeticholic Acid in Primary Biliary Cholangitis

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Background POISE was a placebo-controlled, phase 3 study of the efficacy and safety of obeticholic acid (OCA) in primary biliary cholangitis (PBC), with a 12-month double-blind phase and a 5-year open-label extension (OLE).

Methods During the double-blind phase, 216 patients were randomized to daily placebo, OCA 5-10 mg (titrated after 6 months based on response and tolerability), or OCA 10 mg. 193/198 patients completing the double-blind phase enrolled in the OLE and received OCA. The primary endpoint was the percentage of patients with alkaline phosphatase (ALP) < 1.67× upper limit of normal (ULN), with a reduction of ≥ 15 % from baseline, and total bilirubin ≤ULN at 12 months. This analysis pooled double-blind placebo (OCA baseline was OLE day 0) and double-blind OCA patients to evaluate the efficacy and safety of up to 72 months of OCA treatment.

Results 146 patients (76 %) completed the protocol as specified. 158 patients (82 %) completed 4 years of OCA treatment and 116 patients (60 %) completed 5 years of OCA treatment; 52 patients who had received OCA in the double-blind phase completed 6 years on treatment. The percentage of patients meeting the primary endpoint was 46 % at 12 months and 50 % at 48, 60, and 72 months. Significant and durable reductions were observed for ALP, alanine aminotransferase, aspartate aminotransferase, and gamma-glutamyl transferase throughout the study. Mean total bilirubin remained stable through 72 months of OCA treatment. Throughout the study there was no significant worsening in hepatic stiffness as measured by transient elastography in a subset of patients. During the OLE, 8 patients (4 %) discontinued treatment due to pruritus. Adverse events were consistent with the safety profile of OCA in PBC, with no new safety observations out to 6 years.

Conclusion OCA treatment resulted in sustained improvement in liver biochemistry during up to 6 years of follow-up.

P72 Incidence and outcome of acute-on-chronic liver failure in a large retrospective single-center cohort

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Background According to the European Foundation for the Study of Chronic Liver Failure (EF-CLIF) guidelines, acute-on-chronic liver failure (ACLF) is defined as acute hepatic injury with development of organ failure in patients with pre-existing chronic liver disease. ACLF is characterized by severe systemic inflammation and considerable mortality. The aim of this study was to evaluate specific triggers of ACLF and mortality in a large retrospective single-centre cohort.

Methods Patients with liver cirrhosis presenting with acute hepatic decompensation (AD) and ACLF at the Vienna General Hospital between Q3/2014 and Q1/2018 were retrospectively included. Patient characteristics, laboratory data and outcomes were extracted from medical records.

Results During the study period, 234 patients (174 male, 74 %) were hospitalized for AD of whom 94 (40 %) patients (68 male, 72 %) developed ACLF. The most common reasons for ACLF development were AKI (n = 33, 35 %), followed by spontaneous bacterial peritonitis (SBP, n = 14, 15 %), non-SBP-infection (n = 8, 9 %), gastrointestinal bleeding (n = 5, 5 %) and others/unknown (n = 34, 36 %). Initial ACLF grades were comparable between triggers (grade ≥ 2: bleeding: 60 % vs. SBP: 50 % vs. AKI: 58 % vs. non-SBP-infection: 75 % vs. others/unknown: 56 %; p = 0.849). 28 days-mortality was 10 % (n = 14/140) in AD, but 48 % in patients who developed ACLF (n = 44/94; p < 0.001). Median survival was significantly shorter in ACLF patients (72 days, 95 % confidence interval, 95 %CI: 22-122 days) than in patients with AD (439 days, 95 %CI: 245-633 days; p < 0.001). Median overall survival calculated from the day of hospital admission according to ACLF grade was: ACLF grade 1: 142 (95 % CI:0-540) days, vs. grade 2: 99 (95 %CI:13-185) days, vs. grade 3: 12 (95 % CI:5-19) days (p < 0.001).

Conclusions AKI and infections, most commonly SBP, represent the main triggers for ACLF and 28 days-mortality was 48 %. Median survival of patients with ACLF-2 and ACLF-3 may be as short as 99 and 12 days.

P73 Penetrance, cancer incidence and survival of hemochromatosis in a long-term follow-up and epidemiological modeling study

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Background and Aims Hereditary hemochromatosis (HH) is associated with homozygosity for p.C282Y in *HFE* in 80 % of patients. Disease penetrance (= iron overload [IOL]) occurs in only 14 %. Due to cirrhosis and hepatocellular carcinoma (HCC) an even lower penetrance is assumed.The aim of the study was to determine age- and sex-dependent penetrance of IOL and assess the risk for cirrhosis and HCC during a long-term follow-up in a large cohort of HH patients.

Method Survival and cancer incidence data were extracted retrospectively from national databases for 498 p.C282Y homozygotes between 1996 and 2018. HH was defined as provisional IOL (males: Ferritin > 300+Transferrin saturation > 50 % | females: Ferritin > 200+Transferrin saturation > 45 %) at genotyping. From the allele frequency of p.C282Y in the general population and the age distribution in Tyrol, an expected number of homozygotes was derived. Disease penetrance was calculated based on patients diagnosed with HH and the expected number of homozygotes in 2008 and 2018. Crude incidence for HCC and survival status on 28 January 2019 were assessed to calculate age-standardized cancer incidence for HH patients.

Results 73 % of 498 p.C282Y homozygotes presented with provisional IOL and the mean age at diagnosis was 47.8 years. Among alive p.C282Y homozygotes with provisional IOL the crude penetrance was 14 %. In this group, 5 patients were diagnosed with HCC, representing an estimated risk for HCC of 1:60 by the age of 80, compared to 1:77 in men and 1:333 in women in the general population of Tyrol. This implies no increased HCC risk in patients with p.C282Y homozygosity. Regression analysis shows an independent association between age, sex and HH penetrance.

Conclusion Age and sex analyses allow a more precise prognosis of hemochromatosis penetrance in p.C282Y homozygotes. No increased mortality or risk of HCC development could be identified in this epidemiological modelling study.

P74 Use of human albumin in a large “real-life” single-center cohort of patients with decompensated advanced chronic liver disease

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Background Human albumin (HA) is increasingly recognized as disease-modifying drug in patients with advanced chronic liver disease (ACLD). However, HA is also used as a colloid for non-liver-related causes, but due to high costs, its use should be restricted to evidence-based

indications. Thus, we evaluated the indications for HA use in a real-life patient population.

Methods Indications for HA use in patients treated at the Vienna General Hospital between Q3/2014 and Q1/2018 were retrospectively evaluated. Patient characteristics, laboratory data were extracted from medical records.

Results 491 patients (male: 318, 65 %) - including 287 ACLD patients (male: 211, 74 %) - received HA within the study period. The main indications for HA use were: paracentesis (n = 193, 39 %), hypoalbuminemia (n = 142, 29 %, accompanied by edema in 47 %), acute kidney injury (AKI, n = 69, 14 %), spontaneous bacterial peritonitis (SBP, n = 54, 11 %), nephrotic syndrome/other chronic renal diseases (n = 22, 4 %), hypotension/hypovolemia (n = 10, 2 %) or unknown (n = 1, 1 %). Next, ACLD patients were analyzed in more detail: Mean age was 59 ± 11 years and alcohol (n = 141, 49 %) and viral hepatitis (n = 50, 17 %) were the main etiologies of liver disease. Mean MELD at albumin infusion was 21 ± 7 points. Overall, 1017 indications for HA administration were identified including large-volume paracentesis (n = 896, 88 %), HRS-AKI (n = 70, 7 %) and SBP (n = 51, 5 %). While 767 of 896 (86 %) patients undergoing large volume paracentesis (LVP) were receiving guideline-conform doses of albumin (i.e. 8g/L ascites removed), only 25/70 (36 %) and 13/51 (25 %) patients received the recommended doses of albumin for HRS-AKI (i.e. 1g/kg bodyweight on day 1 and 2, maximum of 100 g/d) and for SBP (i.e. 1.5 g/kg bodyweight on day 1 and 1g/kg on day 3), respectively.

Conclusions HA is frequently used in clinical practice, also in non-ACLD patients. However, it is often underdosed for well-established indications in ACLD patients, in particular HRS-AKI and SBP.

P75 Neurodegenerative patterns in Wilson disease with hepatic or neurological manifestation assessed by morphometric magnetic resonance imaging

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Background Clinical presentation of Wilson disease (WD) is heterogeneous and includes hepatic and neurologic disease manifestations. Genotype-phenotype correlations failed to identify factors associated with disease expression. WD is known to cause specific qualitative neuroradiologic changes with hypo-intensities in basal ganglia. The aim of the present study was to test if WD patients with predominantly hepatic or neurological phenotypic presentation show quantitative differences when MRI results were analyzed by automated whole-brain segmentation procedure.

Methods Segmentation of subcortical regions from T1-weighted 3-D-structural MRI data and estimation of structure volumes were carried out using the FreeSurfer tool (version 6.0, http://surfer.nmr.mgh.harvard.edu/). The volumes of the specific brain regions were expressed as Z-scores to correct for age and gender specific variations in the volume of specific brain segments. The study included 20 patients diagnosed with WD (13 patients with hepatic and 7 with neurologic WD).

Results Patients with predominantly neurological presentation showed a significant reduction in age and sex-adjusted volume of the caudate (z-score -4.64 vs -0.93, p = 0.024) and the putamen (z-score -3.72 vs -1.52, p = 0.014) when compared with the group of patients with predominantly hepatic disease manifestation. In contrast, the latter showed a significant reduction of the middle cerebellar peduncle volume (z-score -1.20 vs -0.65, p = 0.024). When all patients were compared with age and sex-matched controls, significantly reduced volumes in several brain regions could be identified. The most severe neurodegeneration was present in cerebellar white matter, the pallidum and cerebellar cortex. In most severely affected brain regions no difference between patients with hepatic and neurologic disease manifestations were noted.

Conclusion This is the first study to quantitative evaluate segmentation of subcortical regions in patients with WD. Although distinct changes were present in basal ganglia of patients with neurologic or hepatic WD, our findings indicate that WD is associated with more general pattern of neurodegeneration in patients with WD.

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