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P051 Molecular and bioinformatics analysis of miR29b in steatosis

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organ involvement and requires complex management. A National Confidential Enquiry into Patient Outcome and Death in 2013 demonstrated suboptimal management of these patients, where only 47% of patients who died received 'good care'.² It identified avoidable deaths and a 'postcode lottery' of management for decompensated liver patients.³ This enquiry prompted development of an evidence-based treatment bundle to improve patient management, now endorsed by the British Association for the Study of the Liver and the British Society of Gastroenterology. The bundle details investigations and management that should be undertaken within the first 24 hours of a patients' presentation. It is divided into subsections detailing common pathology liver patients present with: e.g. GI bleeding and aims to provide standardised, safer management.²

It was observed within our hospital that the bundle was not being utilised and there was scope to improve management of decompensated liver patients. This Quality Improvement Project aimed to improve management by introducing interventions to increase awareness of the bundle and encourage its use, consequently improving patient outcomes. Two interventions were planned with data collected prior to the interventions and then following each individual intervention.

The first intervention involved teaching sessions; one for Foundation Year doctors who regularly clerk medical admissions and the second for the AMU team who regularly see patients at the start of their admission. The teaching session covered pathophysiology, symptoms and complications of cirrhosis and continued on to cover the bundle, the evidence behind it and its positive use in patients. The second intervention involved printing copies of the bundle and placing these by clerking booklets, allow clerking doctors to utilise them.

Initial data collection, pre interventions, showed that the average percentage of the bundle completed for patients was 68%. Following this, the first intervention was run. Re-collection of data demonstrated the average percentage of the bundle completed had increased to 75.8%. Following the second intervention, there was a further increase to 79.8%.

In conclusion, an improvement was found after each intervention. Areas of further development to result in even higher completion rates of the bundle were also identified during data collection. Specifically, dedicated ascitic tap training and focused GI bleed management. It is hoped the project could continue, focusing on these areas, and demonstrate further improvement.

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P050 RAPID TESTING FOR HEPATITIS C USING FINGER-PRICK BLOOD

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Background Cure (sustained virological response (SVR)) of Hepatitis C can be achieved in 95% of patients using directly acting antiviral (DAA) tablets. Delayed treatment is associated with increased risk of transmission, liver cirrhosis and hepatocellular carcinoma. Tests with rapid turn-around-times (TAT) improve linkage to treatment.

Objective To compare a novel capillary blood sample testing pathway with venepuncture (gold standard) and evaluate if it could be used to diagnose HCV when venepuncture is not possible.

Design Laboratory study

Setting UHW, Cardiff, UK.

SBUHB, Swansea, UK.

Population/Participants 25 adult patients undergoing testing for HCV infection.

Results The novel pathway had a sensitivity and specificity of 100% in specimens that had viral loads >100 IU/ml.

Conclusion This pilot, proof of principle, study suggests that the novel testing pathway is effective, will detect HCV viral loads >100 IU/ml and has the potential to be used for HCV diagnosis. Further work is now required to demonstrate effectiveness in the live environment.

P051 MOLECULAR AND BIOINFORMATICS ANALYSIS OF MIR29B IN STEATOSIS

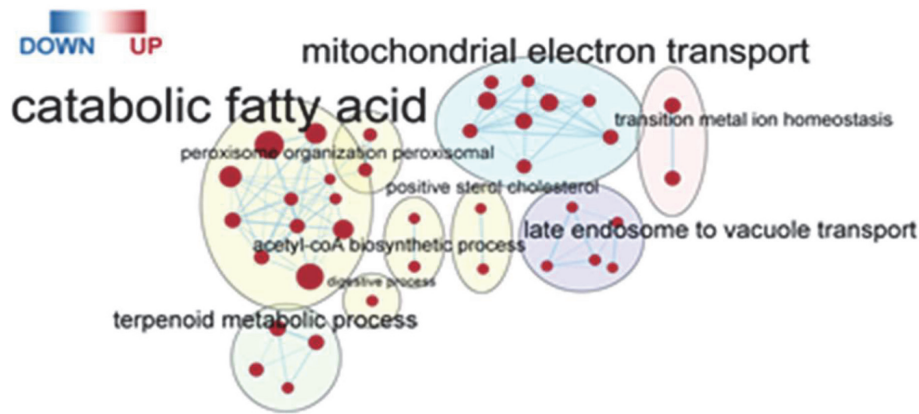
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The liver is the largest solid organ in human, which detoxifies various chemicals, metabolises nutrients and supports almost every organ in the body. Thus, the liver is prone to many diseases. Non-alcoholic fatty liver disease (NAFLD) is characterised by excessive lipid accumulation in the liver, progressing to severe liver diseases, including fibrosis and cirrhosis. Micro-RNAs (miRNAs), the small and non-coding RNAs, are involved in various biological processes by regulating gene expression at transcriptional or translational levels. MiR29b has been regarded as a potential antifibrotic agent through targeting several pathological processes. However, the mechanistic role of miR29b in the development of NAFLD remains unclear. The aim of this study examined the role of miR29b in NAFLD progression through a combination of molecular and bioinformatics approaches.

MiR29b mimics were transfected into mice hepatocytes. RNA was isolated from hepatocytes overexpressing miR29b. RNA-seq and Gene Set Enrichment Analysis (GSEA) were utilised to identify the significant biological pathway regulated by miR29b. Mice were injected with streptozotocin (STZ) and then fed with a high-fat diet for 6, 8 and 12 weeks to induce simple steatosis, NASH and fibrosis, which represent the different stages of NAFLD. Liver tissues from these mice were collected for histological analysis and gene or protein level detection by q-RT-PCR and Western blotting. The target genes of miR29b were predicted using the prediction tool-Targetscan and verified using luciferase assays. Mice were treated with polymeric micelles carrying miR29b to determine its therapeutic effect in the progression of NAFLD.

Using RNA-seq, we uncovered 1,115 mRNAs and 73 lncRNAs were significantly deregulated ($q \leq 0.1$) owing to miR29b overexpression. The lipid metabolism-related pathways



Abstract P051 Figure 1 Pathway analysis with Gene Set Enrichment Analysis (GSEA) in mice hepatocytes overexpressing miR29b compared to controls. Lipid metabolism pathways shown with a yellow background were predominantly enriched

were predominately upregulated by miR29b (figure 1). Systems-level analysis revealed that miR-29b levels were significantly decreased during the pathogenetic stages from liver steatosis to fibrosis. The reduced levels of miRNA29b were associated with lipid accumulation and inflammation in the liver. Further investigation revealed that miR29b degraded Insulin Receptor Substrate 1 (IRS1) via directly targeting its 3'UTR. Moreover, mice injected with miR29b micelles alleviated hepatic lipid accumulation via downregulating fatty acid synthesis through IRS1-related pathway and enhanced β -oxidation.

We report that lipid metabolism-related pathways were significantly upregulated by miR29b. MiR29b ameliorated hepatic lipid accumulation via directly targeting IRS1-regulated lipid metabolism. In addition, the analysis of other impacted biological pathways and the networks involving miR29b and hepatic-associated mRNAs or non-coding RNAs is in progress.

P052

LOW VITAMIN D, LOW BONE DENSITY, AND FRAGILITY FRACTURES ARE COMMON AMONG UK LIVER TRANSPLANT RECIPIENTS

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Introduction Patients with chronic liver disease are at risk of osteodystrophy, with increased fracture risk post-transplantation. National guidelines recommend all patients with chronic liver disease are offered calcium and vitamin D supplementation and bone mineral density (BMD) assessment, usually through DEXA (Dual energy X-Ray Absorptiometry) imaging. Guidelines advise testosterone measurement in men with reduced BMD. There is a paucity of evidence surrounding Vitamin D deficiency and fragility prevalence in liver transplant recipients.

Methods Liver transplant recipients over 3 years to 2021-05-12 were evaluated, with super-urgent listings excluded. Retrospective analysis of electronic hospital records of transplant assessment was conducted. Records were examined for demographics, total vitamin D (25(OH)D2 + 25(OH)D3), testosterone levels within 6 months, DEXA imaging within 2 years,

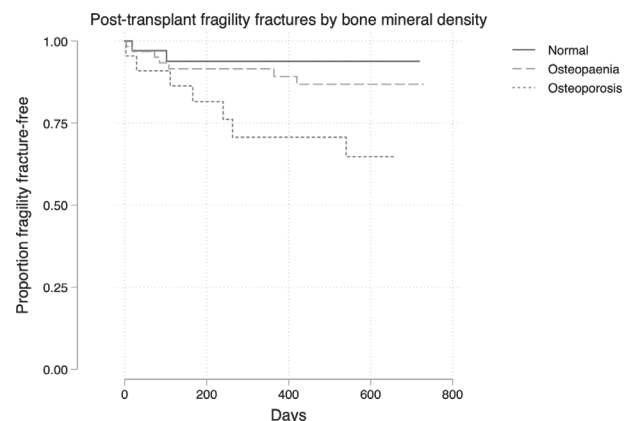
prescription of bone-protective medications, and diagnoses of fragility fractures.

Results Of 312 liver transplants, 29 super-urgent listings were excluded and 283 assessed. Median age at transplant assessment was 56 years (IQR 48-63), 180 (64%) of recipients were male, and 262 (93%) had received a first graft.

DEXA diagnoses of reduced BMD (osteopaenia/osteoporosis) were present in 36 (13%) at transplant assessment. 118 (42%) underwent DEXA imaging within 2 years, with COVID-19 reducing scan availability. Of those who underwent DEXA imaging, 56 (64%) received a diagnosis of osteopaenia and 20 (23%) osteoporosis. Among men with reduced BMD, only 2 of 46 (4%) underwent testosterone testing within 6 months, both with normal testosterone.

Total vitamin D tested within 6 months was measured in 274 (97%). 138 (49%) were deficient (<30nmol/L) and 75 (27%) borderline (30-50nmol/L). Median total vitamin D of the cohort was 30nmol/L (18-48). Of those (157, 55%) not receiving supplementation within 6 months prior to assessment, median vitamin D was 26nmol/L (15-37) with 59% deficient; total vitamin D was higher at 38nmol/L (22-58) in those on supplementation, with 37% deficient ($p < 0.001$).

Fragility fractures had occurred prior to transplantation in 32 (11%). Recipients were followed for a median of 621 days post-transplant (267-877). 26 (9%) sustained new fragility fractures over the course of follow up. Fragility fractures



Abstract P052 Figure 1