## A MULTIDISCIPLINARY APPROACH TO NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) IMPROVES CARDIOVASCULAR RISK FACTORS

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**Aim.** Cardiovascular (CV) disease is the leading cause of death in unselected patients with non-alcoholic fatty liver disease (NAFLD). Although the need of a multidisciplinary approach is highlighted in guidelines, there is lack of data to demonstrate its effectiveness. We assessed the efficacy of a multidisciplinary clinic through control of metabolic comorbidities and surrogate markers of liver involvement.
**Methods.** Prospectively collected data of 273 patients referred to a multidisciplinary NAFLD clinic, comprehensive of a hepatological consultation, cardiovascular risk assessment and dietetic counseling were analyzed.
**Results.** Mean age was 56.4±12.1 years, with 57% males. The median follow-up was 18 months. The prevalence of obesity, hypertension and diabetes was 60%, 67% and 50% respectively, while 13.2% had a positive history of CV events. At baseline, dyslipidaemia management was suboptimal in 64 patients (25.2%), while 57 (41.9%) patients with diabetes and 36 (19.6%) patients with hypertension needed modification of their treatment. During follow-up, there were statistically significant improvements in ALT (p=0.013), AST (p=0.013), systolic and diastolic blood pressure (p=0.002 and 0.014 respectively), total cholesterol (p<0.001) and glycated haemoglobin in diabetic patients (70.2 to 62.5 mmol/mol, p=0.04). 142 patients (52%) achieved weight loss during the follow-up (≥10%, ≥7% and ≥5% in 8.2%, 6% and 7.3% of the cohort respectively). The total number of patients with a QRISK3 score≥10% decreased from 156 (62.7%) to 97 (48.5%).
**Conclusions.** A multidisciplinary NAFLD approach was effective in improving liver-related and CV risk factors. A strong collaboration between primary and secondary care is essential to implement and maintain these improvements in the long term.

## FAT-SHAPED MICROBIOTA AFFECTS LIPID METABOLISM, LIVER STEATOSIS AND INTESTINAL HOMEOSTASIS IN MICE FED A LOW-PROTEIN DIET

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**Aim.** Protein malnutrition is characterized by stunted growth, hepatic steatosis and a damaged gut mucosal architecture. Since high-fat shaped gut microbiota (HFM) has an increased ability in providing nutrients and energy from food to the host, the aim of this study was to determine whether such a microbiota could beneficially impact on the consequences of malnutrition.
**Methods.** The cecal content of specific pathogen free C57Bl/6 mice fed a high-fat diet or a low-protein diet was transplanted in two groups of germ-free C57Bl/6 recipient mice, which were subsequently fed the same low-protein diet for 8 weeks.
**Results.** Body weight gain was comparable between the two groups of microbiota-recipient mice. The high-fat shaped microbiota (HFM) led to a worsening of microvesicular steatosis and a decrease of plasma lipids compared to the low-protein shaped microbiota (LPM). In the ileum of mice receiving HFM, villi length, crypt depth and presence of neutral and acid mucins were not different. On the contrary, the expression of antimicrobial genes promoting oxidative stress and immune response at the gut epithelium (Duox2, Duoxa2, Saa1, Defa5, Ang4) was increased. In the colon, the same histological parameters were evaluated, and the crypt depth was reduced in HFM- compared to LPM-recipient mice.
Microbiota composition was evaluated shortly after the transplant and at the end of the study by next generation sequencing, and we found signatures specific to the two experimental groups.
**Conclusion.** The transplant of HFM in mice fed a low-protein diet represents a noxious stimulus for the ileal mucosa and impairs hepatic lipoprotein secretion, favoring the occurrence of hepatic microvesicular steatosis.