aspartate aminotransferase (P≤0.05). Parameters significantly increased in HFHC (P≤0.05), were ameliorated by PFD, such as weight (body, liver, and heart), tibia length, epididymal fat, hepatic steatosis, hormones (insulin, glucagon, leptin, plasminogen activator inhibitor 1), lipid profile (total cholesterol, triglycerides, LDL, and VLDL), as well as inflammatory foci and fibrosis in hepatic and cardiac tissue (P≤0.05). Moreover, PFD reduced alanine aminotransferase (P≤0.05).

Conclusions: In the current work, we showed that PFD increases hormone expression levels, which are implicated in the lipids and carbohydrates metabolism, and also improves expression levels of lipid profile and lipoproteins related with NASH and CVDs. These findings contribute and support the potential therapeutic of PFD for the prevention of NASH and cardiovascular disease development induced by obesity.

Ethical statement

All experiments in the mice were done and results were reported in accordance with the ARRIVE guidelines. The protocol was approved by the CUCS Research

Committee at the University of Guadalajara (protocol number: CI-01419).

Declaration of interests

None

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Metabolic dysfunction-associated fatty liver disease in overweight and obese pediatric population: clinical and biochemical characterization

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Introduction and Objectives: Metabolic dysfunction-associated fatty liver disease (MAFLD) is currently the most common chronic liver disease in children and adolescents. In Mexico, there are no studies that demonstrate its incidence and prevalence, nor its clinical and biochemical characteristics; we don't have a clinical practice guideline, nor guidelines for screening, treatment, and follow-up. Our objective is to identify the clinical and biochemical features of MAFLD in overweight and obese pediatric patients.

Materials and methods: Observational, descriptive, ambispective and cross-sectional study. Patients were recruited from the Pediatric Gastroenterology outpatient clinic of the University Hospital of Puebla for a period from 2019 to 2022, selecting those with overweight and obesity, who were confirmed with a diagnosis of MAFLD through biochemical and imaging tests.

Results: 38 patients met criteria; 63.2% (n=24, ±4.03) correspond to the male sex, compared to 36.8% (n=14, ±3.56) of the female sex. It was more frequent in adolescents (78.9%) and with a higher proportion of patients with obesity (76.3%); no school patient was diagnosed as overweight; all patients in this age group presented obesity at the time of diagnosis.

The total number of patients who presented ALT elevation in diagnostic criteria was 52.6%. Regarding metabolic alterations, the following were found more frequently: Hypoalphalipoproteinemia (50%), Hypertriglyceridemia (42.1%) and elevation of HOMA-IR (91.9%). When evaluating Vitamin D levels, all were altered in insufficiency (42.9%) and deficiency (57.1%). NonHDLC/HDLC index levels have a statistically significant correlation (p0.039) with ALT levels.

Conclusions: MAFLD development is more frequent in male adolescents who are overweight and obese. Using ALT levels as criteria for hepatic steatosis by biochemical marker in the absence of an imaging study may facilitate diagnosis in the MAFLD algorithm. The indices associated with lipid levels (TG/HDLC and nonHDLC/HDLC) may indicate an increased risk for developing MAFLD.

Ethical statement

The protocol was registered and approved by the Ethics Committee. The identity of the patients is protected. Consentment was obtained.

Declaration of interests

None

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Table 1
Anthropometric and biochemical data for overweight and obesity

Variable	Overweight (n=9) Media y DS	Obesity (n=29) Media y DS	p
Age	14 (1.73)	12.5 (3.68)	**0.013**
Stature (mts)	1.63 (0.08)	1.55 (0.16)	0.163
Weight (kg)	67.93 (10.11)	68.37 (20.4)	0.931
CC (cm)	93.35 (9.57)	90.99 (11.08)	0.609
IMC (kg/m2)	25.16 (2.22)	27.47 (4)	0.110
ALT (U/L)	50.66 (26.5)	72 (82.4)	0.452
AST (U/L)	42.11 (21.8)	43.84 (35.39)	0.891
CT (mg/dl)	167.88 (46.5)	147.5 (40.3)	0.263
LDL (mg/dl)	90.62 (37)	73.97 (25.54)	0.144
HDL (mg/dl)	42.28 (16.82)	42.99 (18.67)	0.921
TG (mg/dl)	175.88 (105.33)	140.15 (77.42)	0.285
Insulin (uU/ml)	21.02 (6.44)	25.73 (13.4)	0.166
Glucose (mg/dl)	90.22 (4.99)	89.46 (6.63)	0.703

Statistically significant p values were underlined. mts: meters, kg: kilograms, cm: centimeters, mg/dl: milligrams/deciliters, uU/ml: microunits per milliliter.

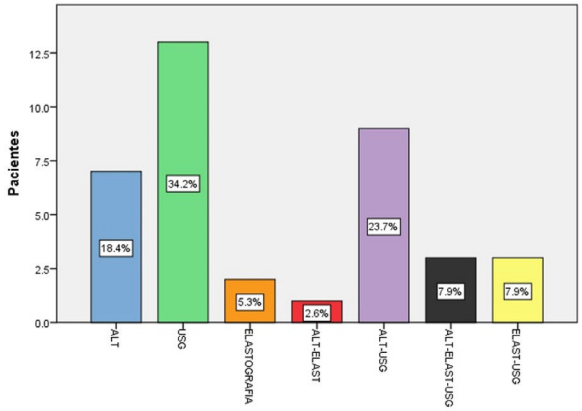

Figure 1. Type of diagnosis

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