dysfunction-associated steatotic liver disease (MASLD). Nopal and Pirfenidone (PFD) increase insulin signaling and decrease hepatic steatosis in obese mice. We investigated PFD and nopal on anthropometric parameters in obese mice and with diethylnitrosamine (DEN).

Materials and Methods: Five-six-week-old male C57BL/6J mice were treated with a single dose of DEN (25 mg/kg) and fed with a high fat diet (HFD, 60 kcal% from fat: D12492) for 16 weeks. Animals were provided ad libitum access to food and water. The mice were randomly divided into eight groups (n=5 for each group): normal diet (ND), ND plus DEN (ND+DEN), HFD, HFD plus DEN (HFD+DEN), HFD plus DEN plus supplements (cellulose, maltodextrin, and casein; HFD +DEN+SUPPL), HFD plus DEN plus nopal (HFD+DEN+NOP), HFD plus DEN plus PFD (HFD+DEN+PFD), and HFD plus DEN plus NOP plus PFD (HFD+DEN+NOP+PFD). Freeze-dried nopal in fine powder (7%) were mixed with HFD and PFD (300 mg/kg/day) also were mixed with HFD. PFD dosage was adjusted according to body weight and mixed with the diets three times a week. Food intake was measured three times a week, and measurement of body weight each week. Experiments were done according to ARRIVE guidelines. Statistical significance of anthropometric data was determined for parametric data with one-way ANOVA analysis of variance followed by Tukey's post hoc analysis, statistical analyses were performed using SPSS.

Results: All HFD mice developed obesity (P≤0.05), and PFD and NOP plus PFD reduced body weight (P≤0.05). Liver weight was increased in HFD, HFD+DEN, and HFD+DEN+SUPPL groups (P≤0.05), and epididymal fat was increased in all HFD mice (P≤0.001), but NOP, PFD, and NOP plus PFD reduced liver weight (P≤0.05) and PFD, and NOP plus PFD decreased epididymal fat (P≤0.05). Heart weight was increased in HFD, HFD+DEN, HFD+DEN+SUPPL, and HFD+DEN+NOP groups (P≤0.05), but NOP (p=0.06), PFD, and NOP plus PFD reduced it (P≤0.001). The heart weight/body weight ratio was reduced in all mice with HFD (P≤0.001), and only NOP plus PFD increased the heart weight/body weight ratio (P≤0.05). Liver weight/body weight ratio tended to increase in HFD and HFD plus DEN, but decreased with NOP, PFD, and NOP plus PFD (P≤0.05). Body weight/tibia length ratio was increased in all HFD mice (P≤0.01) and decreased with PFD and NOP plus PFD (P≤0.05). Heart weight/tibia length ratio was increased in HFD, HFD+DEN, HFD+DEN+SUPPL, and HFD+DEN+NOP (P≤0.01), but decreased with PFD and NOP plus PFD (P≤0.001). Epididymal fat weight/tibia length ratio was increased in all HFD mice (P≤0.001) but decreased with PFD (P=0.07) and NOP plus PFD (P≤0.05) (Figure 1).

Conclusions: In this study, we showed that intervention with nopal and pirfenidone improved epididymal fat weight and anthropometrical parameters in obese mice with DEN, this effects observed are possibly due to increased insulin sensitivity and decreased hepatic steatosis by nopal and pirfenidone.

Ethical statement: CUCS Research Committee at the University of Guadalajara approved this study (protocol number: CI-01724).

Declaration of interests: None.

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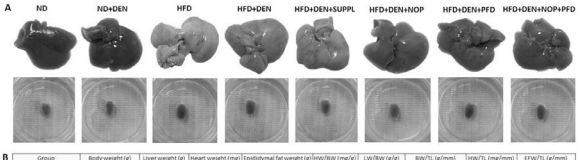

Group	Body weight (g)	Liver weight (g)	Heart weight (mg)	Epididymal fat weight (g)	HW/BW (mg/g)	LW/BW (g/g)	BW/TL (g/mm)	HW/TL (mg/mm)	EFW/TL (g/mm)
ND	28.2 ± 0.66	1.37 ± 0.04	120.6 ± 1.83	0.81 ± 0.05	4.28 ± 0.04	0.04 ± 0.0006	1.57 ± 0.03	6.73 ± 0.11	0.04 ± 0.003
ND+DEN	27.8 ± 0.80	1.27 ± 0.05	115 ± 3.61	0.57 ± 0.04	4.13 ± 0.09	0.04 ± 0.0008	1.53 ± 0.04	6.35 ± 0.20	0.03 ± 0.002
HFD	50.6 ± 1.02***	2.87 ± 0.20***	162.2 ± 6.86***	1.85 ± 0.04***	3.20 ± 0.08***	0.05 ± 0.003	2.76 ± 0.04***	8.84 ± 0.34***	0.10 ± 0.002***
HFD+DEN	49.6 ± 0.74$^{\#\#\#}$	2.32 ± 0.06$^{\#\#\#}$	162 ± 8.27$^{\#\#\#}$	2.08 ± 0.09$^{\#\#\#}$	3.26 ± 0.15$^{\#\#\#}$	0.04 ± 0.001	2.72 ± 0.04$^{\#\#\#}$	8.90 ± 0.43$^{\#\#\#}$	0.11 ± 0.004$^{\#\#\#}$
HFD+DEN+SUPPL	48.2 ± 0.86$^{\#\#\#}$	1.92 ± 0.10$^{\#}$	143.8 ± 1.74$^{\#\#}$	2.11 ± 0.11$^{\#\#\#}$	2.98 ± 0.09$^{\#\#\#}$	0.03 ± 0.003	2.71 ± 0.03$^{\#\#\#}$	8.10 ± 0.08$^{\#\#\#}$	0.11 ± 0.007$^{\#\#\#}$
HFD+DEN+NOP	43.2 ± 2.97$^{\#\#\#}$	1.59 ± 0.19$^{\#}$	140.4 ± 5.71$^{\#\#\$\$}$	1.87 ± 0.04$^{\#\#\#}$	3.28 ± 0.14$^{\#\#\#}$	0.03 ± 0.002*	2.39 ± 0.15$^{\#\#\#}$	7.85 ± 0.33$^{\#\#}$	0.10 ± 0.002$^{\#\#\#}$
HFD+DEN+PFD	41.8 ± 1.46$^{\#\#\$,*}$	1.43 ± 0.09**	121 ± 2.98***	1.73 ± 0.04$^{\#\#\$,*}$	2.90 ± 0.07$^{\#\#\#}$	0.03 ± 0.001$^{\$,**}$	2.31 ± 0.07$^{\#\#\$,*}$	6.71 ± 0.15***	0.09 ± 0.002$^{\#\#\$,\#,\$,\$\$}$
HFD+DEN+NOP+PFD	36.6 ± 1.60$^{\#\#\$,***,\$\$\$}$	1.27 ± 0.09$^{***,\$}$	124 ± 5.64***	1.70 ± 0.09$^{\#\#\$,\$\$}$	3.39 ± 0.06$^{\#\#\$,\$\$}$	0.03 ± 0.001$^{\$,**}$	2.01 ± 0.08$^{\#\#\$,***,\$\$\$,\#}$	6.82 ± 0.18$^{***,\$}$	0.09 ± 0.005$^{\#\#\$,\$\$}$

Figure 1. Effects of Nopal and Pirfenidone on anthropometric values in obese mice. A) Macroscopic comparison of liver and heart between obese mice. B) Anthropometric values in obese mice. HW, Heart Weight; BW, Body Weight; LW, Liver Weight; TL, Tibia Length; EFW, Epididymal fat weight; ND, Normal Diet; DEN, Diethylnitrosamine; HFD, High Fat Diet; SUPPL, Supplements; NOP, Nopal; PFD, Pirfenidone. Data are expressed as mean ± SEM. For group comparisons (n = 5/group), one-way ANOVA followed by Tukey's post hoc analysis. ***P<0.001 vs ND; $^{\#}$P<0.05, $^{\#\#}$P<0.01, $^{\#\#\#}$P<0.001 vs ND+DEN; p=0.07, p=0.06, *P<0.05, **P<0.01, ***P<0.001 vs HFD+DEN; $^{\$}$P<0.05, $^{\$\$}$P<0.01, $^{\$\$\$}$P<0.001 vs HFD+DEN+SUPPS; $^{\$}$P<0.05 vs HFD+DEN+NOP; $^{\$}$P<0.05 vs HFD+DEN+PFD.

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Polycystic liver disease in a third level hospital

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Introduction and Objectives: Polycystic liver disease is part of a group of rare congenital disorders that result from altered development of the embryonic ductal plate. The prevalence is 1/10,000 to 1/158,000. The objective is to describe the characteristics of patients with polycystic liver disease at the General Hospital of Mexico.

Materials and Patients: Observational, cross-sectional, descriptive study, case series type, during the period from January 2018 to May 2024, carried out in the outpatient clinic of the liver clinic in the Gastroenterology service of the General Hospital of Mexico "Dr. "Eduardo Liceaga." Patients over 18 years of age who had at least one imaging study (ultrasound of the liver and bile ducts, computed tomography of the abdomen, magnetic resonance imaging of the abdomen) where characteristic imaging data of hepatic cysts with a number equal to or greater than 10 were identified. According to findings, it was classified according to Gigot and also as autosomal dominant polycystic liver disease (ADPD) and autosomal dominant polycystic kidney disease (ADPD). The clinical records were collected, the following data were collected: sex, age, body mass index, comorbidities, a history of family members with polycystic liver and/or kidney disease, the presence of high blood pressure, unintentional weight loss, studies were intentionally collected. laboratory tests of liver biochemical tests, extrahepatic symptoms, complications of polycystic disease and previous treatments, if they are in the transplant protocol. The statistics of the liver clinic offices were reviewed. Frequencies and percentages were used to summarize qualitative variables and mean and standard deviation were used for quantitative variables.

Results: During the period from January 2018 to May 2024, 56 patients were included, the majority of women (83.9%). With an average age of 58.8 ±20 years. Of them, 26.8% as EPHAD, and 73.2% are associated with EPRAD. 12 patients with Gigot III. No weight loss in 92.8%. 25% with a family history of polycystic kidney and/or liver disease. The most frequent comorbidity was SAH in 44.6% followed by those who did not present comorbidities in 39.3%. The most frequent symptom was abdominal pain in 26.8%, followed by abdominal distention and early satiety in 14.3 and 12.5% respectively and asymptomatic patients in 44.6%. Complications were presented as cyst infection and bile duct obstruction, which corresponds to 3.6%. The results of the analysis up to 5.4% with alteration of the synthesis function, 5.4% with alteration of the transaminases, in the blood count 5.4% between mild and moderate anemia, 3.6% with leukocytosis, 7.1% with thrombocytopenia, the Renal function was altered in 32.2%, and dyslipidemia was recorded in 17.9 to 35.7%. In statistics of the liver clinic outpatient consultation, 61,493 consultations were granted, and the prevalence is calculated at 0.09%.

Conclusions: Polycystic liver disease is a rare disorder with a prevalence of 0.09% for our institution. Most growth monitoring should be performed with imaging studies and questionnaires for symptoms and quality of life. Gigot III and severe symptoms must be individualized for surgical or definitive treatment by liver transplant.

Ethical statement: The study was carried out in accordance with good clinical practice guidelines and the Declaration of Helsinki.

Declaration of interests: None.

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