EFFECTS OF BARIATRIC SURGERY VERSUS PHARMACOLOGICAL TREATMENT ON OXIDATIVE STRESS IN METABOLIC SYNDROME.

ID# 0037

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Background: Oxidative stress (OS) and inflammation would be the pathogenic promoters of structural alterations observed in metabolic syndrome (MS). Atorvastatin and Metformin could improve cellular functionality by restoring the redox state, preventing MS liver lesions. In addition, bariatric surgery would be an effective alternative to treat MS by acting on obesity.

Objective: In an experimental model of MS, we analyzed the combined pharmacological response of atorvastatin and metformin, and the action of sleeve gastrectomy (SG) on biomarkers of OS and liver histology.

Methods: Male Wistar rats were used (8 per group): (A) Control, (B) MS, (C) MS+Atorvastatin+Metformin and (D) MS+SG. MS was induced by 10% fructose for 6 weeks. Atorvastatin 10 mg and metformin 500 mg were administered for 45 days. The GM bariatric technique was performed, ensuring a gastric restriction of at least 80% with 45 postoperative days. Nitric oxide (µM) and superoxide dismutase (U/mL) were quantified to verify the OS state. The liver tissue was analyzed by optical microscopy (OM). Statistics: ANOVA, and hotelling as a post hoc test, "p" significance level < 0.05.

Results

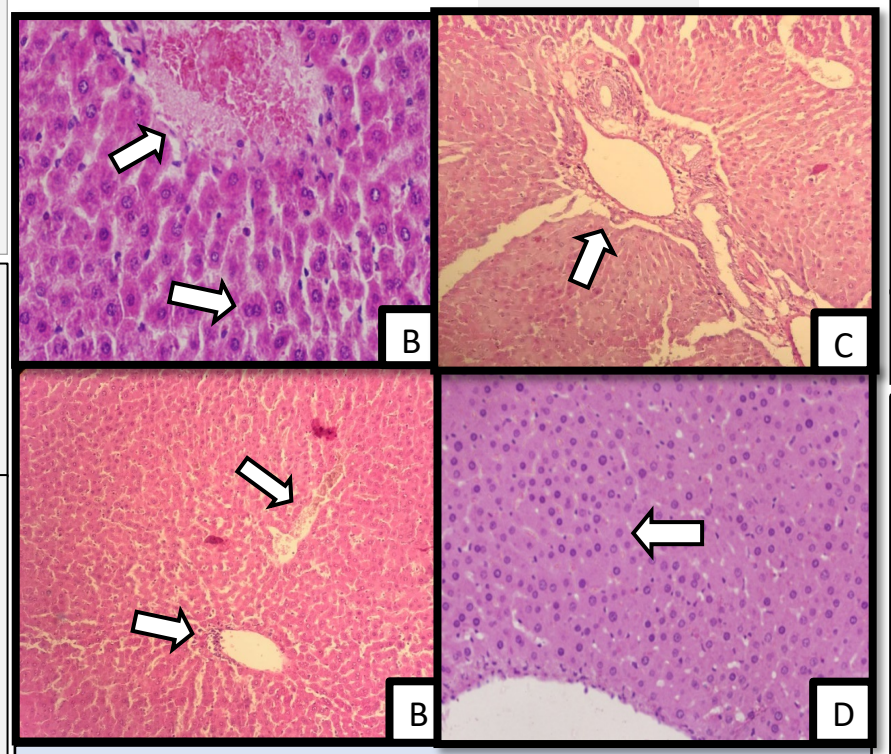

Figure 1: Liver histological analysis: In (B) OM showed binucleation, periportal inflammatory infiltrate, vacuolization, and congestive blood vessels. The groups (C) and (D) presented preserved liver architecture.

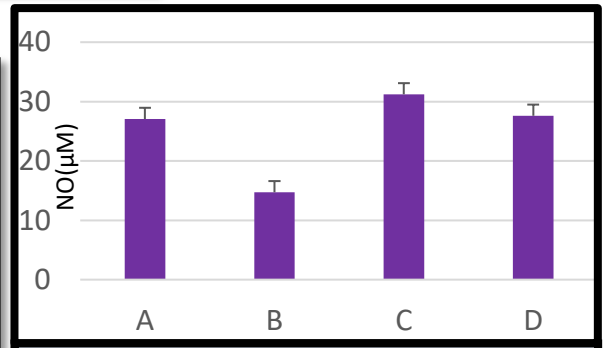

Figure 2: NO levels in the groups studied
Mean±SE: (B) vs. (A), (C): p<0,001. (B) vs (D): P<0,01

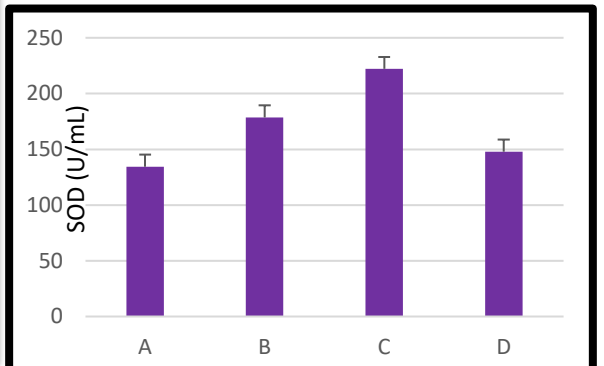

Figure 2: Enzymatic activity of superoxide dismutase in the groups analyzed
Mean±SE:(B) vs. (A), (C): p<0,001. (B) vs (D): P<0,004

Conclusion: Pharmacological treatment and bariatric surgery are optimal alternatives, because they have shown a remission of OS and restoration of liver damage.

- Marchisello S, et al. Pathophysiological, Molecular and Therapeutic Issues of Nonalcoholic Fatty Liver Disease: An Overview. *Int J Mol*

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