RipK3 decreased. Also, the TUNEL assay shows that DHA and DHA +MaR1 promote apoptosis in hepatocytes.

**Conclusions:** Taken together, these results suggest that DHA +MaR1 improves the parameters of DEN-induced liver fibrosis, activating hepatocyte proliferation and apoptosis and restoring the damaged parenchyma. These results open the possibility of DHA + MaR1 as potential therapeutic agents in fibrosis and other liver pathologies.

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## P-23 TEST AND TREAT: PROFILE OF PATIENTS DIAGNOSED WITH HEPATITIS C IN THE PRISON SYSTEM OF PORTO ALEGRE, BRAZIL

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**Introduction and Objectives:** Hepatitis caused by the C virus (HCV) is a public health problem whose greatest challenge is access to diagnosis and treatment. The population deprived of liberty is considered a priority for approaches involving the disease. This study aimed to identify the prevalence of HCV among patients tested in prisons in Porto Alegre, Brazil and describe the diagnosed profile of the patients.

**Materials and Methods:** A cross-sectional study with a quantitative approach. Through the "test and treat" project, rapid testing for HCV and the treatment of diagnosed cases were carried out, providing specific pharmacotherapy, without face-to-face specialist medical consult, within 30 days in 5 prisons in Porto Alegre.

**Results:** 1272 tests were performed with a prevalence of 2.04% of HCV (table 1).

The "test and treat" also welcomed patients diagnosed at the entrance door of prisons providing treatment for the disease, totaling 44 patients diagnosed in these prisons. With the exception of 3 patients with non-reactive viral load, 24.4% of patients have already completed treatment, 36.6% of patients are currently undergoing treatment, 22% are awaiting test results or a change of antiretroviral regimen for HIV and 17.1 % went free from prison. As for the profile of patients, 81.8% are male. The age group with the highest prevalence of patients is 41 to 50 years old (33.3%). Regarding race/color, 41.9% of patients are black and 58.1% are white. Regarding drug use, 50% of patients reported using or had used injectable, inhaled substances and/or crack. The patient's APRI score was 0.6 (F0-F1) and FIB-4 was 1.28 (F0-F1).

**Conclusions:** This is an innovative action for the Population Deprived of Liberty, as it is the first time that patients with HCV have been treated in municipal prisons because of the particularities of the prison system.

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Table 1

| Prison | total | Tests | | Reagents | | | |
|---|---|---|---|---|---|---|---|
| | | HCV/HBV | %performed | HCV+ | % HCV reagents | HBV+ | %HBV reagents |
| Presídio Feminino Madre Pelletier | 315 | 314 | 99,7% | 8 | 2,55% | 3 | 0,96% |
| Instituto Psiquiátrico Forense Doutor Maurício Cardoso | 156 | 156 | 100,0% | 2 | 1,28% | 2 | 1,28% |
| IPF - Alta Progressiva | 29 | 0 | 0,0% | 0 | 0,00% | 0 | 0,00% |
| Penitenciária Estadual de Porto Alegre | 610 | 282 | 46,2% | 12 | 4,26% | 0 | 0,00% |
| Cadeia Pública de Porto Alegre | 2651 | 487 | 18,4% | 4 | 0,82% | 1 | 0,21% |
| Instituto Penal Irmão Miguel Dario | 130 | 33 | 25,4% | 0 | 0,00% | 0 | 0,00% |
| TOTAL | 3891 | 1272 | 32,7 | 26 | 2,04% | 6 | 0,47% |

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## P- 24 RISK OF MULTIPLE DRUG INTERACTIONS POTENTIALLY LINKED TO SAFETY IN PATIENTS RECEIVING PANGENOTYPIC DIRECT-ACTING ANTIVIRALS FOR THE TREATMENT OF HEPATITIS C

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**Introduction and Objectives:** Previous studies have evaluated the risk of drug-drug interactions (DDI) in HCV patients receiving pangenotypic direct-acting antivirals (pDAA). This study aimed to describe the prevalence of the risk of potential multiple DDI (multi-DDI) and its clinical impact in patients treated with pDAAs.

**Materials and Methods:** A retrospective observational study from a Spanish database of 1.8 million inhabitants, including patients treated with Sofosbuvir/Velpatasvir [SOF/VEL] or Glecaprevir/Pibrentasvir [GLE/PIB] (2017- 2020). Demographics, comorbidities, comedications, and DDIs were evaluated. The severity and impact of the DDIs were evaluated using the University of Liverpool tool. Additionally, the ICD-9 coding system was used to identify the presence of suspected adverse drug reactions (SADR) during the treatment. An indirect indicator of effectiveness was evaluated (requirement of a new DAA in the six months after the end of the pDAA).

**Results: 1620 patients were included; 730 with SOF/VEL (median age:** 55 y; 62% men; 37.8% F3/4) and 890 with GLE/PIB (53 y; 60% men; 28% F3/4). The most prescribed drugs were neurological (35.8%), digestive (24.1%) and cardiovascular (14.2%). 77.5% of patients received ≥2 comedications. The number of patients receiving ≥ 2 comedications at risk of multi-DDI with pDAAs was 123 (9.8%, 123/1256), 52 with SOF/VEL and 71 with GLE/PIB. Patients showing increased risk in comedication as a DDI outcome were 31% (22) with GLE/PIB and 11% (6) with SOF/VEL ($p < 0.001$). The risk of decrease in pDAA with GLE/PIB was 32% (23) and with SOF/VEL 46% (24) (p=NS).

Regarding SADR, there was a higher number in the GLE/PIB group (14) vs. SOF/VEL group (4) ($p<0.05$). 84% (16/18) of patients with SADR had a multi-DDI profile. 13% of total multi-DDIs patients showed SADR; GLE/PIB group showed SADR in 18% (13/71) vs 6% (3/52) in SOF/VEL group ($p<0.05$). Most SADR were reported in statin group, percentage higher in the GLE/PIB group vs. SOF/VEL group ($p<0.05$).

Both pDAAs showed a similar percentage of patients restarting a new pDAA within six months after the end of treatment (1.0% and 1.1%, respectively, p=NS).

**Conclusions:** In Spain, about 10% of HCV patients taking ≥ 2 comedications are at risk of multiple DDI with pDAAs. The potential risk of increased comedication as DDI outcome and the presence of suspected adverse reactions were higher in GLE/PIB in comparison with SOF/VEL.

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## P- 25 ANTIOXIDANT EFFECT OF MORINGA OLEIFERA IN A MURINE MODEL OF NONALCOHOLIC STEATOHEPATITIS

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**Introduction and Objectives:** One of the main mechanisms in the development and progression of nonalcoholic steatohepatitis involves oxidative and endoplasmic reticulum stress. Several studies have reported therapeutic effects of Moringa oleifera leaf extracts in different animal and cellular models due to their antioxidant, anti-inflammatory and lipid-lowering effects. This study aimed to evaluate the effect of Moringa oleifera aqueous extract on biomarkers of oxidative stress in a murine model of non-alcoholic steatohepatitis.

**Material and methods:** Characterization of the aqueous extract was performed by DPPH and ABTS spectrophotometric assays. Male C57BL/6J mice were randomized into two groups. 1) Conventional diet (ND) (n = 5) (18% lipid) and 2) High-fat diet (HF) (n = 10) (60% lipid and 42 g/L sugar in water of use) for 16 weeks. On the ninth week, five animals in the HF group were divided into a subgroup, 3) Moringa Oleifera (HF + MO), 290 mg/kg/day p.o. for eight weeks. Malondialdehyde (MDA) levels were determined in liver homogenates and the transcriptome was measured by microarrays. miRNAs involved in liver disease were also determined. Statistical analysis was performed by differences between groups determined by ANOVA or Kruskal-Wallis test.

**Results:** Moringa aqueous extract showed antioxidant capacity; DPPH values were $10081.4 \pm 0.3$ and $22960.4 \pm 0.3$ for ABTS. Hepatic MDA levels increased in the HF group compared to the ND group ($p<0.05$) and decreased in the moringa-treated group ($p<0.05$). The transcriptome analysis demonstrated the downregulation of genes involved in endoplasmic reticulum stress. The miR-122-5p, miR-21a-5p, miR-34a-5p and miR-103-3p decreased in the MO-treated group.

**Conclusions:** Moringa oleifera treatment might be considered a therapeutic alternative for the NASH spectrum of liver disorders.

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## P- 26 EFFECT OF PROTEIN X OF THE HEPATITIS B VIRUS AND HEXACHLOROBENZENE ON LIVER CELL GROWTH DYSREGULATION

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**Introduction and Objectives:** Chronic hepatitis B and exposure to persistent organic pollutants (COPs) can lead to cellular hepatocarcinoma (HCC), the most common liver tumor. HBV DNA encodes transactivator x, HBx protein. The HBx is required to initiate and maintain HBV replication. Hexachlorobenzene (HCB), COPśmember, is a promoter of hepatic preneoplastic foci. We have shown that HCB increases in rat liver PCNA, TGF-$\beta$1, VEGF and neo-angiogenesis in vivo models. This study aimed to analyze in vitro two models of HCC generation -associated with HCB or with the expression of HBx-.

**Materials and Methods:** The HCB effect on cell number (BrdU incorporation by Immunohistochemistry), PCNA (Western blot), TGF-$\beta$1 (RT-PCR) was studied in vitro in: 1.1) Huh-7; 1.2) Huh-7 transfected with HBx; 2) HepG2.2.15 (stable expression HBV) and 3) EA-hy926 (endothelial cell). In these last, an inhibitor of TGF-$\beta$1-RII (SB431542) was used. In 1.2, 2 and 3 used, 5$\mu$M HCB, 24h; in 1, we performed time (30, 60, 90 and 120) and dose (0,005; 0,05; 0,5 and 5$\mu$M) curves. Evaluated: a) PCNA protein levels, b) TGF-$\beta$1 levels and positive cell number/total cell.

**Results:** In Huh-7, TGF-$\beta$1 increased (20%, 69% and 78%, with 0.05, 0.5 and 5$\mu$M HCB, respectively) and PCNA (45% and 60%, with 0.5 and 5 $\mu$M HCB, respectively). In Huh-7/HBx, PCNA and TGF-$\beta$1 increased by 86% and 71%, respectively. In Huh-7/HBx and 5$\mu$M HCB, PCNA increased by 120% and TGF-$\beta$1 by 91%. In HepG2.2.15 PCNA was overexpressed by 76%. In EA-hy926, PCNA 29% and TGF-$\beta$1 by 43% increased. Both effects were prevented by pre-incubating endothelial cells with the specific inhibitor of TGF-B1 RII after HCB 5$\mu$M.

**Conclusions:** HCB and HBx induce cell proliferation in vitro. This effect is equivalent for both agents (HCB and HBx) and is enhanced by combining them. The proliferative effect is associated with TGF-$\beta$1 increase, which mediates the proliferation generated on both HCC and endothelial cell lines. These findings could partially explain the molecular mechanism involved in human HCC cell proliferation, disease progression and neo-angiogenesis.

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## P-27 CELLULAR EFFECTS OF *IN VITRO* LIPID OVERLOAD ON HEPATIC STELLATE CELLS AND HEPATOCYTES.

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