Research# 1-2021

An extremely rare complete bilateral duplication of Inferior vena cava in a male cadaver: anatomy, embryology and clinical relevance

S. Shaheen et al., **A rare duplication of inferior vena cava**

S Shaheen, KI Alyahya, AF El Fouhil, EEA Salama, M Atteya, F Elshaer, H Darwish

Journal of Folia Morphologica (2021)

DOI: 10.5603/FM. a2021.001

Pubmed: 33634838

ABSTRACT

The study presented an extremely rare case of real complete bilateral duplication of inferior vena cava (IVC) in a male cadaver which has never been reported before. Both IVC had approximately the same diameter. The right IVC drained into the right atrium; the left IVC continued as hemiazygos vein and drained into the superior vena cava. Three anastomotic venous channels, a cranial preaortic, a middle and a caudal retroaortic, joined both vessels. Multiple variations in the way of drainage of posterior intercostal veins, on both sides, were also present. The present report invalidates an old classification defining the two vessels when joined at the level of the renal veins as complete bilateral duplication of IVC. Although the presence of combination of venous variations is extremely rare, awareness of such variations is essential for clinical and surgical procedures to avoid misdiagnosis and surgical complications.

Research# 2-2021

Chitosan nanoparticles as a promising candidate for liver injury induced by 2-nitropropane: Implications of P53, iNOS, VEGF, PCNA, and CD68 pathways

Sameerah Shaheen, Maha M Arafah, Aliah R Alshanwani, Laila Mohammed Fadda, Ahlam M Alhusaini, Hanaa M Ali, Iman H Hasan, Hanan Hagar, Fatima MB Alharbi, Alaa AlHarthii

Journal of Science Progress (2021):104 (2)

Doi:10.1177/00368504211011839

ABSTRACT

The current article was designed to assess the role of chitosan nanoparticles (CNPs) in the management of hepatic injury induced by the hepatocarcinogen 2-nitropropane (2-NP). Rats were divided into three groups. The first group served as a control, the second group was injected with 2-NP, while the third group was treated with CNPs 1 h before 2-NP injection every other day for 4 weeks. The 2-NP injection upregulated serum AST and ALT activities, as well as hepatic TNF- α, IL-6, and MDA levels and the expression of vascular endothelial growth factor (VEGF) and caspase-3, whereas GSH contents and SOD activity were decreased. Immunohistochemistry investigations revealed that the hepatic protein expression of collagen I, inducible nitric oxide synthetase, proliferating cell nuclear antigen, cluster of differentiation, and p53 were upregulated. hematoxylin and eosin (H&E) and Masson's trichrome stains supported the previous parameters, and CNPs ameliorated most of the previous biochemical parameters. CNPs achieved promising results in the limitation of 2-NP hepatotoxicity.

Research# 3-2021

Anti-Proliferative Activity of Glucagon-Like Peptide-1 Receptor Agonist on Obesity-Associated Breast Cancer: The Impact on Modulating Adipokines' Expression in Adipocytes and Cancer Cells

Alaa A Alanteet, Hala A Attia, **Sameerah Shaheen**, Musaed Alfayez, Bisher Alshanawani

Journal of Dose-Response (2021) 19 (1)
Doi: 10.1177/1559325820949797

ABSTRACT

Obesity is associated with high risk and poor prognosis of breast cancer (BC). Obesity promotes BC cells proliferation via modulating the production of adipokines, including adiponectin (anti-neoplastic adipokine), leptin (carcinogenic adipokine) and inflammatory mediators. In the present study we investigated the anti-proliferative effects of liraglutide (LG; anti-diabetic and weight reducing drug) on MCF-7 human BC cells cultured in obese adipose tissue-derived stem cells-conditioned medium (ADSCs-CM) and whether this effect is mediated via modulating the adipokines in ADSCs and cancer cells. Proliferation was investigated using AlamarBlue viability test, colony forming assay and cell cycle analysis. Levels and expression of adipokines and their receptors were assayed using ELISA and RT-PCR. LG caused 48% inhibition of MCF-7 proliferation in obese ADSCs-CM, reduced the colony formation and induced G0/G1 phase arrest. LG also decreased the levels of inflammatory mediators, suppressed the expression of leptin, while increased mRNA levels of adiponectin and their receptors in obese ADSCs and cancer cells cultured in obese ADCSs-CM. In conclusion, LG could mitigate BC cell growth in obese subjects; therefore, it could be used for clinical prevention and/or treatment of BC in obese subjects. It may assist to improve treatment outcomes and, reduce the mortality rate in obese patients with BC.

Research# 4-2021

Association of cyclin-dependent kinase inhibitor 2B antisense RNA 1 gene expression and rs2383207 variant with breast cancer risk and survival

Kattan SW, Hobani YH, **Shaheen S**, Mokhtar SH, Hussein MH, Toraih EA, Fawzy MS, Abdalla HA.

Journal of Cellular & molecular biology letters (2021) 26 (1): 1-25

DOI: 10.1186/s11658-021-00258-9

ABSTRACT

Background: The expression signature of deregulated long non-coding RNAs (lncRNAs) and related genetic variants is implicated in every stage of tumorigenesis, progression, and recurrence. This study aimed to explore the association of lncRNA cyclin-dependent kinase inhibitor 2B antisense RNA 1 (CDKN2B-AS1) gene expression and the rs2383207A>G intronic variant with breast cancer (BC) risk and prognosis and to verify the molecular role and networks of this lncRNA in BC by bioinformatics gene analysis.

Methods: Serum CDKN2B-AS1 relative expression and rs2383207 genotypes were determined in 214 unrelated women (104 primary BC and 110 controls) using real-time PCR. Sixteen BC studies from The Cancer Genome Atlas (TCGA) including 8925 patients were also retrieved for validation of results.

Results: CDKN2B-AS1 serum levels were upregulated in the BC patients relative to controls. A/A genotype carriers were three times more likely to develop BC under homozygous (OR = 3.27, 95% CI 1.20-8.88, P = 0.044) and recessive (OR = 3.17, 95% CI 1.20-8.34, P = 0.013) models. G/G homozygous patients had a higher expression level [median and quartile values were 3.14 (1.52-4.25)] than A/G [1.42 (0.93-2.35)] and A/A [1.62 (1.33-2.51)] cohorts (P = 0.006). The Kaplan-Meier curve also revealed a higher mean survival duration of G/G cohorts (20.6 months) compared to their counterparts (A/A: 15.8 and A/G: 17.2 months) (P < 0.001). Consistently, BC data sets revealed better survival in cohorts with high expression levels (P = 0.003). Principal component analysis (PCA) showed a deviation of patients who had shorter survival towards A/A and A/G genotypes, multiple lesions, advanced stage, lymphovascular invasion, and $HER2^{+}$ receptor staining. Ingenuity Pathway Analysis (IPA) showed key genes highly enriched in BC with CDKN2B-AS1.

Conclusions: The findings support the putative role of CDKN2B-AS1 as an epigenetic marker in BC and open a new avenue for its potential use as a therapeutic molecular target in this type of cancer.

Research# 5-2020

Manipulation of Quercetin and Melatonin in the Down-Regulation of HIF-1α, HSP-70 and VEGF Pathways in Rat's Kidneys Induced by Hypoxic Stress

Aliah R Alshanwani, **Sameerah Shaheen**, Laila M Faddah, Ahlam M Alhusaini, Hanaa M Ali, Iman Hasan, Hanan Hagar, Raeesa Ahmed, Fatima MB Alharbi, Alaa AlHarthii

Journal of Dose-Response (2020) 18 (3)
Doi: 10.1177/1559325820949797

ABSTRACT

Hypoxia may lead to inflammatory responses by numerous signaling pathways. This investigation intended to inspect the defensive role of Quercetin (Quer) and/ or Melatonin (Mel) against reno toxicity induced by Sodium nitrite (Sod ntr). Sod ntr injection significantly decreased blood hemoglobin concentration (Hb) with a concurrent increase in serum tumor necrosis factor- α, interleukin-6, C-reactive protein, creatinine, and urea levels. Over protein-expression of vascular endothelial growth factor and heat shock, protein-70 and mRNA of HIF-1α were also observed. Pretreatment of the Sod ntr- injected rats with the aforementioned antioxidants; either alone or together significantly improved such parameters. Histopathological examination reinforced the previous results. It was concluded that the combined administration of Quer and Mel may be useful as a potential therapy against renal injury induced by Sod ntr. HIF-1α and HSP-70 are implicated in the induction of hypoxia and its treatment.

Research# 6-2020

The beneficial effects of antioxidants combination on cardiac injury induced by tetrachloromethane

Alshanwani AR, Faddah LM, Hagar H, Alhusaini AM, **Shaheen S**, Mohammad RA, Alharbi FMB, AlHarthii A, Badr AM.

Journal of Drug and Chemical Toxicology (2020) 1-9
DOI: 10.1080/01480545.2020.1831012

ABSTRACT

The purpose of this research was to evaluate the efficacy of carsil (CAR) either alone or in combination with α-tocopherol (α-TOCO) and/or turmeric (TUMR) against tetrachloromethane (TCM)-induced cardiomyocyte injury in rats. Administration of CAR either alone or in combination with α-TOCO and/or TUMR post-TCM injection, significantly mitigated the increases in serum troponin T, creatine kinase-MB (CK-MB) as well as interleukin-6 (IL-6), interferon γ (IFN-γ), tumor necrosis factor-α (TNF-α), C-reactive protein (CRP). They also decline the elevation of caspase-3, vascular endothelial growth factor (VEGF) protein expression as well as DNA damage in cardiac tissues induced by TCM. The biochemical results were confirmed by histopathological investigation. Conclusion: The combination of the three antioxidants showed greater cardioprotective potential, compared to individual drugs. Therefore, this combination may be recommended as a complementary therapy to antagonize cardiac injury induced by different insults.

Research# 7-2020

Cyanocobalamin and/or calcitriol mitigate renal damage-mediated by tamoxifen in rats: Implication of caspase-3/NF-κB signaling pathways

Alshanwani AR, Mohamed AM, Faddah LM, **Shaheen S**, Arafah MM, Hagar H, Alhusaini AM, Alharbi FMB, AlHarthii A, Badr AM

Journal of Life Sciences (2020) 277: 119512

DOI: 10.1016/j.lfs.2021.119512

ABSTRACT

Aim: Tamoxifen (TAMO) is a chemotherapeutic drug used for the treatment of breast cancer. Nevertheless, there is a lack of information available in regarding its nephrotoxicity. The purpose of this work was to investigate the impact of cyanocobalamin (COB) and/or calcitriol (CAL) injections on TAMO-induced nephrotoxicity.

Main methods: Animals were allocated into five groups as follows: normal control group; TAMO (45 mg/kg) administered group; TAMO+COB (6mg/kg, i.p) treated group; TAMO+CAL (0.3 μg/kg, i.p) treated group; TAMO+COB+CAL combination groups.

Key findings: Renal injury induced by TAMO was confirmed by the alteration in renal function parameters in the serum (urea and creatinine), as well as in the urine (creatinine clearance, total protein and albumin). These results were supported by histopathological examination. Upregulation of renal inflammatory parameters; tumor necrosis factor (TNF)-α, interleukin (IL)-6, C-reactive protein (CRP); and transforming growth factor (TGF)-β1 as well as in protein expression of nuclear factor-kappa B (NF-κB) and cleaved caspase-3 were observed to a greater extent in the TAMO-treated rats compared with the control. Renal fibrosis was also evidenced by a elevation in renal L-hydroxyproline level as well as by histomorphological collagen deposition in TAMO-treated groups compared to the control group. Administration of COB and/or CAL concurrently with TAMO significantly ameliorated the deviation in the above-studied parameters and improved the histopathological renal picture.

Significance: Inhibition of NF-κβ-mediated inflammation and caspase-3-induced apoptosis are possible renoprotective mechanisms of COB and/or CAL against TAMO nephrotoxicity, which was more noticeable in the TAMO group treated with the combination of the two vitamins in question.

https://pubmed.ncbi.nlm.nih.gov/?term=sameerah+shaheen&filter=datesearch.y_5

https://scholar.google.com/citations?view_op=list_works&hl=en&hl=en&user=blzUguAAAAAJ