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## Effect of anakinra on cirrhotic cardiomyopathic rats

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**Background:** Cirrhotic cardiomyopathy (CCM) is a chronic cardiac dysfunction in cirrhotic patients. It is characterized by hyper dynamic circulation from the peripheral vasodilatation imposed by the neuroendocrine imbalance of hepatic cirrhosis, with increased cardiac output at rest, decreased peripheral vascular resistance and altered diastolic relaxation with electrophysiological abnormalities. The electrical abnormalities include elongation in the QT intervals. Interleukin-1 beta (IL-1 β) is an important proinflammatory cytokine; both IL-1β and tumor necrosis factor α (TNFα) exerted a negative inotropic effect in control papillary muscles through an NO-dependent mechanism, leading to NO production, which played an important role in the pathogenesis of CCM.

**Aim:** Aim of this study is to examine the curative and prophylactic effect of IL-1β blocker (anakinra) on CCM in rats.

**Methods:** CCM was induced by bile duct ligation (BDL) in rats, after 23 days cirrhosis was demonstrated by histopathological studies and serum alkaline phosphatase (ALP), alanine transferase (ALT), aspartate transferase (AST) and cardiomyopathy was confirmed by electrocardiograph, serum brain natriuretic (BNP), glutathione transferase (GSTs), TNFα and tissue cardiac troponin I (cTnI). Anakinra was administered to curative group in day 24 of BDL for five daily doses and it was administered to prophylactic group from day 1 of BDL for 28 daily doses. The data were analyzed by one way ANOVA.

**Results:** After 23 days, serum ALP, AST, ALT, BNP, GSTs, TNFα, tissue cTnI were increased and prolonged QT intervals occurred. After 28 days, in comparison to control CCM group, the curative group 10 mg/kg dose of anakinra significantly decreased in serum ALP, AST, ALT, BNP, GSTs, TNFα, tissue cTnI ($p<0.005$) and in the prophylactic group 10 mg/kg dose of anakinra, they showed significant decrease ($p<0.005$), and the restoration of QT intervals occurred in both groups.

**Conclusion:** Targeted blocker of IL-1 β may prove beneficial for reduction and prophylaxis of CCM.

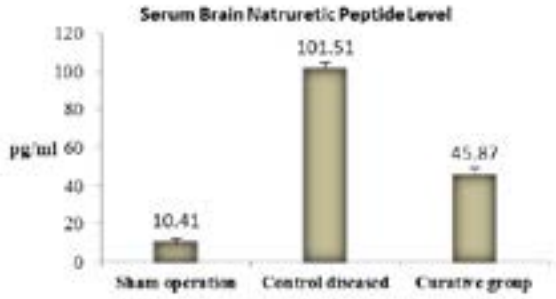


**Figure 1:** The effect of anakinra in dose of 10 mg/kg on serum BNP in cirrhotic cardiomyopathic (CCM) rats.

### Biography

Aya Y Gawish completed her Graduation at Sinai University in 2011 and MSc in 2015. Her research interest is focus on "Efficacy of natural products to help in improving diabetes mellitus, effect of anti-inflammatory in improving cirrhotic cardiomyopathy, in cardiac diseases and liver diseases

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