

Abstract



## Metformin exerts anti inflammatory effects on mouse colon smooth muscle cells in vitro

## Dana Al-Omari

Jordan University of Science and Technology, Jordan

## Abstract:

Inflammatory bowel disease (IBD) is a chronic incurable condition characterized by relapsing inflammation of the gut. Intestinal smooth muscle cells (SMCs) are affected structurally and functionally during IBD due to excessive production of different inflammatory mediators. Metformin is a widely used antidiabetic agent known to exert several anti inflammatory effects in different tissues independently from its hypoglycemic effect. The aim of the present study was to investigate the effect of metformin on expression and secretion of different cytokines and chemokines from mouse colon SMCs (CSMCs) following induction of inflammation with lipopolysaccharide (LPS) in vitro. CSMCs from male BALB/c mice were isolated and cultured in Dulbecco's modified Eagle's medium and treated with LPS (1 µg/ml) and 0, 5, 10 or 20 mM metformin for 24 h. Expression and secretion of tumor necrosis factor [] (TNF []), interleukin 1[] (IL 1[]), macrophage colony stimulating factor (M CSF), T cell activation gene 3 (TCA 3) and stromal cell derived factor 1 (SDF 1) was evaluated by ELISA. LPS treated CSMCs demonstrated significantly increased expression of TNF I, IL 1I, M CSF, TCA 3 and SDF 1 when compared with the control group (P<0.05). Co treatment with metformin (5 and 10 mM) significantly reduced their expression by  $\sim 2040\%$ when compared with LPS treatment alone (P<0.05). Fur-



thermore, secretion of TNF I, IL 1I, M CSF and TCA 3 into the conditioned media was significantly decreased by metformin (5 and 10 mM; P<0.05). In addition, metformin decreased levels of LPS induced nuclear factor IB phosphorylation. These data suggest that metformin may provide beneficial anti inflammatory effects on CSMCs and it may be utilized as an adjunct therapy for patients suffering from IBD.

## **Biography:**

Dana has completed her MBBS at the age of 23 years from Jordan University of science and technology . She has published 2 papers in reputed journals . she's doing her residency in pediatric at King Abdulla University Hospital in Jordan.

7th International conference on Medical and Nursing education, July 17, 2020, Vienna, Austria

Citation: Dana Ahmad Al-Omari, Metformin exerts anti inflammatory effects on mouse colon smooth muscle cells in vitro, 7th International conference on medical and nursing education, July 17, 2020, Vienna, Austria.