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Abstract Discussion Forum **(0)**

Number: Tu1415

PIRFENIDONE AND SIMVASTATIN REDUCE CHRONIC PANCREATITIS BY MODULATING THE IMMUNE SYSTEM AND CYTOKINES IN L- ARGININE INDUCED MOUSE MODEL

Society: AGA
Track: Pancreatic Diseases

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Background and Aim: Chronic pancreatitis is a progressive, debilitating condition with no current specific treatment. Pirfenidone and Simvastatin are potential therapeutic agents with anti-inflammatory and anti-fibrotic effects on pancreatic acinar cells. This study aims to evaluate the synergistic effects of Simvastatin and Pirfenidone in an L-Arginine-induced chronic pancreatitis model in mice.
Methods: A pre-clinical, seven-week study was conducted using a mouse model of L-Arginine-induced chronic pancreatitis. Mice were assigned to five groups: Normal Control, Model Control, Pirfenidone, Simvastatin, and Combination (Pirfenidone + Simvastatin). Treatments began in the third week of disease induction. Mice were sacrificed at weeks four and seven for blood sampling and tissue collection for histological and biomarker analysis, including cytokines, oxidative stress markers, and fibrosis indicators.
Results: In comparison to the model control, combination therapy significantly ($p<0.001$) decreased the levels of the fibrotic marker TGF-Î² (277.10:236.13 vs 434.91:550.52), inflammatory markers TNF-Î± (19.6:11.1 vs 13.7:24.3) and IL-10 (14.2:11.17 vs 18.6:19.6) at both the fourth and seventh weeks. GPx-1 levels, indicative of antioxidant activity, were higher in all treatment groups relative to the model control, with statistical significance observed in the Pirfenidone group (2.08:5.04 vs 2.44:1.92). The oxidative stress marker LPO was significantly lower in the combination group (164.84:111.87 vs 114.82:192.85) compared to model control. Histological investigation revealed significant collagen deposition and exocrine pancreatic degeneration in model, whereas tissue architecture remained intact across all treatment groups.

Conclusion: The combination of Pirfenidone and Simvastatin demonstrated a synergistic therapeutic effect in reducing inflammation, fibrosis, and oxidative stress in an L-Arginine-induced chronic pancreatitis mouse model, suggesting a promising approach for managing chronic pancreatitis.

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Pankaj Desai

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