

Abstract

Background of Study:

Acute kidney injuries are more common by certain group of drugs. Gentamicin which is derived from aminoglycoside group of drugs is one of the main cause for acute nephrotoxicity despite it is been widely used for severe gram-negative bacterial infection. Identification of effective agents in ameliorating acute nephrotoxicity caused by gentamicin is necessary to allow gentamicin's frequent clinical use.

Objectives:

The objective is to find the potential effect of gemfibrozil and felodipine in gentamicin-induced acute nephrotoxicity in male rats.

Methodology:

42 adult male Sprague-Dawley rats were divided into six groups, each consists of seven rats. Group 1 served as control, group 2 was injected with gentamicin (80mg/kg/day) intraperitoneally for continuous 8 days, group 3 served as gemfibrozil *per se* (30mg/kg/day) administered orally for 8 days, group 4 served as felodipine *per se* (30mg/kg/day) administered orally for 8 days, group 5 served as gemfibrozil treated group where gemfibrozil was administered orally (30mg/kg/day) for 9 days, whereas gentamicin was injected intraperitoneally (80mg/kg/day) for 8 days, group 6 served as felodipine treated group where felodipine was administered orally (30mg/kg/day) for 9 days, whereas gentamicin was injected intraperitoneally (80mg/kg/day) for 8 days. Body weight was measured. Animals were sacrificed and blood sample was collected for serum creatinine and serum urea estimation. Kidneys were removed for weight measurement and histopathological studies.

Results:

Increased serum creatinine and serum urea level was observed in gentamicin treated group of experimental rats. Severe structural and functional damage to the rat renal cortex was also observed. Pre-treatment with gemfibrozil and felodipine significantly reduced the concentration of serum creatinine and serum urea levels as compared to gentamicin control group. The structural damage to the rat renal cortex was also significantly improved with administration of gemfibrozil and felodipine.

Conclusion:

In conclusion, the oral administration of gemfibrozil and felodipine has successfully attenuated kidney dysfunctions caused by gentamicin. Both gemfibrozil and felodipine possess reno-protective effect and it potentially can reverse the acute nephrotoxicity caused by gentamicin.