SUMMARY

Acute renal failure is a reversible condition in which there is impaired ability of the kidney to eliminate waste products and maintain fluid and electrolyte balance. The clinical use of aminoglycosides may be limited by the risk of nephrotoxicity. The most widely used aminoglycoside is gentamicin, but the gentamicin nephrotoxicity is responsible for 10–20% of all cases of acute renal failure.

Taurine is a sulfur containing amino acid; it is the major intracellular free ß-amino acid that plays various important physiological roles. It participates in several biologic processes in the kidney.

This study was carried out in order to investigate the role of taurine in the protection against gentamicin induced acute renal failure.

This study was carried on 3 main groups of adult male albino rats. The first of them is the control group injected (i.p.) with 0.9% NaCl. Group II was injected with gentamicin in a dose of 80 mg/kg/day (i.p.) for a week for induction of acute renal failure. Group III was injected with taurine in three different doses 4 ml/kg/day, 7.5 ml/kg/day and 10 ml/kg/day (i.p.) plus gentamicin injection in a dose of 80 mg/kg/day (i.p.) for a week.

The parameters used to evaluate acute renal failure were BUN, serum creatinine and histopathological changes of the kidney tissues.

The obtained results of this study could be summarized as follow:-

- Gentamicin injection in a dose of 80 mg/kg/day (i.p.) for a week ; resulted in acute renal failure manifested by significant increase in BUN, serum creatinine and sever changes in the histopathological finding as compared with the control group.
- Taurine injection in a dose of 4 ml/kg/day plus gentamicin in a dose of 80 mg/kg/day for a week resulted in significant decrease in BUN and serum creatinine and also showed moderate histopathological changes as compared with gentamicin injected group.
- When taurine by its 2 doses 7.5 ml/kg and 10 ml/kg is injected together with gentamicin for one week, there is significant decrease in BUN and serum creatinine with mild histopathological changes in renal tissues as compared with that group injected with taurine in a dose of 4 ml/kg.
- The effect of taurine was dose dependent meaning that by increasing the dose of taurine from 4 ml to 7.5 ml, there is more protective effect against gentamicin induced renal failure.
- There were no significant changes between the 2 doses of taurine 7.5ml/kg and 10 ml/kg as the 2 doses perform the same effect on BUN, serum creatinine and the histopathological finding.

From the above results we conclude that gentamicin is a risk factor for nephrotoxicity and that taurine is protective against acute tubular necrosis that may be caused by gentamicin.