

ABSTRACT

Background : Late extra hepatic obstructive jaundice patients undergoing internal biliary drainage show increased risk of acute ischemic renal failure with potentially high morbidity and mortality.

Objective : The aim of this study was to investigate the significance of disturbed ANF (Atrial Natriuretic Factor) and ET-1 (Endothelin-1) balance as a probable cause on the induction of acute ischemic renal failure after internal biliary drainage (ID) in experimental animal model of late extra hepatic obstructive jaundice.

I. Preliminary Study :

Methods : Bile Duct Ligation (BDL) were done on adult male and female Wistar rats (Weight : 203-226 g and Age : 20 –24 Weeks, n = 36 18 pairs). Thereafter ID were done by choledochoduodenostomy on different days (7th,14th,17th,21st,25th, 28th,31st, and 35th days) post BDL, ID was done on 4 rats (2 pairs). ID was not performed on 4 rats to be used as controls.

Result : Control-rats and rats-undergoing-ID on the 7th days until the 21st days post BDL, appeared to be healthy until the end of the experiments. But the results were different on rats where ID was performed on 25th days until the 35th days post BDL these rats showed an increased number of mortality due to acute renal failure. The results were confirmed by histopathological examination showing glomerular and proximal tubules damages in patchy area , an evidence of acute ischemic renal failure.

Conclusion : These data support the hypothesis that if ID was performed in late obstructive jaundice patient, it would cause a high risk of acute renal failure.

II. Definitive Study :

Methods : 20 adult male Wistar rats (Weight :190-220 g and Age : 20-24 Weeks), were

Divided into 5 groups consisting of 4 rats each. The 1st group was used as control. 2nd group for shamed operation (SO). BDL was performed on rats of the 3th , 4th , and the 5th groups. In addition to BDL, ID was performed on rats assigned to the 4th and 5th group after 14th and 35th days post BDL. On the 38th days post BDL all the 20 rats were sacrificed for serum and renal parenchimal determination ANF and ET-1. Serum ANF and ET-1 were determined by Enzyme linked immunosorbent assay (ELISA), while renal parenchimal ANF and ET-1 were investigated by immunohistochemistry staining (IHS).

The obtained data were then statistically analyzed.

Results : The concentraion of ANF and ET-1 in systemic blood and renal parenchimal cells the 1st, 2nd , 3th and the 4th groups was approximately equal to that of control rats, no significant differences in serum ANF and ET-1 between rats belonging to all these groups except those in group 3. Rats in group 3 showed a highly increased serum ANF and ET-1 but without an significant difference in the ANF/ET-1ratio to the other groups. Thus the increase of ANF in group 3 is followed by a comparable increase in ET-1. in the renal parenchimal cells ANF and ET-1 in group 3 is significantly higher than control (group 1). But rats in group 5 shows a significantly higher ET-1 and lower ANF than control.

Conclusion : The data from this experimental animal study provides evidence that ID performed on late extra hepatal obstructive jaundice caused ANF and ET-1 balance disturbance and trigerred the acute ischemic renal failure.

Key words : ANF, ET-1 , Delayed Internal Drainage, Acute Renal Failure