

Hepcidin in acute iron toxicity

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Objective: Hepcidin or HAMP (Hepcidin Antimicrobial Peptide) is a hormone, which regulates extracellular iron concentration. Hepcidin acts by inhibiting iron release from macrophages to the blood and preventing iron absorption in the intestine. In acute iron poisoning, serum iron levels do not always correlate with the clinical status of the patient. Therefore, other markers that predict the severity of intoxication are needed. The objective of the current study was to evaluate the expression of hepcidin in the liver and kidney in acute iron poisoning. **Methods:** Male wistar rats were assigned to 2 groups: 1.Group 1 received 750 mg / kg elemental iron (LD50) by gavage and Group 2 (control) received distilled water. Rats were sacrificed two to four hours after drug administration. Hepcidin levels were measured in the liver and kidneys. Iron concentrations and liver transaminases, were measured in the liver, kidneys and in the blood. Median serum iron levels were significantly higher in group I compared to group II: 818mg/L and 210mg/L respectively ($p < 0.0001$). The same results were seen for AST: 176 IU/L in group I compared to 125 IU/L in group II ($p = 0.01$), ALT: 81 IU/L in group I compared to 45 IU/L in group II ($p < 0.0001$) and Uric acid: 1.74 mg/dl in group I compared to 0.57 mg/dl in group II ($p = 0.0001$). The levels of hepcidin in the liver were significantly higher in the iron-receiving group compared to controls, median levels of hepcidin for groups I and II, were 1.53 and 0.77 respectively ($P = 0.005$). However in the kidney, no statistical difference was observed, median levels of hepcidin for groups I and II, were 0.18 and 1.7×10^{-4} respectively ($P = 0.15$). **Conclusion:** In acute iron intoxication hepcidin expression in the liver increased significantly.