Hepatoprotective studies on *Phyllanthus Niruri* on Paracetamol Induced Liver cell Damage in Albino Mice.

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Abstract

Single overdose of Paracetamol (500mg/kg) produced hepatotoxicity in mice as evidenced by degenerative changes, focal necrosis and sinusoidal dilatation. Dried 50% alcoholic extract of Phyllanthus niruri (P.N) and mixture of lignans isolated from P.N were screened for their hepatoprotective activity.

Biochemical & Histopathological studies conducted on extracts of P.N, commonly known as Jaramla in Hindi, and mixture of lignans, isolated from the petroleum ether extract of Phyllanthus niruri leaves, has got hepatoprotective effects in paracetamol induced liver damage. Regenerative changes, presence of binucleated cells, anisonucleosis and anisocytosis were seen in the drug treated groups.

Experimental method

Leaves of *Phyllanthus niruri* (PN) were extracted with petroleum ether and 50% ethanol by cold maceration process as described in I.P . Healthy albino mice (20-35g) of either sex were housed under uniform animal husbandry conditions and were fed with standard animal feed (Lipton’s India Ltd) and water ad–libitum. Animals were divided into different groups of 8 mice each. Group I served as vehicle control and received 1% gum acacia suspension. Group II received a single oral dose of paracetamol, as a super saturated solution in 0.9 % saline at the rate of 500mg/kg body weight. Group III received 2.0 ml /100g b.w of Liv-52 syrup orally with paracetamol. 48 hours after administration of paracetamol, IV & V groups received PN extract (100 mg/ 100g/day) and mixture of lignans of PN (50mg /100g/ day) for five consecutive days. 24 hours after the administration of last dose of drugs, blood was withdrawn from the mice and the serum was subjected to serum glutamic pyruvic transaminase (SGPT) estimation. The mice were sacrificed; their livers were exised, washed thoroughly with water and preserved in formalin for histopathological studies using Haematoxylin-eosin stain.

Key words: Paracetamol, Liv-52, Phyllanthus niruri, hepatoprotective activity.
Results

The SGPT levels were found to be significantly increased by paracetamol administration in mice of Group II. Large areas of necrosis surrounded in focal distribution, lymphocytes & lot of hemosiderin pigment were observed in 67% of animals on Histopathological examination.

Binucleated cells & anisonucleosis were observed in the mice treated with P.N extract & mixture of Phyllanthin and Hypophyllanthin after single dose of Paracetamol administration. (Fig I).

Biochemical studies in mice treated with Liv-52 after paracetamol treatment showed significant reduction in SGPT levels. Histopathological studies revealed binucleated cells and regenerative activity in 80% livers of mice of this group (Fig II).

Discussion

Paracetamol induced hepatic liver cell damage was studied in mice as its toxicity is maximum in mice. The animals became very weak and their body wt reduced considerably during one week experimental study. However, with the drugs (P.N and mixture of lignans from P.N) there was no reduction in the body weights and food consumption. Animals looked healthy. SGPT was taken as an index for biochemical estimation as it is more abundant in liver cells than in any other cells in body. Biochemical and histopathological studies revealed that paracetamol in a single oral dose of 500mg/kg body weight is hepatotoxic in mice. Extract of P.N leaves at a dose of 100mg/100g body weight has revealed hepatoprotective activity as is obvious from biochemical & histopathological studies. Moderate hepatoprotective activity was revealed in mice treated with mixture of lignans of P.N at the dose of 50mg/kg body weight.

REFERENCES: