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# Effect of Liv.52 on Growth and Alcohol-induced Hepatic Dysfunction in Rats

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Our earlier work on mice and rats has shown encouraging protective effects of Liv.52 against carbon tetrachloride induced hepatic toxicity (Joglekar *et al.* 1963; Karandikar *et al.* 1963). Hence the present work was undertaken on rats to study the effect of Liv.52 on growth and alcohol induced hepatic dysfunction.

## MATERIALS AND METHODS

### Part A: Effect on Growth:

We used 54 female albino rats of similar age and of weight range 90-100 gm divided into equal groups; one of them acted as a control. The other group received 4.0 ml/100 gm of Liv.52 paediatric drops daily by intragastric tube for seven weeks. Both groups were given the same diets (15 gms/rat/day) consisting of wheat flour, wheat bran, milk powder, calcium carbonate, table salt and kardai oil. Gain in weight was recorded every milk.

### Part B: Effect of Alcohol-induced Hepatic Dysfunction:

We used 14 albino rats of either sex and weight range 100-150 gm; divided them into two equal groups. One group was given orally 1.2 ml/100 gm body weight of 25% ethyl alcohol daily while the other group received Liv.52 paediatric drops 0.4 ml/100 gm along with the same dose of alcohol. All the rats were given the usual standard diet mentioned previously. At the end of 4 months, 2 rats from each group were sacrificed for ascertaining histological damage to the liver.

## RESULTS

Results are given in Tables 1 and 2.

**Table 1: Effect on growth**

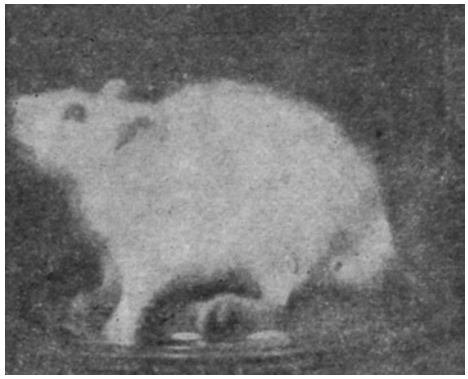
| Period | Control – Gain in wt. in gms/100 gms | Liv.52 treated – gain in wt. in gms/100 gms. | Significance |
|---|---|---|---|
| 1 week | 13.8 | 17.3 | $p>0.1$ |
| 2 weeks | 6.5 | 8.9 | $p>0.1$ |
| 3 weeks | 1.0 | 7.7 | $p<0.05$ |
| 4 weeks | 0.2 | 1.7 | $p<0.05$ |
| 5 weeks | 5.2 | 6.8 | $p<0.05$ |
| 6 weeks | 5.3 | 13.8 | $p<0.05$ |
| 7 weeks | 2.3 | 2.9 | $p>0.1$ |

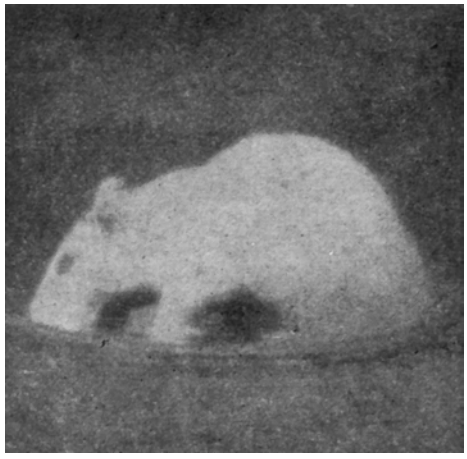
| Table 2: Part B | |
|---|---|
| Sleeping time in minutes Alcohol group | Sleeping time in minutes Alcohol + Liv.52 group |
| 37 | 27 |
| 71 | 31 |
| 52 | 32 |
| 68 | 27 |
| 69 | 36 |
| Mean 59.4 ± 3.3 | Mean 30.6 ± 3.3 $p<0.01$ |

**Part A: Table 1** (See Photographs)
Liv.52 has caused significant gain in weight as compared with control during 3rd to 6th weeks.

**Part B: Table 2**
Alcohol group showed a significant prolongation of hexobarbitone sleeping time as compared with the group receiving alcohol and Liv.52

**Histopathology of Livers:**
Initial fibrotic changes and suggestion of lobulation were observed in the livers from the alcohol group when the rats were sacrificed after 4 months of alcohol therapy. In the other group no such changes were noticed.


Rat from Control group


Rat from Liv.52 group

**COMMENTS**
Kopera and Armitage (1954) studied the effect of chlorpromazine and other drugs on growth by noting the increase or decrease in weight in order to have an approximate estimate of chronic toxicity. On a similar basis in this work the effect of Liv.52 administration (for seven weeks) was studied in rats. From the results (Table 1) it appears that Liv.52 causes significant gain in weight especially during 3rd and 6th weeks of administration as compared with the control rats.

Liv.52 has shown protective effects against liver toxicity in both clinical and experimental work (Patrao *et al.* 1957; Sheth *et al.* 1960). Liv.52 has shown promising results against carbon tetrachloride-induced liver damage (Joglekar *et al.* 1963, Karandikar *et al.* 1963). In this work ethyl alcohol – an alleged hepatotoxic agent was used. Ashworth (1947) fed 2.4 ml/100 gm of 25% ethyl alcohol to rats for 8 weeks to cause fatty infiltratioin of liver. This change was unaffected by various diets used. However, Best *et al.* (1949) could show that large doses of choline can prevent the fatty change and prehepatic fibrosis induced by 15% ethyl alcohol given as drinking water to rats for 7 months. Klatskin and Krehl (1954) got

similar results. We administered 1.2 ml of 25% ethyl alcohol group sacrificed after 4 months did show early fibrosis and suggestion of lobulation. These changes were totally absent in the rat livers from alcohol with Liv.52 group. From the results of Hexobarbitone induced sleeping time (Table 2) it appears that Liv.52 has significantly curtailed the prolongation of sleeping time observed in the alcohol group.

Kutob (1962) has shown that toxicity of ethanol can be increased when chloroform is administered subcutaneously. Attempt to produce significant liver damage with combined use of alcohol and chloroform is in progress.

**SUMMARY**

Liv.52, an indigenous proprietary medicine has beneficial effect on growth. Chronic alcohol administration for four months produced marked hepatic damage in rats, which could be protected by Liv.52.

**ACKNOWLEDGEMENTS**

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