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# Potentiation of Barbiturate Hypnosis in Rats by Liv.52

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## SUMMARY

*Our original plan was to investigate, employing pharmacological methods the reported hepatoprotective effect of Liv.52. But, it was observed that animals pretreated with Liv.52 slept for much longer time after an injection of pentobarbitone as compared to those who did not receive Liv.52. This unexpected observation greatly vitiated the protocol of our original study which had to be dropped. However, concentrating on this interaction between Liv.52 and pentobarbitone, we found, by logical deduction that the interaction is probably due to hepatic microsomal enzyme inhibition brought about by Liv.52. Interference with these enzymes is a feature of some commonly used drugs.*

*We would like to emphasize that the aim of the present communication is not at all to comment on the reported hepatoprotective action of Liv.52 but just to point out that in this era of polypharmacy, when patients have sometimes to be put on a number of drugs thereby risking drug interactions, Liv.52 appears to be another possible candidate which could interact with drugs – like pentobarbitone in this instance. We intend doing further studies involving more drugs.*

## INTRODUCTION

While screening some indigenous drugs for their possible hepatoprotective effects by taking possible hepatoprotective effects by taking pentobarbitone sleeping time as the parameter of hepatic function and carbon tetrachloride as the hepatotoxic agent, we observed that Liv.52 medication by itself prolongs pentobarbitone-sleeping time in rats. We report here the results of our study.

## MATERIALS AND METHODS

This study was done using 19 albino rats (Haffkine strain) of either sex and weighing between 140 and 165 g. They were fasted over night and pentobarbitone sleeping time was done next morning, injecting pentobarbitione i.p. at a dose of 25 mg/kg.

The same group of rats was re-used after a rest period of 3 weeks. They were administered Liv.52 (pediatric drops orally be means of a syringe and polythene tube at a dose of 0.5 ml/100 g. This was given once daily for 4 consecutive days during which time they were allowed free access to food and water. At the end of this $4^{th}$ day, they were fasted overnight and pentobarbitone sleeping time was done next morning. Statistical analysis was done by students 't' test.

## RESULTS

| Pentobarbitone sleeping time | | |
|---|---|---|
| Untreated rats | Treated rats | $p<0.05$ |
| 62.6 min. | 87.2 min. | |
| SD ± 22.89 | SD ± 38.07 | |
| SEM ± 5.249 | SEM ± 8.734 | |

## DISCUSSION

The results show that pretreatment with Liv.52 significantly ($P<0.05$) prolongs pentobarbitone sleeping time in rats. The potentiation of pentobarbitione by Liv.52 can possibly occur at three sites – site of absorption, site of excretion and site of metabolism.

Interference by Liv.52 with absorption of pentobarbitone is obviously ruled out since their routes of administration were different, namely oral and i.p. respectively.

Interference with excretion of pentobarbitone at the level of kidney also seems very unlikely to be responsible for potentiation of pentobarbitone sleeping time since pentobarbitone action is terminated mainly by metabolism in liver and it is the inactive metabolites that are mainly excreted by the kidney.

We therefore feel that Liv.52 inhibits pentobarbitone metabolism, thereby potentiating it. Since pentobarbitone is metabolized in the live by microsomal enzymes, we feel that inhibition of these enzymes by Liv.52 is responsible for this potentiation of sleeping time. This appears quite likely because inhibition of hepatic microsomal enzymes by several chemical substances is well documented.

This action of Liv.52 besides being of academic interest may be important from the point of view of drug interactions.