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SUMMARY AND CONCLUSION

1) In this investigation teratogenic effects of diethyl ether, pentobarbitone sodium and xylazine hydrochloride beside their effect on male fertility in rats were studied.

A- Teratogenic Effects:

Seven groups each of 20 pregnant female rats were used for revealing the dysmorphogenic effect of these drugs after their administration to pregnant mothers at 6<sup>th</sup> - 15<sup>th</sup> day of gestation.

1- Inhalation of diethyl ether in concentrations of 0.2% and 0.4% for 5 min caused 14.28, 21.89% resorption, 3.25, 7.10% mortality,  $3.86 \pm 0.11$ ,  $3.67 \pm 0.17$  weight/g,  $27.25 \pm 0.73$ ,  $26.63 \pm 0.95$  length/mm. and 100/166.7, 100/127.7 sex ratio corresponding to 1.82 resorption, 0.61% mortality,  $3.91 \pm 0.17$ , foetal weight/g,  $29.90 \pm 0.59$  foetal length/mm and 100/91.7 sex ratio in the control respectively. Moreover, this drug caused some visceral abnormalities in the fetuses as 6.38 and 16.28% microcephaly, abnormal development of the brain, 0.0 and 2.32% cleft palate, 4.25 and 18.60% cardiomegaly and 0.0 and 9.30% hydronephrosis in the tested doses respectively.

Skeletal malformations induced by the drug in both doses were 5.55 and 26.08% in the skull, 10.14 and 13.04 in ribs and 0.0 and 18.84% in limbs respectively.

- 2- Oral administration of pentobarbitone sodium in doses of 40 and 60 mg/kg b.wt. induced 7.23, 15.65% resorption, 4.82; 6.12% mortality,  $3.48 \pm 0.15$ ,  $3.41 \pm 0.18$  weight/gm,  $25.95 \pm 0.81$ ,  $24.20 \pm 0.94$  length/mm and 100/90.1, 100/65.3 sex ratio in comparison with 1.82% resorption, 0.61% mortality,  $3.91 \pm 0.17$  foetal weight/g,  $29.90 \pm 0.59$  foetal length/mm and 100/91.7 sex ratio in the control group respectively.

In addition, this drug caused visceral malformations in the foetuses as 40.00 and 17.50% microcephaly, 7.50 and 10.00% exophthalmia, 7.50 and 0.0% cardiomegaly, 2.50 and 5.00% dilatation of the renal pelvis in the tested doses respectively.

Skeletal deformities caused by the drug in both dose levels were 2.143 and 20.63% in the skull, 19.04 and 14.28% in the vertebral column, 26.19 and 22.22% in ribs and 27.38, 11.11% in limbs respectively.

- 3- Intramuscular injection of 2 and 4 mg/kg b.wt. xylazine hydrochloride produced 18.79, 43.77% resorption, 6.71,

6.63% mortality,  $4.22 \pm 0.14$ ,  $3.92 \pm 0.15$  weight/gm,  $30.77 \pm 0.83$ ,  $28.78 \pm 1.01$  length/mm. and 100/77.9, 100/63.2 sex ratio when compared with 1.82% resorption, 0.61% death,  $3.91 \pm 0.17$  foetal weight/g,  $29.90 \pm 0.59$  foetal length/mm and 100/91.7 sex ratio in the control group respectively.

Moreover, this drug caused some visceral malformations in the foetuses as 5.86% microcephaly, 5.26 and 0.0% cleft palate, 7.89 and 0.0% cardiomegaly, 0.0 and 17.14% dilatation of the renal pelvis in the tested doses respectively.

Skeletal deformities caused by xylazine hydrochloride in both doses were 18.31 and 9.30% in the skull, 15.49 and 0.0% in the vertebral column, 4.22 and 0.0% in ribs, 2.82 and 0.0% in sternbrae, 8.45 and 0.0% in limbs respectively.

#### B) Effects On Male Fertility:

The mean value of fertility obtained from 46 mature male rats was  $76.63 \pm 4.10$  as determined by serial mating.

The effect of diethyl ether in (0.2% for 5 min) pentobarbitone sodium (40 mg/kg b.wt.) and xylazine

hydrochloride (2 mg/kg b.wt.) were studied on male fertility in 3 equal groups, each of 12 ~~mather~~ male albino rats. Ten ~~ma~~ture male rats were kept as ~~co~~ntrol for the experiment.

Generally the tested drugs decreased the fertility percentages of rats. Moreover, the two former drugs significantly decreased the sperm cell concentration while the latter had no effect on it. Neither the motility nor the sperm head ~~abnormalities~~ were altered by these drugs.

The testicular weight was only affected following prolonged administration of diethyl ether. Histopathological changes in the testes, epididymidis and accessory sex glands were found.