SUMMARY

(1) The adrenergic blocking action of chlorpromazine was investigated in detail with rabbit aortic strip, rat seminal vesicles and cat and rabbit blood pressure.

(2) At all the concentrations studied chlorpromazine caused a parallel shift to the right of the dose-response curves for adrenaline and noradrenaline in rabbit aortic strip as well as in rat seminal vesicles indicating that the antagonism of the response to adrenaline and noradrenaline by chlorpromazine is competitive.

(3) In the case of rabbit aortic strip the pA_2 value for chlorpromazine in antagonising adrenaline was 13.94 while in antagonizing noradrenaline the value was 14.1 indicating that chlorpromazine is a potent adrenergic blocking agent.

The $pA_2 - pA_{10}$ was found to be 0.82 for antagonism of adrenaline response by chlorpromazine; for antagonism of noradrenaline response it was 1.2. These values are in good agreement with the theoretical value of 0.95 for competitive antagonism.

The mean log K_2 value for andrenaline antagonism was 13.99 which is almost the same as the pA_2 value (13.94).

High concentration of adrenaline and noradrenaline protected the receptors from blockade by chlorpromazine.

(4) The pA_2, $pA_2 - pA_{10}$ and mean log K_2 values in

rat seminal vesicles were closely similar to those obtained in the rabbit aortic strip confirming the competitive nature of the antagonism of adrenaline and noradrenaline by chlorpromazine.

(5) In chloralosed cats adrenaline pressor response was selectively depressed and sometimes reversed whereas noradrenaline pressor response was unaffected by small doses of chlorpromazine. Isoprenaline vasodepressor response was potentiated.

In cats treated with cocaine or hexamethonium, pressor response to noradrenaline was not blocked by chlorpromazine. This suggests that the inability of chlorpromazine to block the pressor response to noradrenaline could not be due to its blocking the uptake of noradrenaline by 'sites of loss'.

The depressor response to adrenaline elicited in the presence of small doses of chlorpromazine was converted to a pressor response when dichloroisoprenaline was given suggesting a sensitization of beta - adrenergic receptors with small doses of chlorpromazine. Equal depression of adrenaline and noradrenaline pressor responses was observed with large doses of chlorpromazine in the presence of dichloroisoprenaline. Thus in large doses chlorpromazine has an adrenergic blocking action in cats.

The nature of blocking action was investigated in detail. High doses of chlorpromazine caused a parallel shift of the dose response line of the pressor effect of noradrenaline to the right. When $\frac{1}{V}$ values (V = response) before and after different doses of chlorpromazine were plotted against the corresponding $\frac{1}{S}$ values (S = dose) lines of different slopes with a common intercepts were obtained. This indicates that the adrenergic blocking action of chlorpromazine in cats is competitive in nature.

(6) Chlorpromazine in small doses produced equipotent depression of pressor responses to adrenaline as well as to noradrenaline in rabbits.

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