R E S U L T S

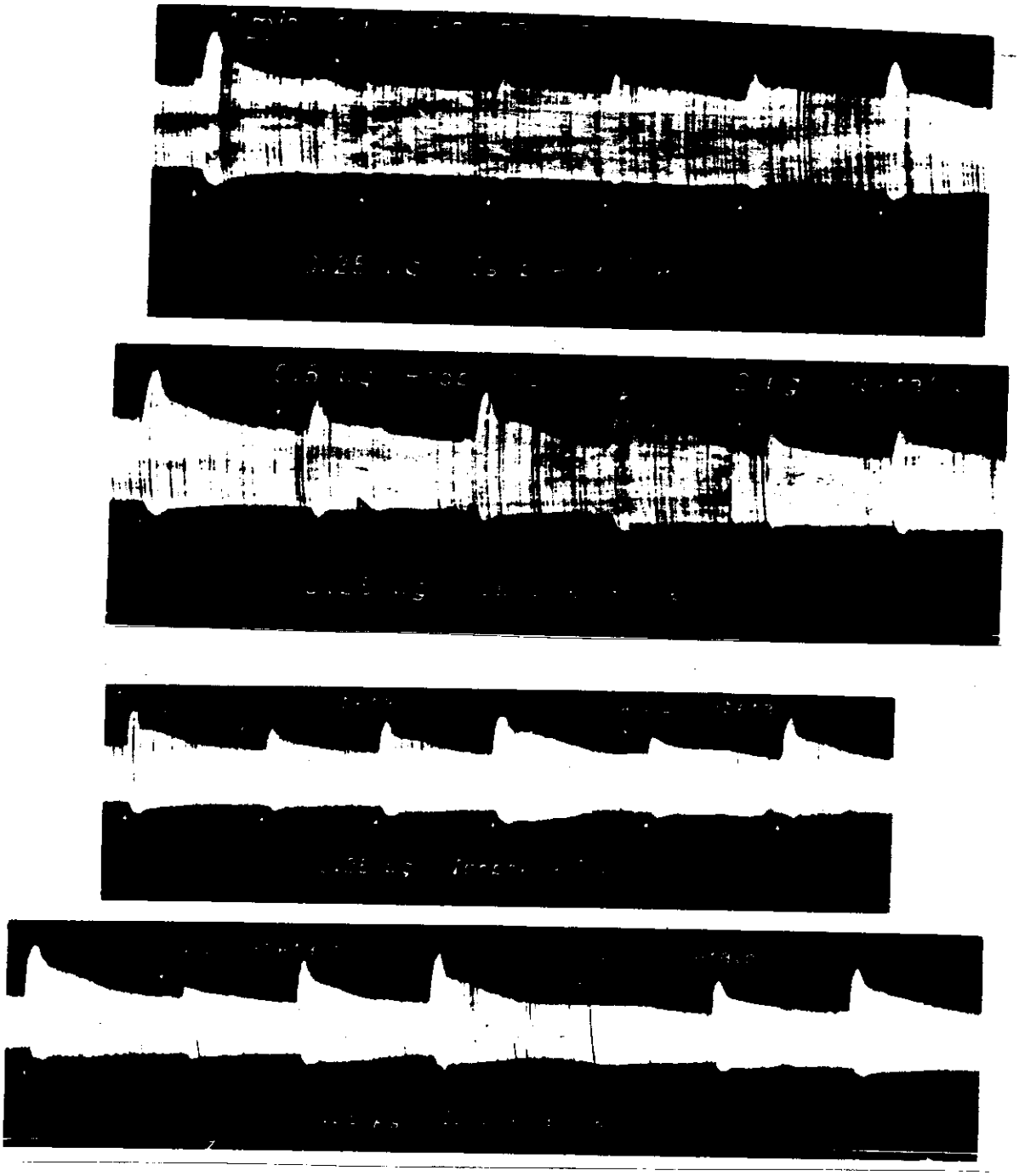
Comparative study of the antagonistic effect of propranolol HCl and labetalol HCl on the positive inotropic effect of isoprenaline on toad's heart: (Fig. 1)

Fig. (1) showed the rhythmic contractions of toad's heart.

- Addition of isoprenaline at a dose level of 0.25 µg produced an apparent increase in cardiac contraction of about 100%.
- Addition of propranolol HCl at a dose level of 1 µg was without significant effect on the rhythmic contractions of the heart. Isoprenaline, when readded again one minute after propranolol, did not produce any effect on the cardiac contraction. The control response to isoprenaline was only obtained after repeated addition of the same dose level of isoprenaline 6 times at 6 minutes interval.
- Addition of propranolol at a dose level of 0.5 µg did not abolish completely the positive inotropic effect of the same dose level of isoprenaline and the control response was obtained after repeated addition of isoprenaline two times at 6 minutes interval.
- It was shown that labetalol HCl added in doses of 2,

3, 4, 5 and 6 µg respectively did not affect significantly the rhythmic contraction of toad's heart.

- It was noticed that the dose of 2 µg labetalol HCl only reduced the control response to isoprenaline by 33% which could be regained after repeated addition of isoprenaline two times at 6 minutes interval.
- Meanwhile a dose of 3 µg labetalol HCl reduced the control response to isoprenaline by 40%. The control response was reobtained after repetition of addition of isoprenaline two times at 6 minutes interval.
- It was shown that a dose of 4 µg labetalol HCl inhibited the control response to isoprenaline by 45% which was reproducible after readdition of two doses of isoprenaline at 6 minutes interval.
- A dose of 5 µg labetalol HCl reduced the control response to isoprenaline by 50% that could be reobtained after repeating addition of the same dose level of isoprenaline two times at 6 minutes interval.
- Increasing the dose level of labetalol to 6 µg was sufficient enough to abolish completely the control response to isoprenaline which could be demonstrated again after repetition of addition of isoprenaline at the same dose level at 6 minutes interval.

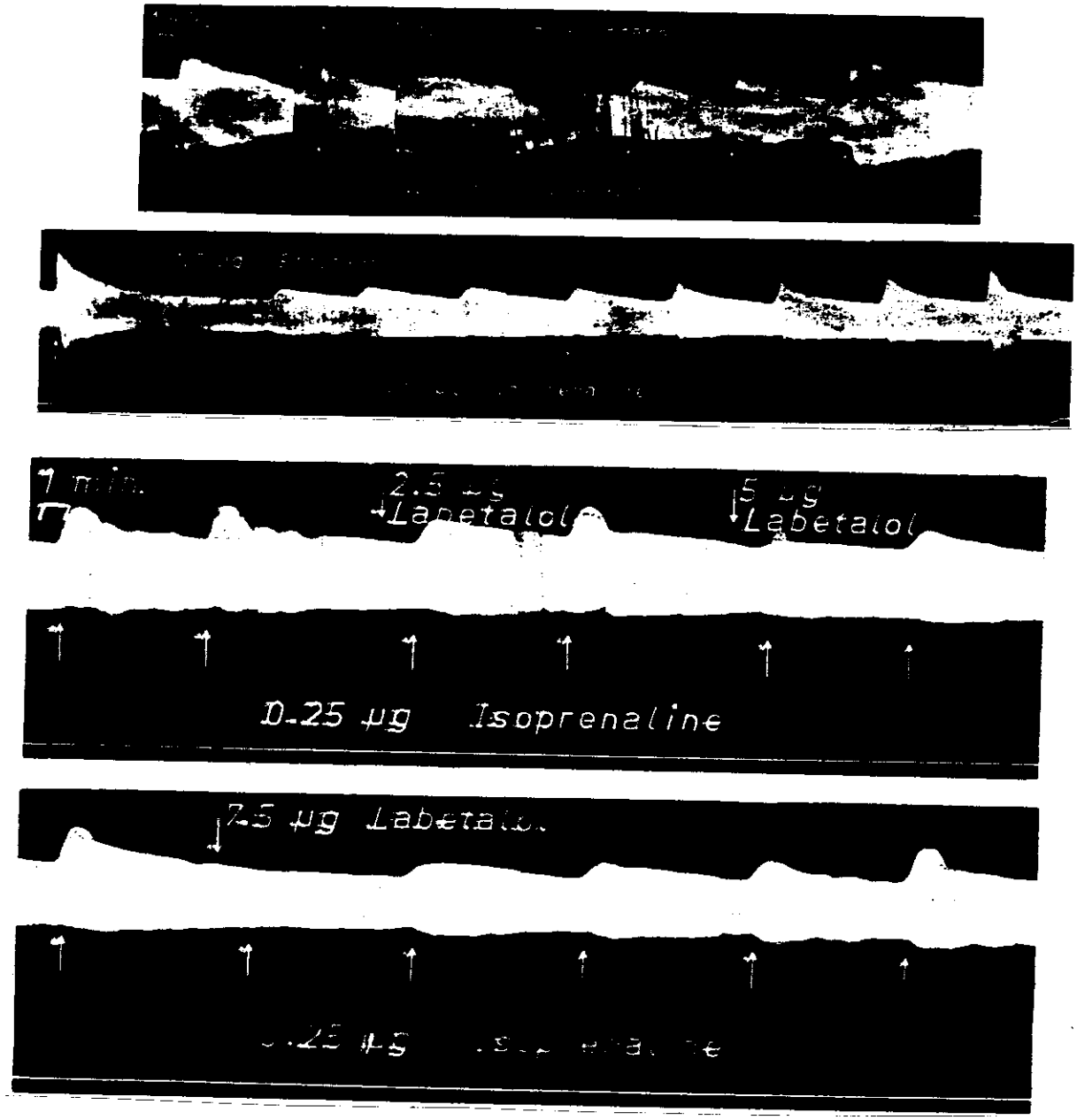


Comparative study of the antagonistic effect of propranolol HCl and labetalol HCl on the positive inotropic effect of isoprenaline on mammalian heart (Rabbit's heart): (Fig. 2)

Fig. (2) showed the rhythmic contractions of rabbit's heart.

- Addition of isoprenaline at a dose level of 0.25 µg produced an apparent increase in cardiac contractions of about 200%.
- Addition of ½, 1 and 1.5 µg of propranolol respectively were without significant effect on the rhythmic contractions of rabbit's heart. Readdition of the control dose level of isoprenaline, one minute after 0.5 µg propranolol produced an increase in cardiac contractions less than the control response by 33%. The control response to isoprenaline could be reobtained after readdition of a single dose level of isoprenaline at 6 minutes interval. Meanwhile, addition of 1 µg of propranolol was capable of reducing the control response to isoprenaline by about 50%. The control response to isoprenaline could be reobtained after readdition of the same dose level of isoprenaline 3 times at 6 minutes interval.

- It was shown that increasing the dose level of propranolol to 1.5 µg did not affect significantly the cardiac contractions. Readdition of the same dose level of isoprenaline did not induce any effect on the rhythmic contractions of the heart. The control response to isoprenaline could not be demonstrated except after repetition of addition of the same dose level of isoprenaline eight times at 6 minutes interval.
- It was shown that labetalol HCl added in doses of 2.5, 5 and 7.5 µg respectively did not affect significantly the cardiac contractions.
- It was observed that the dose of 2.5 µg labetalol HCl only reduced the control response to isoprenaline by 33% which could not be reobtained except after repetition of addition of the same dose level of isoprenaline two times at 6 minutes interval.
- Meanwhile, a dose of 5 µg labetalol HCl reduced the control response to isoprenaline by 40% which could be reobtained after adding the control dose of isoprenaline two times at 6 minutes interval.
- Increasing the dose level of labetalol HCl to 7.5 µg was sufficient enough to abolish completely the control response to isoprenaline. The control response was reproducible after readding isoprenaline four times at 6 minutes interval.


1 min.
2.5 µg
Labetalol
5 µg
Labetalol
0.25 µg Isoprenaline
2.5 µg Labetalol

Comparative study of the antagonistic effect of labetalol HCl and phentolamine mesylate on the contraction response of the isolated rabbit's aortic strip to noradrenaline: (Fig. 3)

Addition of noradrenaline at a dose level of 20 ng/ml solution of the organ bath containing the isolated aortic strip of rabbit produced a significant contraction response which was reproducible on readding the same dose level of noradrenaline.

Labetalol HCl, when added at a dose of 0.2 µg/ml solution of the organ bath, had no contraction response on the preparation. Noradrenaline, when readded 10 minutes after labetalol, produced a contraction response which was less than the control response by 10%. Washing of the preparation regained the control response to noradrenaline after a duration of 10 minutes.

Addition of phentolamine at the same dose level of labetalol HCl had no contraction response. It was shown that phentolamine reduced the control response to noradrenaline by 93% when readded two minutes after. Washing of the preparation could regain the control response to noradrenaline after a duration of 18 minutes.