EXPERIMENT No. 2

Objective :

To study the effect of cardiac depressants on frog heart.

Procedure :

1. Mount the frog heart as described in Experiment no. 1 and take the control records on kymograph paper.
2. Inject the following drugs in the order outlined below and study their effects:

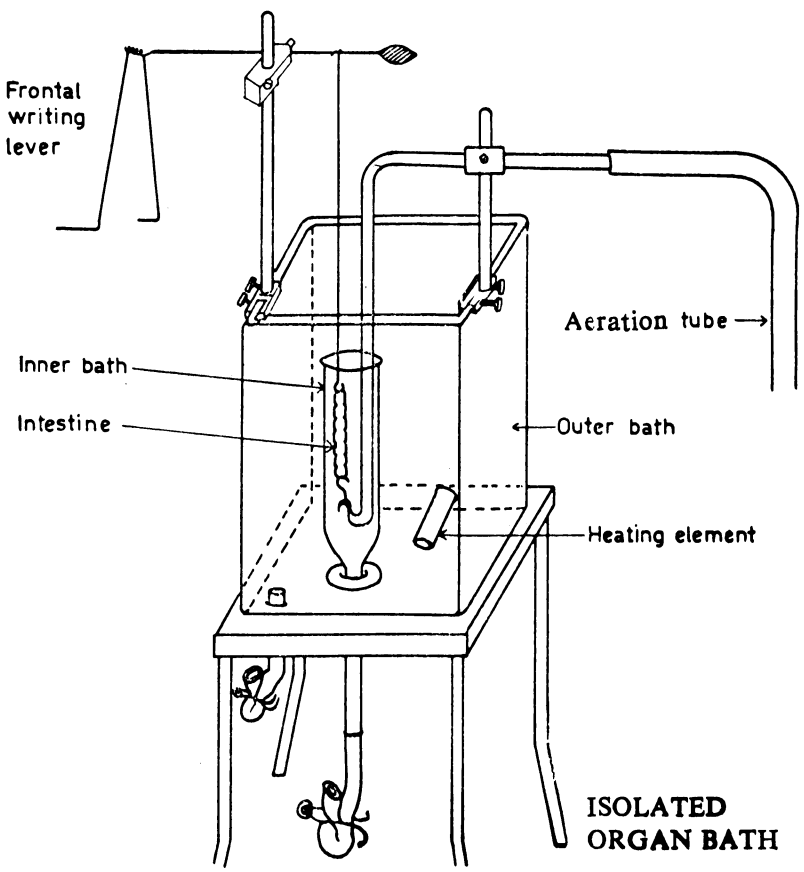
S.No.	Drug	Typical Response		
		Amplitude	Rate	Tone
1.	Acetylcholine (0.5 ml of 0.001%) solution	↓↓↓	↓↓	↓
2.	Potassium chloride (0.5 ml of 0.5%) solution	↓↓	↓↓	↓
3.	Atropine (0.5 ml of 0.25%) solution	↑ or—	↑ or—	—
4.	Acetylcholine (0.5 ml of 0.001%) solution	—	—	—
5.	Potassium chloride (0.5 ml of 1%) solution	↓↓	↓↓	↓
6.	Potassium chloride (2 ml of 0.5%) solution	↓↓↓	↓↓↓↓ diastolic arrest	↓↓

Note the change in amplitude, rate and tone of contraction after injection of each drug.

DRUGS ACTING ON SMOOTH MUSCLE

Parasympathomimetic drugs like choline esters are capable of producing increase in tone, amplitude of contractions, and peristaltic activity of the stomach and intestine as well as enhanced secretory activity of the gastrointestinal tract. Bethanechol can be of value in certain cases of post-operative abdominal distention and gastric atony and retention or gastroparesis, urinary retention and inadequate emptying of bladder when organic obstruction is absent as in post-operative and post-partum urinary retention and in certain cases of chronic hypotonic, myogenic or neurogenic bladder. Cholinomimetic natural alkaloid pilocarpine is used in the treatment of glaucoma.

Antimuscarinic agents like atropine competitively inhibit the actions of acetylcholine (ACh) on autonomic effectors innervated by postganglionic



EXPERIMENT No. 5

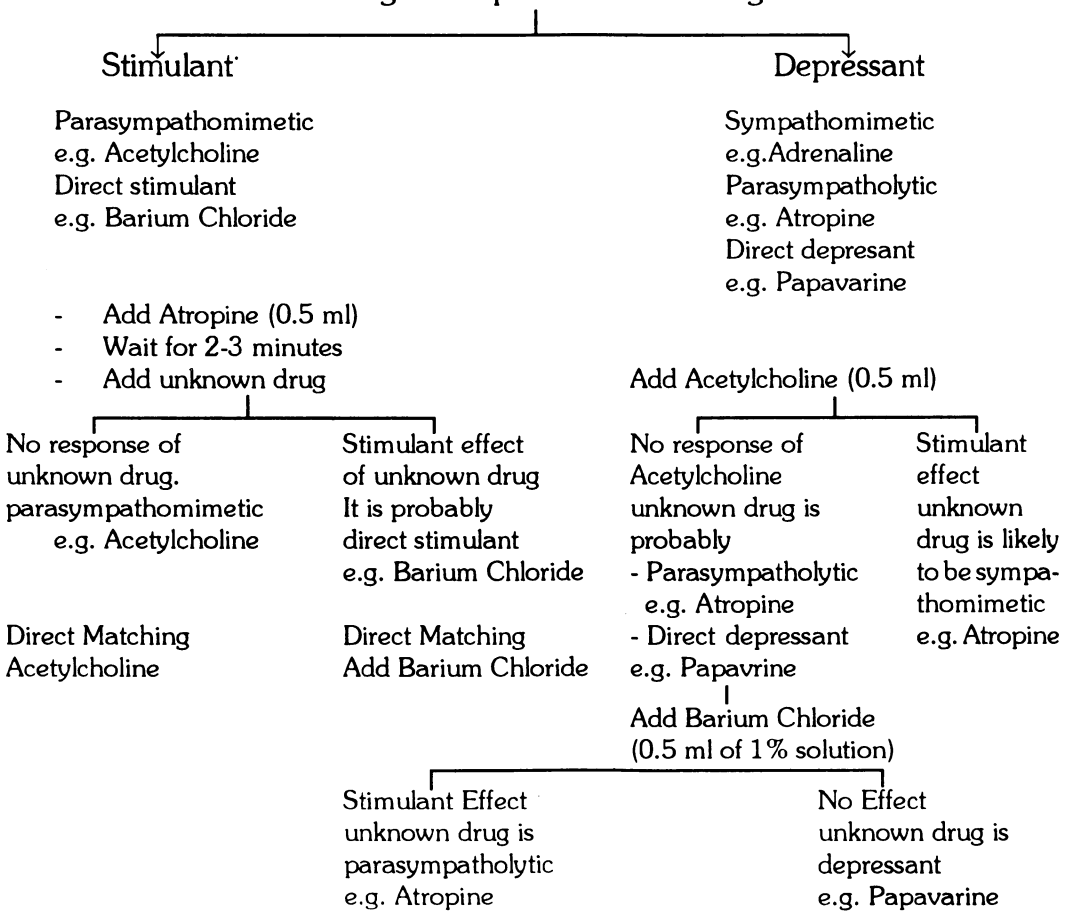
Objective :

To demonstrate stimulant and depressant effects of drugs on rabbit ileum.

To determine, if possible the seat of action of unknown drug.

Procedure :

1. As in experiment No. 4.
2. Record normal movements of rabbit ileum on a slow moving drum.
3. Add unknown drug (0.25 ml). Wait, if no response, add 0.5 ml. If no response increase the drug dose till a definite response is obtained.
4. Observe the tone (base line), amplitude (height of contractions) and frequency of contractions. If any of these three factors is increased the drug is a stimulant. If none of these factors is increased but one or more factors are decreased the drug is a depressant. If the drug is :



(i) Central muscle relaxants

Are used for the relief of muscle spasm or spasticity. They act on central nervous system, with the exception of Dantrolene which has a peripheral site of action.

Diazepam — Oral 2-15 mg in divided doses, max. 60 mg.
IM/IV 10 mg repeated if necessary after 4 hrs.

Baclofen — Oral 5 mg three times a day gradually increased to 100 mg/day.

Dantrolene sodium — Oral 25 mg/day, gradually increased to a maximum of 100 mg 4 times a day.

(ii) Neuromuscular blocking drugs

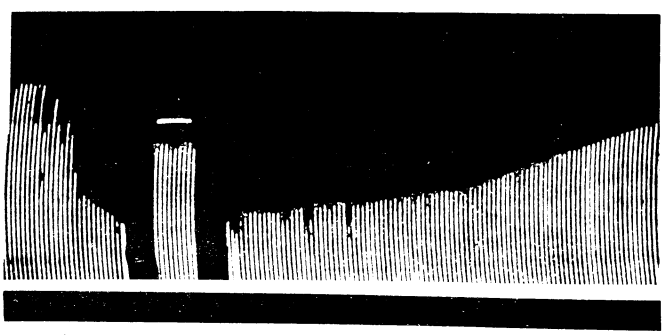
These drugs by specifically blocking of neuromuscular junction enable light level of anaesthesia to be employed with adequate relaxation of the muscles of abdomen and diaphragm. They also relax the vocal cords and allow the passage of tracheal tube. Patient who have received a muscle relaxant should always have their respiration assisted.

(a) Non depolarising (competitive) blockers:

These drugs cause blockade by competing with acetylcholine at the receptor site at the neuromuscular junction. The action is slower, less complete and of long duration. These drugs should be avoided in myasthenia gravis.

Tubocurarine chloride		20—40 mg IV
Gallamine triethiodide	Initially	80—120 mg IV
	followed by	20—40 mg as required

Other agents: Alcuronium chloride, Atracurium besylate, pancuronium bromide and vecuronium bromide.



CAT TIBIALIS ANTERIOR MUSCLE - NERVE PREPARATION

d -TC (150 μg)