Experiment on rabbit's Intestine

Practical no:1

To demonstrate the dose response effect on Rabbit's Intestine with different concentrations of Acetylcholine.

For this experiment: -

Ach is used in three concentrations

1) 10^{-3} Ach concentration (It is the stock solution)
   = 1000 µg of Ach / 1ml

2) To make 10^{-4} Ach concentration
   1ml of 10^{-3} solution + 9ml of distilled H_2O
   = 100 µg of Ach / ml

3) To make 10^{-5} Ach concentration
   1ml of 10^{-4} + 9ml of distilled H_2O

   = 10 µg of Ach / ml.

Explaination:

1 ml of 10^{-3} Ach=1 mg of Ach

As 1 mg = 1000 µg

So 1 ml of 10^{-3} Ach=1000 µg of Ach

1 ml of 10^{-4} Ach=100 µg of Ach (by dividing both sides by 10)

1 ml of 10^{-5} Ach=10 µg of Ach (by dividing both sides by 10)

1 ml of 10^{-6} Ach=1µg of Ach (by dividing both sides by 10)

Start dose response with 10^{-5} Ach concentration.

For calculation of volume of Ach

1 ml of 10^{-5} Ach=10 µg of Ach

10 µg =1 ml

1 µg =1/10 ml=0.1 ml of 10^{-5} Ach soln

2 µg =2/10 ml=0.2 ml of 10^{-5} Ach soln

4 µg =4/10 ml=0.4 ml of 10^{-5} Ach soln

8 µg =8/10 ml=0.8 ml of 10^{-5} Ach soln

(we cant add more than 1 ml of Ach solution to tyrode soln b/c it changes the composition of tyrode,s soln & it dilute tyrode,s solution)so we switch over to next concentration

16 µg =16/100 ml=0.16 ml of 10^{-4} Ach soln

32 µg =32/100 ml=0.32 ml of 10^{-4} Ach soln

64 µg =64/100 ml=0.64 ml of 10^{-4} Ach soln

(we cant add more than 1 ml of Ach solution to tyrode soln so we switch over to next concentration)

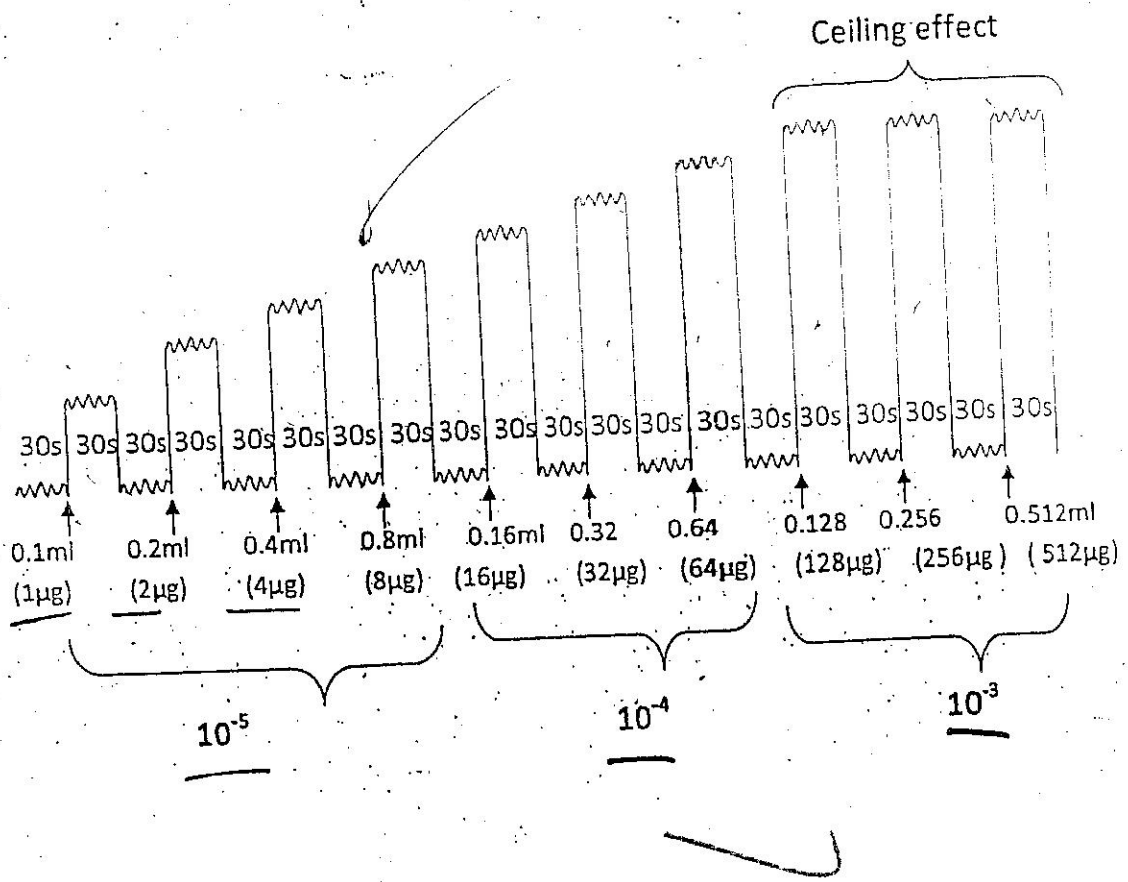
128 µg =128/1000 ml=0.128 ml of 10^{-3} Ach soln

256 µg =256/1000 ml=0.256 ml of 10^{-3} Ach soln

512 µg =512/1000 ml=0.512 ml of 10^{-3} Ach soln

N.B. The volume of the selected doses should be within 0.1 to 1 ml because
a volume less than 0.1 ml is not accurately measured and more than 1 ml will change the balance of the physiological solution in the organ bath.

* CEILING EFFECT



$\frac{\cdot 9}{100} \times 250$

$\frac{5}{100} \times 750 =$

(9)

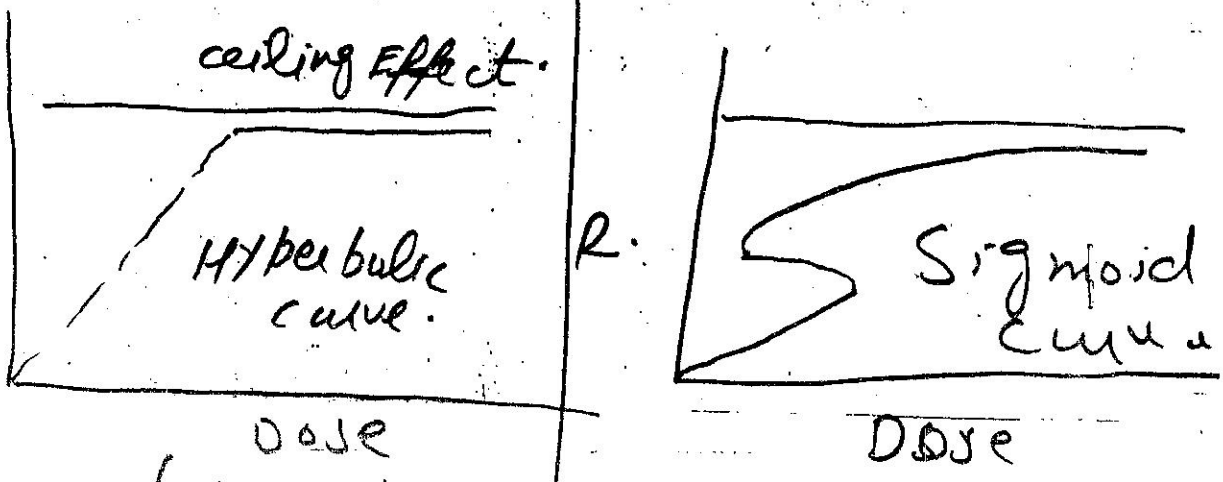
Dose response effect: -

Start dose response with 10^{-5} Ach concentration.

Take readings with 0.1ml, 0.2ml, 0.4ml, 0.8ml of 10^{-5} concentration.

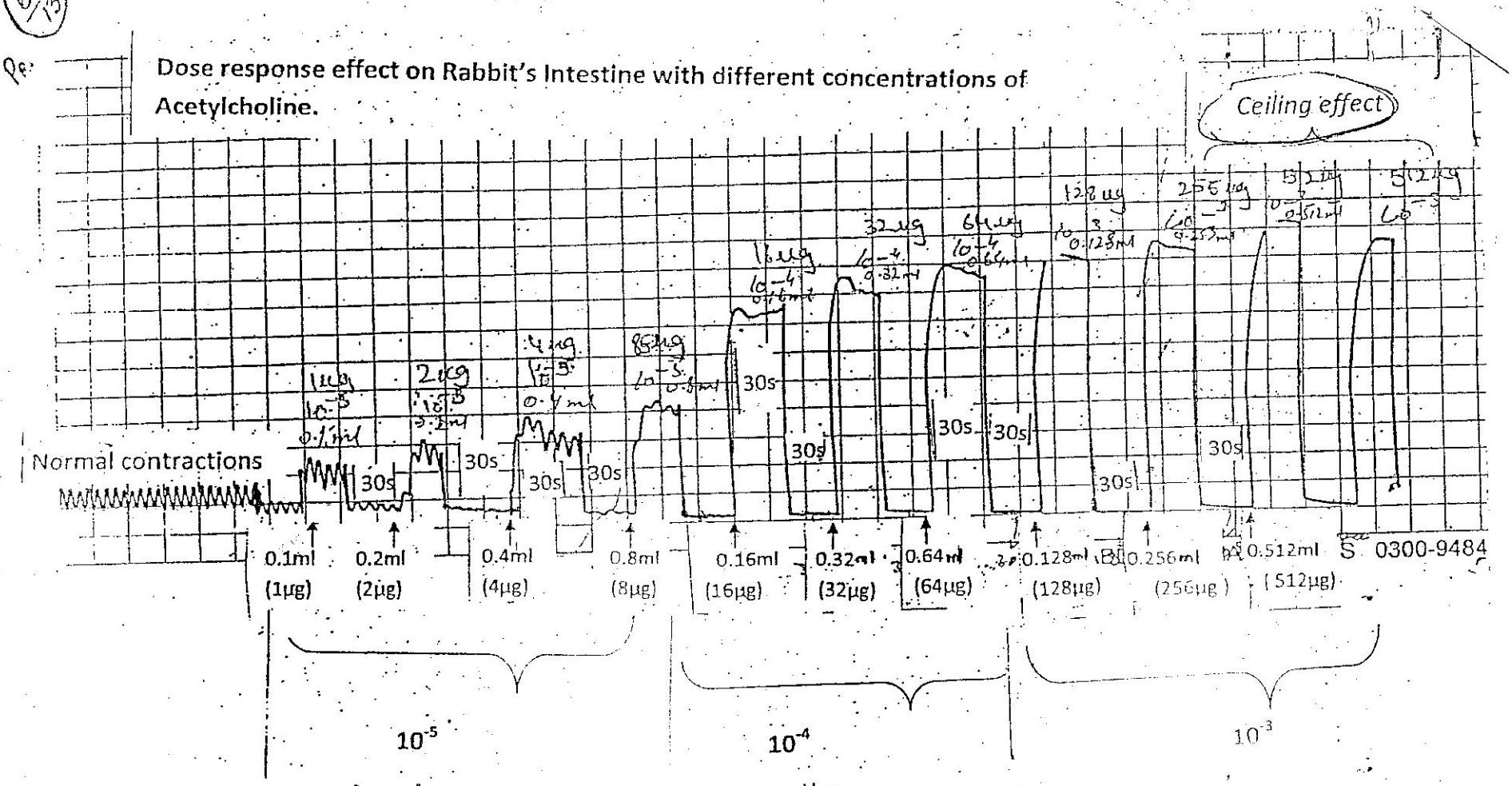
Then record the effect with different concentrations of 10^{-4} Ach and 10^{-3} Ach.

Take each reading for 30 seconds



Practical No. 1

Dose response effect on Rabbit's Intestine with different concentrations of Acetylcholine.



Take each reading for 30 sec

Dose response effect is due to receptor occupancy

Make a + graph

Start dose response with 10^{-5} Ach concentration.

Take readings with 0.1ml, 0.2ml, 0.4ml, 0.8ml of 10^{-5} concentration.

Then record the effect with different concentrations of 10^{-4} Ach and 10^{-3} Ach.

Take each reading for 30 seconds

MBBS 3rd year

BIOSTATISTICS - I

Pharmacology

STATISTICS

It is the science concerned with principles and methods applied in collecting, presenting, analyzing and interpreting the numerical data in any field of inquiry.

BIOSTATISTICS

It is the branch of statistics which deals with the living object. It is a powerful tool for control and quantitative analysis of experimental work in the field of medicine and allied sciences.

1. It provides the scientist with a calculated degree of confidence whether or not results obtained in a small sample of population can be applied on the population as a whole.
2. Another application is that biostatics tells us whether the difference in the means of experimental & control groups is statistically significant or not.

POPULATION

It is a statistical term and it means the subjects under consideration

SAMPLE

It is the small component of the population under consideration. We study the sample and apply the obtained results on whole population by using the statistical methods. Sampling may be random, stratified, cross sectional, cluster etc.

VARIABLE Any quantity which varies.

CONSTANT Any quantity which does not vary in the given population

CENTRAL TENDENCY OR LOCATION

It is a quantitative variable around which most variables cluster. It has various types:

MEAN. It is obtained by dividing sum of results by number of observations.

MEDIAN When we write all observation in ascending or descending order, the value which falls in the centre of the series in called median value.

MODE It is the most frequently found observation in a data.

STANDARD DEVIATION (S. D)

It is the deviation from the MEAN of the given observations in any data. It gives us a very precise way of writing a lot of information collected from a large number of observations.

it gives the range of scatteri[ng] of figu[res] and it form[s] the mean also.

$$S.D = \sqrt{\sum d^2 / n-1}$$

NORMAL FREQUENCY DISTRIBUTION CURVE (GUASSIAN CURVE)

If we draw a graph for occurrence of specific values of any biological variable in a population, we will get a bell shaped curve called Guassian curve. This Guassian pattern of frequency distribution is considered to be normal for most of the biological values and gives lot of statistical information about the population.

[illegible] Vix Ree

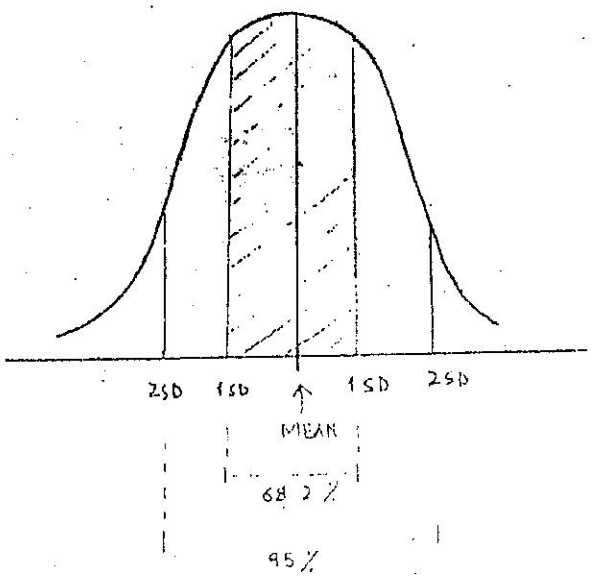
B 11

EXPERIMENT # 1

Record the pulse rate of eight subjects and calculate the mean & standard deviation.

TABLE

n	Pulse/min x	Mean $\bar{x}$	Deviation $d = \bar{x} - x$	d^2	Σd^2
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					



FREQUENCY DISTRIBUTION CURVE