

## Lab. 6



**To demonstrate analgesic effect of drug against acetic acid induced writhing in rat**

**Presented by:**

**Dr. Khaled F. Al-Massri**

Assistant Professor of Pharmacology and Toxicology,

Faculty of Medicine and Health Sciences,

University of Palestine, Palestine



## To demonstrate analgesic effect of drug against acetic acid induced writhing in rat

### PRINCIPLE:

Pain is induced to a suitable animal and the response of the animal to the painful stimuli is recorded before and after administration of drugs. Analgesics drugs inhibit the perception (sensation) of the pain.

Pain is classified in to two types:

### Types of Pain:

#### a) Superficial:

- Stimulation of skin & mucous membranes
- Fast response

#### b) Deep:

- Arises from muscles, joints, tendons, heart etc
- Slow response

## SCREENING METHODS

### 1. Narcotics:

A) Thermal method

a) Hot plate

b) Tail flick

B) Mechanical method

### 2. Non-narcotic:

A) Electrical method

B) Chemical ( Writhing method)

## WRITHING METHOD

### MATERIAL

Animal: Mouse

Painful stimulus: Acetic acid (1% V/V, 1 mL/Kg, S.C)

Drug used: Aspirin (200 mg/Kg)

### PRINCIPLE:

The painful stimulus is induced by IP injection of an irritant substance (e.g. acetic acid)

### Writhing:

Stretching of the body, withdrawing of the limb, retraction of the abdomen & the stomach touches the ground



**PROCEDURE:**

- Weight and number the animals
- Divide the animals in to control and test groups (n=5).
- **Control group:**
  - Administered appropriate volume of acetic acid solution to the control group.
  - Note the onset of writhing. Record the number of abdominal contractions, trunk twist response and extension of hind limb as well as the number of animals showing such response during period of 10 min.
- **Test group (Drug treated):**
  - Inject morphine and after 15 min. of injection, administered acetic acid solution to the animals. Note the onset and severity of writing response as said above.
  - Calculate the mean writhing scores in control and morphine treated groups. Note the inhibition of pain response by morphine.

## Calculation table

Animal group	No. of animal	Body weight	Drug	Volume injected in mL	Number of writing	Mean value of writing	% inhibition of pain
Control	1	25	Acetic acid ( 1% V/V, 1 mL/Kg, S.C )		33		
	2	32			37		
	3	30			26		
	4	34			35		
	5	27			33		
Test	1	26	Aspirin (200 mg/kg, i.p)		10		
	2	33			12		
	3	31			11		
	4	32			10		
	5	34			08		