

AIM: - To study the effect of various drugs (diuretics) on the urine output in rats.

REQUIREMENT:

Instrument

- ✓ Metabolic cages, graduated measuring cylinder.

Drugs and solutions

- ✓ 2% CMC in normal saline- 10 ml/kg
- ✓ Furosemide- 10 mg/kg, p.o in vehicle
- ✓ Urea (900 mg/kg; oral)
- ✓ Hydroflumethiazide (1mg/kg; oral)

Animals:

- ✓ Albino Wistar rats of 140-200 g of either sex.

Metabolic Cage

- ✓ The metabolic cage is designed to allow measurement of fluid intake, and to separate and collect feces and urine for numerous qualitative and quantitative determinations.
- ✓ In addition, the metabolic cage permits observation of the animal, feces, and urine at all times.



Metabolic cage

PRINCIPLE:

Diuretics are the compound which increases the flow of urine. Normal urine output in rats is very small (1-2 ml/rat/day). Hence to get the measurable quantity the animals are first hydrated. The urine output is increased after administration of diuretics like Urea, Hydroflumethiziade and Furosemide. Increase in volume of urine is measured with the help of measuring cylinder and compared with the normal urine output.

PROCEDURE

1. Divide selected male Albino Wistar rats into two groups consisting of 3 animals in each.
2. Group-I receives normal saline and serves as control.
3. The group-II receives saline+Furosemide and serves as test group, IInd group- saline + Urea (900 mg/kg; oral), IIIrd group-saline + hydroflumethiazide (1mg/kg;oral)
4. After treatment immediately hydrate the rats with 15 ml/kg of saline and place them in metabolic cages separately and maintain the room temperature to 21±0.5oc and avoid access to feed and water.
5. Care to be taken to avoid mixing of urine and feces.
6. After 5 hours measure the total volume of urine collected in measuring cylinder and compare the same in two groups.

OBSERVATION TABLE

GROUP	ANIMALS Urine output [ml]				INFERENCE
	1	2	3	Average	
Group I - 0.9% NaCl					
Group II - Saline + Furosemide Treated					
Group III - Saline + Urea Treated					
Group IV - Saline + Hydroflumethiazide Treated					

RESULT & DISCUSSION

CONCLUSION:

Furosemide is a loop diuretic and acts by inhibiting sodium-potassium-chloride co-transporter. It increases urine output with increase in concentration sodium, potassium and chloride in urine. It plays an important role in relieving hypertension.

QUESTIONS:

1. What is Diuretics?
2. Classify diuretics.
3. Describe mechanism of action of furosemide and hydroflumethiazide.

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