LETTER TO THE EDITOR

PRECAUTIONARY NOTE ON USE OF POLYETHYLENE GLYCOL AS A DRUG SOLVENT

Sir,

Polyethylene glycols (PEG 200-700) are used as solvents in various pharmaceutical preparations meant for both internal and external use (1,2). PEGs are incompatible with iodine, potassium iodide, sorbitol, tannic acid, metallic salts like bismuth, mercury and silver salts (2). Their systemic absorption in certain conditions may result in renal failure and CNS depression (3). Morbidity has been reported due to systemic toxicity. Being acidic PEGs increase anion, osmolar gap, haemolysis and serum calcium (4). Topical application resulted in urticaria, delayed allergic eczematous reactions, cross sensitivity etc. (5). Despite the adverse side effects, it is still customary to use PEGs as solvents in conventional pharmacological screenings as they are claimed to be inactive ingredients. In this study during pharmacological screening it was observed that PEG400 exaggerated the effects of oxyphenonium bromide when administered intraduodenally.

Six male mongrel dogs weighing 10-15 kg were anaesthetized with pentobarbitone (30 mg/kg, ip). Blood pressure, respiration, intestinal movements, ECG (limb lead II) were recorded on a Grass Model 78D Polygraph. Responses of epinephrine (E), norepinephrine (NE), acetylcholine (ACh), left carotid artery occlusion and vagal stimulation (22Hz, 0.46sec duration and strength 5.6V) were recorded before and ½ hr, 1 hr and 2 hr after the intraduodenal administration of oxyphenonium (132 µg/kg) dissolved either in PEG400 or water (1 ml/kg). Drugs (E, NE, and ACh) were administered i.v. at the dose of 1-2 µg/kg. The dose of oxyphenonium was calculated from the human dose (100-200 µg/kg).

The vehicle (PEG400) itself did not produce any effect on the responses of blood pressure, respiration and intestinal movements; the cholinergic and adrenergic stimuli were unaltered. Responses to ad-
Fig. 1: Effect of acetylcholine (ACh) & vagal stimulation (VS) on dog blood pressure before and 1 hr after oxyphenonium (132 μg/kg) in (A) polyethylene glycol (B) water.

REFERENCES


