

Pharma – 2012 :Development of solid self micro emulsifying drug delivery system for poorly water soluble drug -Dhanashree B. Patil -TatyasahebKore College of Pharmacy

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Most of new drug candidates exhibit low solubility in water, which leads to poor oral bioavailability, high intra and inter- subject variability and lack of dose proportionality. Various approaches have been used to improve dissolution rate of the drug. Among them, one is solid-self micro emulsifying drug delivery systems (S-SMEDDS). Conventional SMEDDS are normally prepared in a liquid dosage form that can be administered in soft gelatin capsules, which have some disadvantages especially in the manufacturing process. S-SMEDDS prepared by solidification of liquid self-emulsifying ingredients into powders in order to create solid dosage forms. The main objective of the study was to develop and evaluate an optimal S-SMEDDS formulation containing poorly water soluble drug by spray drying technique. In present study solubility of drug was determined in various oil, surfactant and co-surfactant. Pseudoternary phase diagrams were used to evaluate the microemulsification existence area. Three component SMEDDS formulation were established. Selected combinations were exposed to spray drying using water soluble maltodextrin as solid carrier. S-SMEDDS formulations were tested for microemulsifying properties and for solid state characterization. The in-vitro dissolution studies of S-SMEDDS filled into hard gelatin capsule and marketed formulation was carried out. Results showed that drug releases from S- SMEDDS formulations were found to be significantly higher as compared with that of marketed formulation. Thus study concluded with S-SMEDDS provides useful solid dosage form to improve solubility and dissolution rate of poorly water soluble drug. Drugs that dissolve in water (water-soluble drugs), like the antihypertensive atenolol, tend to remain within the blood and therefore the fluid that surrounds cells (interstitial space). Drugs that dissolve in fat (fat-soluble drugs), like the minor tranquilizer clorazepate, tend to concentrate in fatty tissues. Solubility, the phenomenon of dissolution of solute in solvent to offer a uniform system, is one among the important parameters to realize desired concentration of drug in circulation for desired (anticipated) pharmacological response. The solubility of drug is usually intrinsically associated with drug particle size; as a particle becomes smaller, the area to volume ratio increases. The larger area allows greater interaction with the solvent which causes a rise in solubility. Solubility is one among the important parameters to realize desired concentration of drug in circulation for achieving required pharmacological response. Poorly water soluble drugs often require high doses so as to succeed in therapeutic plasma concentrations after oral administration. Base. Because the name implies, "freebase" is that the base sort of cocaine, as against the salt form. It's practically insoluble in water whereas hydrochloride salt is water-soluble. Drugs that dissolve in water (water-soluble drugs), like the antihypertensive atenolol, tend to remain within the blood and therefore the fluid that surrounds cells (interstitial space).

Drugs that dissolve in fat (fat-soluble drugs), like the minor tranquilizer clorazepate, tend to concentrate in fatty tissues. As drug absorption usually occurs by passive diffusion across membranes, the essential principles governing absorption are almost like those governing distribution. Thus, lipid soluble agents usually pass readily through membranes, and more water-soluble drugs do so more slowly, if at all. Some tablets are often dissolved or dispersed during a glass of water. If you're unsure if your child's tablets are often dissolved, speak together with your child's doctor or pharmacist. Dissolve or disperse the tablet during a small glass of water then add some fruit crush or squash to cover the taste. Most drugs are weak organic acids or bases, existing in un-ionized and ionized forms in an aqueous environment. The un-ionized form is typically lipid soluble (lipophilic) and diffuses readily across cell membranes. For more information on fat-soluble vitamins, see fact sheet 9.315 Fat-Soluble Vitamins: A, D, E, and K. In contrast, water-soluble vitamins dissolve in water and aren't stored by the body. The water-soluble vitamins include the vitamin B-complex group and vitamin C. Fat-soluble vitamins dissolve in oil. For this reason, people that do have to supplement fat-soluble vitamins should take them alongside meals to reinforce absorption. However, most of the people who eat a balanced range of nutrients will get enough fat-soluble vitamins through their regular diet. Cocaine and its breakdown products could also be detected in 1 of 5 different wayseach of which has varying typical detection duration times after last use of the drug: Urine: 2-3 days for metabolites (or up to 2 weeks, for heavy cocaine users) Blood: 12 hours for cocaine, 48 hours for metabolite. Because the cell wall is lipid, lipid-soluble drugs diffuse most rapidly. Small molecules tend to penetrate membranes sooner than larger ones. Most drugs are weak organic acids or bases, existing in un-ionized and ionized forms in an aqueous environment. Ibuprofen may be a weak acid and is lipid soluble; hence, it's feasible that it's going to be ready to cross membranes without the necessity for specific transporters. However, the interaction of ibuprofen with various transporters may end in clinically relevant drug-drug interactions. Fat soluble vitamins are stored within the liver, adipose (fat) tissue and striated muscle. As a result, with a diet the prospect of a deficiency is low. However, fat-soluble vitamins are more likely to cause toxicity thanks to overdose. Oxygen may be a reactive oxidant in our body and is important in energy production. An excessive amount of cocaine can cause death by memory attack or stroke. The drug also can cause respiratory failure, which suggests the body doesn't get the quantity of oxygen it needs. Other life-threatening symptoms of a cocaine overdose include seizure, renal failure and vital sign problems. It's true that foods, particularly those higher in fat, slow the absorption rate of alcohol. This happens because eating closes the valve between your stomach

and intestines, where the alcohol is absorbed more quickly than in your stomach. While vitamins are a crucial weight gain-promoting factor, at toxic levels they're not related to weight gain or maybe cause weight loss. It's long been known that a lot of micronutrients (vitamins and minerals) are essential for all times at low concentrations but become toxic at high concentrations.

Biography

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