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Formulation and evaluation of oral disintegrating tablets of sumatriptan succinate

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Worldwide, migraines affect more than 10% of people. Rates of migraines are slightly lower in Asia than in Western countries. Chronic migraines occur in approximately 1.4 to 2.2% of the population. In each attack of migraine which lost for period of 15min to 180min. So it requires immediate relief. A fast dissolving tablet is one of best choice in such cases. sumatrptan succinate is one of the subclass of antimigraine drug. The main objective of this research work was to formulate and evaluate the oral disintegrating tablets of sumatrptan succinate. Orally disintegrating tablets offer an advantage for populations who have difficulty in swallowing (dysphagia), disperse quickly in mouth and shows rapid action. Relieve headaches, pain and other symptoms of migraine, including sensitivity to light/sound, nausea and vomiting. Sumatriptan is a highly selective 5-HT1D receptor agonist that can contract intracranial artery and redistribute blood and improve cerebral blood flow. The half-life is 2.5hrs and it undergoes hepatic metabolism, the absolute oral bioavailability is about 15% because of hepatic metabolism. So there is a need to increase its bioavailability by formulating it into oral-dispersive dosage form and provide a better therapeutic profile than oral route. The tablets are prepared by direct compression method. The formulations was optimized by incorporating varying composition of crosspovidone, cross caramellose and sodium starch gycollate as superdisintegrants (1.5, 3and 6% conc.), with other additives microcrystalline cellulose (Avicel PH 102), mannitol, Magnesium stearate, talc. All the excipients are tested for compatability. The preformulation parameters were analysed for prepared tablet blend before compression. The thickness, hardness, friability, weight variation, disintegration time and drug content uniformity was evaluated for core tablets. The effect of these variables on drug release also studied. Based on the dissolution profiles, F-3 formulation (containing 6% crosspovidone) gives 96.96 ±0.05% drug release with in 10min. so the crosspovidone at 6% concentration release the drug faster when compared to the other super disintegrants.

Biography

Rapolu Bharath Kumar has completed his B.Pharm at the age of 22 years from Jangaon institute of pharmaceutical sciences, jangaon, Warangal and doing his M.Pharm in CMR College of pharmacy, Hyderabad, 501401. He is doing his project under the guidance of Dr.T.Vedavathi on oral disintegrating tablets. He participated in various national conferences and presented the papers

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Claudins - de-novo site in cancer

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The apical junctional complex in epithelial and endothelial cellular sheets is constituted by Tight Junctions, together with Adherens and Desmosomes . The high degree of cellular organization normally observed in normal differentiated tissues is often lost in cancer. Tumor cells frequently exhibit abnormal tight junction function which is accompanied by the loss in cellular polarity. Loss of tight junction integrity may be particularly important in allowing the diffusion of nutrients. In addition, decreased polarity and differentiation may be important for the metastatic phenotype. Finally, the destruction of functional tight junctions in cancer may have a role in growth control. Tight junctions are composed of three major integral membrane proteins, Occludin, Claudins, and junctional adhesion molecules. The expression of occludin and claudins, the two major transmembrane proteins that contribute to formation of tight junctions, has been found to be altered in several cancers. The claudin multigene family encodes tetraspan membrane proteins that are crucial structural and functional components of tight junctions, which have important roles in regulating paracellular permeability and maintaining cell polarity in epithelial and endothelial cell sheets. The tight junction proteins claudins are abnormally regulated in several human cancers. In particular, Claudin-3 and Claudin- 4 are frequently over expressed in several neoplasias, including ovarian, breast, pancreatic, and prostate cancers. Although the exact roles of these proteins in tumorigenesis are still being uncovered, it is clear that they represent promising targets for cancer detection early stages, diagnosis, and therapy.

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