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A novel drug delivery system: Insulin free needle injection technology

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Diabetes mellitus is chronic, progressive systemic disease characterized by dysfunction insulin function. Physiological resistance to self injection or needle phobia has been seen across many populations in treatment of diabetes and require injectable products two or three times a day. A series of discoveries led to the development of the hypodermic needle which underwent significant changes. To overcome the problems related to needle based injections in treatment of diabetes there is one technology NFIT (Needle freed injectable technology).Needle free delivery is done conveniently both for solids and liquids. Various needle free injectors are available in the market like Biojector, vitajet, iject, cool.click etc. These formulations are designed for better acceptability and patient convenience. They offer less pain and no needle phobia. They are ideally suited to chronic injections of varying doses of insulin, proteins and monoclonal antibodies. And other novel drug formulations for diabetic patients i.e. insulin micro pump, insulin transdermal patches, insulin nanopump, insulin pen, insulin tablets, insulin capsules, insulin spray, inhalable insulin.

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Formulation and evaluation zolmitriptan sublingual tablets

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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. The mucosa has a rich blood supply and provides rapid absorption for drugs than oral route. The Zolmitriptan is a serotonin (5HT1B/1D) agonist used for the treatment of migraine with or without aura. The half-life of zolimitriptan is 2.5 to 3 hours and it undergoes hepatic metabolism, the absolute oral bioavailability is about 40 to 50% because of hepatic metabolism. So it causes poor bioavailability of zolimitriptan by oral route, so there is a need to increase its bioavailability by formulating it into sublingual dosage form. Hence Zolmitriptan is a suitable drug for buccal dosage forms and may provide a fast and better therapeutic profile than oral route. The aim of this study is to evaluate the effect of increasing zolimitriptan load on the characteristics of fast disintegrating sublingual tablet for the potential emergency treatment of migraine pain .The fast disintegrating sublingual zolmitriptan tablet offers a fast relieve from migraine . An attempts have been made to prepare fast dissolving tablets of zolmitriptan using superdisintegrating agents like cross carmellose sodium and crosspovidine. Twelve different formulations were developed with two different mucoadhesive polymers (HPMC E5 and chitosan). They were prepared by direct compression method. Tablet weight variation, hardness, friability, thickness, wetting time, percentage of drug content, disintegrating time and dissolution times were evaluated for each formulation and the results were found satisfactory. By comparing the above twelve formulations F9 (10% chitosan+ 8% cross providence) shows a less disintegration time (6Sec) and more dissolution percentage (98.47± 0.42) at 10 min. So the formulation F9 is prerequisite for rapid management of migraine.

Biography

Santhosh D has completed his B.Pharm at the age of 24 years from Sri Lakshmi narsimha college of pharmacy, chitoor 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 Sublingual tablets. He participated in various national conferences and presented the papers. He has one national publication.

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