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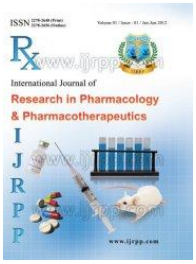

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A study of formulation and evalution of piroxicam drug

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ABSTRACT

Non-steroidal Anti-inflammatory drugs are the corner stone in the treatment acute and chronic pain in due to infection in musculoskeletal condition commonly in elderly patients. Piroxicam is used as an effective analgesic and anti-inflammatory agent in rheumatoid arthritis, osteoarthritis and acute pain in musculoskeletal disorders and acute gout.

Objective

Where as in controlled drug delivery systems designed for long term administered the drug level in the blood stream remains consort between the desired maximum and minimum for an extended period of time.

Methods

In the present study has been aimed at developing a enteric coated tablet of MT2 with a view of minimizing the drug release in physiological environment of stomach and small intestine and to ensure maximum drug relapse in the physiological environment (or) colon with least side effects.

Results

Piroxicam is anaxicam derivative medication belonging to non-steroidal anti-inflammatory drugs group, used to treat moderate to severe inflammatory diseases, such as arthritis and it reduces pain, joint swelling, and morning stiffness and improves the functionality of the joints during chronic polyarthritis.

Conclusion

The studies have a significant part for all characterization such as organoleptic properties, calibration curve, partition co-efficient etc: that are mated with standard values.

INTRODUCTION

The majority of drugs launched to clinical medicine exhibit their effects by interactive interference with cell and cell membrane related to structure of functioning through concentrated dependent revisable interactions at specific sites so the amount of drug should be transported (or) delivered to the site of action with subsequent control of drug input rate.

The goal of many of the original controled-released systems was to achieve a delivery profile that would yield a high blood level of the drug over a period of time. With the traditional drug administration that the blood level of the agent should remain between a maximum values which may be represent a toxic level and minimum value, below which the drug is no longer effective.

Where as in controlled drug delivery systems designed for long term administered the drug level in the blood remain consert between the desired maximum and minimum for an extended period of time.

ADVANTAGES OF CONTROLLED RELEASE DOSAGE FORM

- The Environment of activity duration for short half life of drugs
- Increased patient compliance
- Reduction in dosing frequency, waste of drug, optimized therapy
- Reduced fluctuation in circulating drug levels
- Maintenance of optimum therapy drug concentration in the blood (or) cell

DISADVANTAGES OF CONTROLLED RELEASE DOSAGE FORM

- High cost of dosage form
- Dose dumping
- Unpredictable and poor in-vitro/in-vivo co-relation
- An drug delivery system should deliver drug at a rate dictated by the needs f the drug over the period of treatment .it should channel the active entity safely to the site of action that deliver to specific receptors.

Concept of drug targeting

Drug targeting is described as an event where a drug carrier compel conjugate, delivers drug exclusively to the pre-selected target cells in a specific manner

CLASSIFICATION

1st order targeting (organ targeting) refers to distribution of drug to the capillary bed of the site of action.2nd order targeting(cellular targeting) refers to the selective delivery of drugs specific cell types (tumor cells).3rd order targeting(sub cellular)refers to the carries directed release of drug selected intra cellular sites Eg: Lysosomes.

MATERIALS AND METHODS

In the present study has been aimed at developing a enteric coated tablet of MT2 with a view of minimizing the drug release in physiological environment of stomach and small intestine and to ensure maximum drug relapse in the physiological environment (or) colon with least side effects core tablets are formulated with different combinations of PH dependent and time dependent polymers and then core tablets are coated with PH dependent polymers. Controlled release of drug in the colon can be achieved by formulating of core tablets with different polymers like HPMC, K4M, KPCK15M, HPMC, AM, Ethyl cellulose, sodium calcium methyl cellulose 4, sodium alginate

To conduct in vitro drug release studies for MT2 core tablets in 0.1Normal Hydrochloride, PH 5.8 Phosphate buffer, PH 7.4 Phosphate buffer as a dissolution medium. To conduct in vitro drug release studies for all enteric coated mention tablet formulations. Utilize the dissolution data to gain insight into the kinetics and mechanism of drug release from compression coated tablets.

FT-IR spectroscopic studies to detect the drug–Recipients interactions, to conduct in vivo X-ray studies for optimized formulation in human volunteers.

Characterization of coated tablets for following parameters

- Uniform thickness of coal
- Percentage of weight gain of tablets film endurance
- Disintegration time

Characterization of core tablets for following parameters

- Weight variation
- Thickness
- Hardness
- Friability
- Drug content uniformity
- To prepare enteric coated MT2 tablets for colonic delivery using Outraged S100.

RESULT & DISCUSSION

Piroxicam is anaxicam derivative medication belonging to non-steroidal anti-inflammatory drugs group, used to treat moderate to severe inflammatory diseases, such as arthritis and it reduces pain, joint swelling, and morning stiffness and improves the functionality of the joints during chronic polyarthritis. The principal advantage of piroxicam is its long half-life, which permits the administration of single daily dose.

Experimental studies

Organoleptic properties:-The drug samples were studied for appearance (powder), colour (light yellow to off white) and odor (odorless).

- Mating point-240-245 Celsius
- Dissociation constant- Pka 5.1

Solubility

Sparingly soluble in water diluted acid and most organic solvents slightly soluble in alcohol and aqua alkaline sodium and Maximum Wavelength-333.0.

Pharmacodynamics

Piroxicam, a non-steroidal anti-inflammatory drug from the oxicam group and the mechanism of action of piroxica may be related to blockage of prostaglandin synthesis through the inhibition of enzyme and cyclo-oxygenase. For the relief of rheumatoid arthritis and osteo arthritis, the recommended dose is 20 mg given once per day.

Pharmacokinetics

Bio-availability0 piroxicam is well absorbed from the gastro intestine tract and Half life:-30-50 hrs and, Volume of distribution is about 4 liters/kilograms, and Clearance is about 15mililiters/min/kilograms and protein binding is allow 99 % and T-max is 3-5h and C-max is 15-2ug/ml and apparent volume of distribution is 0.14liters/kilograms.

Metabolism:-Extensively metabolized by the Liver and CYP2c catalyses oxidation.

Excretion:-Piroxicam and its bio-transformation products are excreted in urine and feces.

ADVERSE REACTIONS

Gastro-intestinal problems are Dyspepsia, Nausea, Vomiting, Epigastria Pain, Diarrhea, Constipation, Skin Reactions, Head ache, Vertigo, Renal problems such as Edema, acute failure, intestinal arthritis ,hematologic disorders.

CONCLUSION

In the present work the study of piroxicam drug was done and the studies have a significant part foe all characterization such as organization properties, calibration curve, partition-coefficient etc: that are matched with the standard values.

The present study concluded that SMMDF, a novel dosage form of piroxicam prepared by mixing self-micro emulsifying material with film forming materials such as HPMC, PEG 400 and L-HPC.

The SMMDF provided instantaneous disintegration (26 seconds) and similarity SMMDF showed in-vivo drug release 63.34% within 60 seconds and 98% within 5 minutes which confirmed that it preserved self–emulsification performance.

The sublingual piroxicam drug is useful for oral solid dosage form for patients with severe inflammatory conditions like gouty arthritis, osteoarthritis, rheumatoid arthritis.

The piroxicam drug with low bioavailability and gastro-intestinal irritation and it demonstrates a slow and gradual absorption via oral route and it has a long life of elimination process.

In Addition, the CHMP has concluded that piroxicam containing medicines should no longer be used for the treatment of acute (short term) pain and inflammatory.

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Conflicts of interest

The Author(S) of this study hereby declares that there exist no conflicts of interest to DIVULGE.

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