Tel: 0866-247977

Kommareddy Venkata Sadasiva Rao
Siddhartha College of Pharmaceutical Sciences
Siddhartha Nagar, Vijayawada - 520010, AP, INDIA
(Sponsors : Siddhartha Academy of General & Technical Education)
ISO 9001:2015, ISO 14001:2015 & ISO 50001:2011 CERTIFIED INSTITUTION
Affiliated to Krishna University, Machilipatnam
Approved by AICTE, PCI, New Delhi and Govt. of Andhra Pradesh

E-mail :kvsrsiddharthapharma@gmail.com Web: www.kvsrsiddharthapharma.edu.in

RESEARCH PUBLICATIONS -2020

S.No	Faculty name	Title of the paper	Name of the journal	It is listed in UGC SCOPUS ,WEB Of Science	Link to abstract	Article count year wise
1.	Devala Rao G & M.Vijayalakshmi	RP-HPLC Method for Determination of Mebeverine Hydrochloride in Dosage Forms Employing MS Compatible Buffers	Indian Drugs	Scopus preview - Scopus - Indian Drugs	https://www.indiandrugsonline.org/issuesarticle-details?id=MTAzOA==	2
2.	Ramana Gangireddy	Design And In-Vitro Evaluation of Gastro Retentive Drug Delivery Systems of Metoprolol Succinate	Research Journal of Pharmacy and Technology	Scopus preview - Scopus - Research Journal of Pharmacy and Technology	https://www.indianjournals.com/ijor.aspx?target=ijor:rjpt&volume=13&issue=8&article=021	1
3.	B.Anupama & KNV Chenchu Lakshmi	Development And Validation of RP- HPLC Method for Estimation of Edoxaban Tosylate in Tablet Dosage Forms	Indian Drugs	Scopus preview - Scopus - Indian Drugs	10.53879/id.57.07.11389	2
4	Devala Rao G	Optimization of Pulsatile Compression Coated Floated Tablets of Tramadol HCL for Chrono Pharmacotherapy of Rheumatoid Arthritic Pain Using 2 Factorial Design	Research Journal of Pharmacy and Technology	Scopus preview - Scopus - Research Journal of Pharmacy and Technology	https://rjptonline.org/AbstractView.aspx?PID=2020-13-12-30	1
5	Siva Reddy Challa	Effect of Chrysin on Mechanical Hyperalgesia in Chronic Constriction Injury-Induced Neuropathic Pain in Rat Model	International Journal of Applied and Basic Medical Research	Web of Science Master Journal List - Search (clarivate.com)	10.4103/ijabmr.IJABMR_58_19	1
6	B.Anupama	Design Synthesis Computational Study And Biological Evaluation of 6-Aryl Substituted Pyrimidine Schiff Bases	Pharmacophore	Web of Science Master Journal List - Search (clarivate.com)	https://pharmacophorejournal.com/1LO0Uk2	1
7	B.Anupama	Design,Synthesis,Characterization Computational Study and In-Vitro Antioxidant and Ant-Inflammatory Activities of Few Novel 6-Aryl Substituted Pyrimidine Azo Dyes	Arabian Journal of Chemistry	Scopus preview - Scopus - Arabian Journal of Chemistry	https://doi.org/10.1016/j.arabjc.2020.09.050	1
8	K.Ravi Shankar	Kinetic Spectrophotometric Determination of Emtricitabine and Tenofovir Disoproxil Fumarate in Bulk and Pharmaceutical Dosage Form	International Journal of Pharmaceutical Research	Scopus preview - Scopus - International Journal of Pharmaceutical Research	https://doi.org/10.31838/ijpr/2020.12.03.172	1

Siddhartha College of Pharmaceutical Sciences VIJAYAWADA 520 010

PRINICIPAL
K.V.S.R.SIDDHARTHA COLLEGE OF PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010

Tel: 0866-247977

Kommareddy Venkata Sadasiva Rao
Siddhartha College of Pharmaceutical Sciences
Siddhartha Nagar, Vijayawada - 520010, AP, INDIA
(Sponsors : Siddhartha Academy of General & Technical Education)
ISO 9001:2015, ISO 14001:2015 & ISO 50001:2011 CERTIFIED INSTITUTION
Affiliated to Krishna University, Machilipatnam
Approved by AICTE, PCI, New Delhi and Govt. of Andhra Pradesh

E-mail :kvsrsiddharthapharma@gmail.com Web: www.kvsrsiddharthapharma.edu.in

9	Buchi N.Nalluri	The Use of Novel Tools for the Assessment of Powders and Granules Flow Properties and for the Analysis of Minitablets Compression Process	Drug Development and Industrial Pharmacy	Scopus preview - Scopus - Drug Development and Industrial Pharmacy	https://doi.org/10.1080/03639045.2020.1734020	1
10	Buchi N.Nalluri & Devineni Jyothirmayee	Effective Single Drug Treatment of Lymphatic Filariasis Through Enhanced Transdermal Delivery of Ivermectin Liposomes Using Solid & Dissolving Microneedles	Indian Journal of Pharmaceutical Education and Research	Scopus preview - Scopus - Indian Journal of Pharmaceutical Education and Research	IndJPhaEdRes-54-3s-s492.pdf (ijper.org)	2
11	Naveen Babu Kilaru	Preparation and Evaluation of Valsartan Cubosomes	International Journal of Research in Pharmaceutical Sciences	Scopus preview - Scopus - International Journal of Research in Pharmaceutical Sciences	DOI:https://doi.org/10.31838/ijpr/2020.12.04.069	1
12	M. Mahima Swaroopa P. Saranya G. Vijaya Kumar	Assessment of 10 Year Risk of Developing a Major Cardiovascular Event in Patients Attending a Hospital for the Treatment of Other Disorders	International Journal of Pharmacy and Pharmaceutical Sciences	https://www.scopus.com/sourceid/19700174810	10.22159/ijpps.2020v12i7.37988	3

PRINCIPAL

PRINCIPAL
K.V.S.R.SIDDHARTHA COLLEGE OF
PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010

INDIAN DRUGS

Article Details

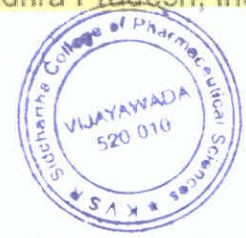
RP - HPLC METHOD FOR DETERMINATION OF MEBEVERINE HYDROCHLORIDE IN DOSAGE FORMS EMPLOYING MS COMPATIBLE BUFF ERS

Marella Vijaya Lakshmi[a*], M. Pavani[a] and Garikapati Devala Rao[a]

[a]KVSR Siddhartha college of Pharmaceutical Sciences, Vijayawada - 520 010, Andhra Pradesh, India

* For Correspondence E-mail: analysis.scops@gmail.com

https://doi.org/10.53879/id.57.03.11722



PRINCIPAL
K.V.S.R. SIDDHARTHA COLLEGE OF
PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.

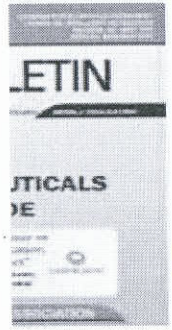
ABSTRACT

A simple, precise, rapid, accurate and economic reverse phase high performance liquid chromatographic method has been developed for the estimation of mebeverine hydrochloride in bulk and tablet dosage form. The separation was achieved by using kinetex column C18 (150×4.6mm, 5µ) and 15mM ammonium acetate and methanol in proportion of 30:70 v/v as mobile phase, at a flow rate of 1.0mL/min. The detection was carried out at 230nm. The retention time of mebeverine was found to be 3.346 minutes.The limit of detection and limit of quantitation were found to be 0.005µg/mL and 0.016µg/mL, respectively. The reliability of the proposed method was ascertained by evaluating various validation parameters like linearity, precision, accuracy and specificity according to ICH guidelines. The proposed method applies LC-MS compatible buffers which increases the life time of column and can be used as lc-ms compatible method. This method acts as a quality control tool for routine analysis of mebeverine hydrochloride in bulk and tablet dosage forms.

Year 2020 | Volume No. 57 | Issue No.3 | Page No. 69-72

IDMA

INDIAN DRUGS



Article Details

RP - HPLC METHOD FOR DETERMINATION OF MEBEVERINE HYDROCHLORIDE IN DOSAGE FORMS EMPLOYING MS COMPATIBLE BUFF ERS

Marella Vijaya Lakshmi[a*], M. Pavani[a] and Gasikapati Devala Rao[a]

[a]KVSR Siddhartha college of Pharmaceutical Sciences, Vijayawada - 520 010, Andhra Pradesh, India

* For Correspondence E-mail: analysis.scops@gmail.com

https://doi.org/10.53879/id.57.03.11722

ABSTRACT

A simple, precise, rapid, accurate and economic reverse phase high performance liquid chromatographic method has been developed for the estimation of mebeverine hydrochloride in bulk and tablet dosage form. The separation was achieved by using kinetex column C18 (150×4.6mm, 5µ) and 15mM ammonium acetate and methanol in proportion of 30:70 v/v as mobile phase, at a flow rate of 1.0mL/min. The detection was carried out at 230nm. The retention time of mebeverine was found to be 3.346 minutes.The limit of detection and limit of quantitation were found to be 0.005µg/mL and 0.016µg/mL, respectively. The reliability of the proposed method was ascertained by evaluating various validation parameters like linearity, precision, accuracy and specificity according to ICH guidelines. The proposed method applies LC-MS compatible buffers which increases the life time of column and can be used as lc-ms compatible method. This method acts as a quality control tool for routine analysis of mebeverine hydrochloride in bulk and tablet dosage forms.

Year 2020 | Volume No. 57 | Issue No.3 | Page No. 69-72

Design and *In-vitro* Evaluation of Gastro Retentive Drug Delivery Systems of Metoprolol Succinate

Apoorva Kolagani *, Sai Sowjanya Bochu, Naga Manasa Ganapaneni, Ramana Gangireddy

KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada.

*Corresponding Author E-mail: **apoorvakolagani@gmail.com**

ABSTRACT:

Gastro retentive drug delivery is a special approach that remains in the stomach for a prolonged period which helps to increase gastric residence time along with site specific drug delivery especially in the upper gastrointestinal tract (GIT) for local as systemic effects. Metoprolol succinate is a beta1-selective adrenergic receptor antagonist used to treat hypertension, angina and arrhythmia. It has a $t_{1/2}$ of 3-7hrs and is mainly absorbed from the upper parts of GIT with good stability in the acidic environment. The main objective of the present study was to design a floating formulation having Metoprolol succinate as a model drug by using the polymers like HPMC K100M, HPMC K15M, HPMC K4M, Kollidon SR to increase the bioavailability of drug and reduce the dosing frequency. FTIR studies proved that there was no incompatability in the optimized formulations. All the formulations remained buoyant without any disintegration. The formulations F4, F8, F12 and F15 showed similar drug release to that of marketed formulation for a period of 12 hours. To ascertain the mechanism of drug release, in-vitro data was fitted into various release kinetic models like zero order, first order, Higuchi and Peppas. The values indicated the non fickian diffusion with slow erosion of polymer matrix followed by drug diffusion and resulted in linear drug release profile over a prolonged period of time.

KEYWORDS: Gastro retention, Metoprolol succinate, floating tablets, in-vitro buoyancy, dissolution.

INTRODUCTION:

Gastro intestinal drug delivery systems are the most suitable and advantageous dosage forms among the oral controlled release drug delivery systems which can increase the bioavailability of drugs that show maximum absorption in stomach by prolonging the gastric residence time.[1] Due to increase in the gastric residence time the dosing frequency can be reduced which reduces the risk of side effects and the solubility of the poorly soluble drugs in high pH (furosemide) can also be rapidly increased.[2] Drugs which act locally in the stomach (antacids), drugs that are unstable in the colon region (metformin, metronidazole) are the suitable candidates to formulate a floating formulation.[3]

Factors which influence the gastric retention includes: Density, Size and shape of the dosage form, single unit or multiple unit dosage form, nature of meal, Fed state or unfed state, disease state, age, gender, posture[4]

Different approaches to design a gastro retentive drug delivery system includes, Density based systems (high density systems and low density systems), Swellable systems, Bioadhesive systems, Hydrogel systems, Magnetic systems. Low density systems were further classified into effervescent systems and non effervescent systems.[5]

In the present investigation low density effervescent systems were opted to formulate a floating formulation. The release retardant used in the formulation creates a hydrated gel layer, when it comes in contact with the gastric medium. The acids react with the gas generating agent and create CO_2 gas bubbles, inside the polymer gel. Due to this process, the density of the formulation is reduced lower than the gastric medium leading to buoyancy. Therefore floating lag time of effervescent systems is less which is due to the rapid CO_2 generation resulting in accelerated decrease in density.[6]

Metoprolol succinate is a beta1-selective adrenergic receptor antagonist used to treat hypertension, angina and arrhythmia. It has a $t_{1/2}$ of 3-7hrs and has maximum absorption in the upper parts of GIT with good stability in the acidic environment of the stomach. It has an oral bioavailability of < 50% due to its rapid first pass metabolism and degradation in colon region therefore constant plasma levels cannot be achieved by conventional tablets to achieve the desired therapeutic response.[7] So the main

DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR ESTIMATION OF EDOXABAN TOSYLATE IN TABLET DOSAGE FORMS

B. Anupama*[a] , P. Tejaswi[a] , KNV. Chenchu Lakshmi[a] and A. Vishwanadh[b]

[a]KVSR Siddhartha college of pharmaceutical sciences, Vijayawada - 520 010, Andhra Pradhesh, India

[b]Vignan college of pharmacy, Guntur - 522 213, Andhra Pradhesh, India

*For Correspondence E-mail: anurochi8@gmail.com

https://doi.org/10.53879/id.57.07.11389

ABSTRACT

A rapid, simple and precise reversed phase high performance liquid chromatography (RP-HPLC) method was developed for the estimation of edoxabantosylate in tablets. The quantification was carried out using a Phenomenex C-18 column (250×4.6 mm i.d., 5µm particle size) in isocratic mode with mobile phase comprising of ammonium acetate buffer andacetonitrile in the ratio of 50:50 (V/V) at a flow rate 1 mL/min. The eluent was monitored at 240 nm. The retention time of the drug was 3.486 min. The calibration curve was linear in the concentration range of 5-25 µg/mL and per cent recovery ranged from 98.25-101.6.The developed method was validated as per ICH guidelines and the results obtained were satisfactory.The method can be applied for routine quality control analysis of edoxabantosylate in tablet dosage forms.

Year 2020 | Volume No. 57 | Issue No.7 | Page No. 47-51

DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR ESTIMATION OF EDOXABAN TOSYLATE IN TABLET DOSAGE FORMS

B. Anupama[*a] , P. Tejaswi[a] , KNV. Chenchu Lakshmi[a] and A. Vishwanadh[b]

[a]KVSR Siddhartha college of pharmaceutical sciences, Vijayawada - 520 010, Andhra Pradhesh, India

[b]Vignan college of pharmacy, Guntur - 522 213, Andhra Pradhesh, India

*For Correspondence E-mail: anurochi8@gmail.com

https://doi.org/10.53879/id.57.07.11389

ABSTRACT

A rapid, simple and precise reversed phase high performance liquid chromatography (RP-HPLC) method was developed for the estimation of edoxabantosylate in tablets. The quantification was carried out using a Phenomenex C-18 column (250×4.6 mm i.d., 5µm particle size) in isocratic mode with mobile phase comprising of ammonium acetate buffer andacetonitrile in the ratio of 50:50 (V/V) at a flow rate 1 mL/min. The eluent was monitored at 240 nm. The retention time of the drug was 3.486 min. The calibration curve was linear in the concentration range of 5-25 µg/mL and per cent recovery ranged from 98.25-101.6.The developed method was validated as per ICH guidelines and the results obtained were satisfactory.The method can be applied for routine quality control analysis of edoxabantosylate in tablet dosage forms.

Year 2020 | Volume No. 57 | Issue No.7 | Page No. 47-51

ISSN 0974-3618 (Print)
0974-360X (Online)

www.rjptonline.org

RJPT

RESEARCH ARTICLE

Optimization of Pulsatile Compression Coated Floated tablets of Tramadol HCL for Chronopharmacotherapy of Rheumatoid Arthritic pain using 2^3 Factorial Design

Pasam Jyothirmayi[1]*, Dr. G. Devalarao[2], Mandava Venkata Basaveswara Rao[3]

[1]Research Scholar, Krishna University, Krishna District, Andhra Pradesh, India.

[2]Department of Pharmaceutical Analysis, K.V. S. R Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

[3]Department of Chemistry, Krishna University, Krishna District, Andhra Pradesh, India.

*Corresponding Author E-mail: **jyothipasam@gmail.com**

ABSTRACT:

Objective: The main aim of study is to develop modified oral compression coated floated tablets for pulsatile delayed release of Tramadol HCL by applying design of experiments (DOE). Pulsatile release systems are generally formulated to undergo a lag-time of predetermined span of time of no release, followed by a rapid and complete release of loaded drugs. **Methods:** These systems consist of three steps in formulation. In the first step burst release core tablets of Tramadol HCL were prepared with superdisintegrants such as Cross Povidone, Sodium Starch Glycolate and Cross Carmellose Sodium. In second step, these core tablets were compression coated with polymers HPMC K4M, HPMC K15M, Ispaghula gum and Tamarindus gum to assign suitable lag time to formulation. In third step, top buoyant layer was compressed using suitable polymers such as HPMC K100M, Ispaghula gum and their combination. **Results:** In the preliminary two steps, immediate release core tablets were optimized with formulation CF2 which contains sodium starch Glycolate 8% as immediate release agent. Then in compression coated formulation CCF8 was optimized. Among complete coated floated formulation BF4 and BF8 shows significant lag time of 3hr and drug release for a period of 12 hrs. **Conclusion:** A modified oral compression coated floated tablets for pulsatile delayed release of Tramadol HCL was made possible with BF4 and BF8 which shows better drug release with suitable lag time and drug release and fulfilled my objective of work.

KEYWORDS: Rheumatoid arthritis, pulsatile drug delivery, Tramadol HCL, lag time, coated floated tablets.

INTRODUCTION:

RA is an autoimmune disorder involving the migration of inflammatory cells into the synovium that surrounds the joints, causing cytokines, the chemicals of inflammation, to be secreted and inflammation to occur within joints and soft tissues (swelling, pain and loss of function).[1] Morning stiffness is a characteristic feature and occurs in many patients. Pain, functional disability and stiffness show 24-hour rhythms in many patients with RA, with a peak in the early morning.[2,3]

The drug management of patients with RA has two objectives: symptom control, and disease modification and complete suppression of progressive inflammation. Combinations of analgesics and DMARDs are often needed to achieve both of these aims, especially in the early stages of the disease, because most DMARDs are slow to take effect. Pain control drugs include analgesics as well as NSAIDs for general pain. NSAIDs are drugs that can reduce pain, fever, and inflammation. Inflammation is the body's protective response to irritation or injury and is recognized by redness, warmth, swelling, and pain. These medications inhibit Cyclooxygenases (COXs) enzymes, which are rate-determining enzymes for prostaglandins and other prostanoids synthesis, such as thromboxanes.[4,5] Tramadol is a centrally acting analgesic having the aminocyclohexanol group, which has a strong analgesic

Received on 18.01.2020 Modified on 07.03.2020
Accepted on 07.05.2020
Research J. Pharm. and Tech. 2020; 13(12):5823-5830.
DOI: 10.5958/0974-360X.2020.01015.X

Pharmacophore

ISSN-2229-5402

Journal home page: http://www.pharmacophorejournal.com

Pharmacophore
an International Journal
ISSN 2229-5402

DESIGN, SYNTHESIS, COMPUTATIONAL STUDY, AND BIOLOGICAL EVALUATION OF 6-ARYL SUBSTITUTED PYRIMIDINE SCHIFF BASES

Aziz Unnisa[1]*, Abouzied Amr S[2a, b], Anupama B[3], Chenchu Lakshmi K N V[4], Ramadevi Kunduru[5], Kesavanarayanan K S[6]

1. *PhD, Assistant Professor, Department of Pharmaceutical Chemistry, College of Pharmacy, University of Hail, Hail, Saudi Arabia.*
2. *PhD, [a]HoD & Assistant Professor, Department of Pharmaceutical Chemistry, College of Pharmacy, University of Hail, Hail, Saudi Arabia and [b]National organisation for Drug Control & Research, Cairo, Egypt.*
3. *PhD, Assistant Professor, Department of Pharmaceutical Chemistry, KVSR Siddhartha College of Pharmaceutical Sciences, Andhra Pradesh, India.*
4. *PhD, Assistant Professor, Department of Pharmaceutical Chemistry, QIS College of Pharmacy, Andhra Pradesh, India.*
5. *PhD, Assistant Professor, Department of biology, College of Sciences, University of Hail, Hail, Saudi Arabia.*
6. *PhD, Assistant Professor, Department of pharmacology, College of Pharmacy, University of Hail, Hail, Saudi Arabia.*

ARTICLE INFO

Received:
19 Jul 2020
Received in revised form:
27 Nov 2020
Accepted:
09 Dec 2020
Available online:
28 Dec 2020

Keywords: Pyrimidine Schiff bases, DPPH assay, heat hemolysis, BOILED egg.

ABSTRACT

Context: Schiff bases (SB) is class of molecules that possess a wide spectrum of biological activities.Aims: Thus, the present study focuses on the synthesis and characterization of novel Schiff bases, which have not previously been explored in the literature and to investigate the synthesized compounds for anti-inflammatory and antioxidant activities with no or fewer side effects. Settings and Design: A group of 6-aryl substituted pyrimidine Schiff bases were synthesized by condensation of 6-phenyl pyrimidine 2-amine with different aldehydes. The synthetic compounds were studied for their in-vitro anti-inflammatory and antioxidant activities. Methods and Material: The characterization of the synthesized candidates was performed using ^{1}H NMR, ^{13}C NMR, IR, and MS. Computational study of designed compounds was done by OCHEM, Molinspiration cheminformatics, Datawarrior, and Swiss ADMET. DPPH assay was used to determine antioxidant activity and heat hemolysis method for anti-inflammatory activity.Results: All the test compounds showed dose-dependent inhibition, compound 5a showed consistent antioxidant and anti-inflammatory activities. Computational studies predicted that none of the compounds can cross BBB, non-mutagenic, showed moderate activity against ion channel modulator, GPCR ligand, nuclear receptor, and enzymes. Conclusions: All the synthesized compounds, pyrimidine SB exhibited antioxidant and anti-inflaminatory activities with less toxicity. Amongst the titled compounds, 5a and 5f were found to greatly influence the activity which may be due to the type of substituents present on the ring. The study carried out considered the three-dimensional nature of chemical structures that played an important part in ligand-receptor binding and assisted in providing an approach for further optimization of new leads.

To Cite This Article: Aziz Unnisa, Abouzied Amr S, Anupama B, Chenchu Lakshmi KNV, Ramadevi Kunduru, Kesavanarayanan KS, (2020), "Design, Synthesis, Computational Study, and Biological Evaluation of 6-Aryl Substituted Pyrimidine Schiff Bases?", *Pharmacophore, 11(6), 74-103.*

Introduction

Schiff bases (SB) are organic compounds formed by condensation of an amine with aldehyde or ketone. The imine fragment is essential for the biological actions of Schiff bases.[1] Several SB has been studied for their significant biological activities like antioxidant, anti-inflammatory agents, antitumor, antiviral, insecticidal, antibacterial, antitubercular, antimicrobial, anticonvulsant activity, antimalarial, antiproliferative, and antipyretic activities, etc. Health is an important factor in human beings' life. [2-5]

Corresponding Author: Aziz Unnisa, PhD, Assistant Professor, Department of Pharmaceutical Chemistry, College of Pharmacy, University of Hail, Hail, Saudi Arabia. Email: khushlazeez @ yahoo.co.In

www.ksu.edu.sa
www.sciencedirect.com

ORIGINAL ARTICLE

Design, synthesis, characterization, computational study and *in-vitro* antioxidant and anti-inflammatory activities of few novel 6-aryl substituted pyrimidine azo dyes

Aziz Unnisa [a,*], Amr S. Abouzied [a,b], Anupama Baratam [c], K.N.V. Chenchu Lakshmi [d], Talib Hussain [e], Rama Devi Kunduru [f], Humera Banu [g], Syeda Bushra Fatima [g], Arshad Hussian [h], Kesavanarayanan Krishnan Selvarajan [e]

[a] *Department of Pharmaceutical Chemistry, College of Pharmacy, University of Hail, Hail, Saudi Arabia*
[b] *National Organization for Drug Control & Research, Cairo, Egypt*
[c] *Department of Pharmaceutical Chemistry, KVSR Siddhartha College of Pharmaceutical Sciences, Andhra Pradesh, India*
[d] *Department of Pharmaceutical Chemistry, QIS College of Pharmacy, Andhra Pradesh, India*
[e] *Department of Pharmacology and Toxicology, College of Pharmacy, University of Hail, Hail, Saudi Arabia*
[f] *Department of Biology, College of Sciences, University of Hail, Hail, Saudi Arabia*
[g] *Department of Nutrition, College of Applied Medicine, University of Hail, Hail, Saudi Arabia*
[h] *Department of Clinical Pharmacy, College of Pharmacy, University of Hail, Hail, Saudi Arabia*

Received 24 July 2020; accepted 21 September 2020
Available online 7 October 2020

KEYWORDS
Pyrimidine azo dyes;
DPPH assay;
Heat hemolysis;
BOILED egg

Abstract A series of 6-aryl substituted pyrimidine azodyes were synthesized by coupling of phenyl pyrimidine 2-amine with different aromatic amines. The synthetic compounds were screened for their in-vitro antioxidant and anti-inflammatory activities. The characterization of the synthesized compounds was carried out by IR, ^{1}H NMR, ^{13}C NMR and Mass spectrophotometry. Computational study of designed compounds was done by OCHEM, Molinspiration cheminformatics, Datawarrior, and Swiss ADME. DPPH assay was used to determine the antioxidant activity and heat hemolysis method for anti-inflammatory activity.

1. Introduction

Azo dyes constitute one of the largest, versatile, and important classes of organic compounds with a range of uses in science and technology (Hamid, 2007; Zollinger, 2003). Of the diverse classes of dyes, azo dyes are one of the key class constituting a

* Corresponding author.
E-mail address: khushiazeez@yahoo.co.in (A. Unnisa).
Peer review under responsibility of King Saud University.

Production and hosting by Elsevier

https://doi.org/10.1016/j.arabjc.2020.09.050
1878-5352 © 2020 The Author(s). Published by Elsevier B.V. on behalf of King Saud University.

ISSN 0975-2366
DOI:https://doi.org/10.31838/ijpr/2020.12.03.172

Research Article

Kinetic Spectrophotometric Determination of Emtricitabine and Tenofovir Disoproxil Fumarate in Bulk and Pharmaceutical Dosage Form

YINUTHA.K[1*], RAVI SANKAR KUNDERU[2]
[1] Departments of Pharmaceutical Analysis, Sri Venkateshwara College of Pharmacy, Madhapur, Hyderabad, India
[2]K.V.S.R. Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India
*Corresponding Author
Email ID: vinutha08.ch@gmail.com
Received: 18.03.20, Revised: 19.04.20, Accepted: 10.05.20

Scopus coverage (2020-2

ABSTRACT
A simple, accurate, reliable and sensitive kinetic spectrophotometric method for quantitative analysis of Emtricitabine and Tenofovir Disoproxil Fumarate in bulk and pharmaceutical dosage form has been developed. The proposed method is based up on oxidation reaction of drugs using alkaline potassium permanganate in the presence of sodium hydroxide at 60°C, resulted in formation of green coloured product, absorbed maximally at 610nm. Initial rate and fixed time methods were adopted for construction of calibration curve over a concentration range of 4-36µg/ml. Molar absorptivity, Sandell's sensitivity, Limit of Detection, Limit of Quantification were also calculated. The proposed method was applied successfully for the determination of Emtricitabine and Tenofovir In pure drug and commercial dosage form.

Keywords: Emtricitabine, Tenofovir Disoproxil fumarate, Kinetic Spectrophotometric, Potassium permanganate, Initial rate method, Fixed time method.

INTRODUCTION
Emtricitabine is a nucleoside reverse transcriptase inhibitor, used for the treatment of HIV infection in adults and children. Chemically it is 4-amino-5-fluoro-1-[(2R, 5S)-2-(hydroxymethyl)-1,3-oxathiolan-5yl]-1, 2-dihydropyrimidin-2-one. It is also active against Hepatitis B virus. Tenofovir Disoproxil Fumarate is an acyclic nucleoside phosphonate di ester analog of adenosine mono phosphate. Chemically it is bis({[(propan-2-yloxy)carbonyl]oxy}methyl) {[(2R)-1-(6- methane phosphonate.

Literature survey indicates that a wide variety of analytical methods have been reported for the determination of drugs individually and in combination with other drugs. These methods include spectrophotometry [1-20], HPLC [21-27], HPTLC [28, 29], UPLC [30-32], and LC-MS/MS [33-38]. Till date no attempts have been made to determine the investigated drugs (EMT and TDF) in commercial dosage form by kinetic spectrophotometric method. So in the present study kinetically based method has been developed and validated for the determination of EMT and TDF by measuring the absorbance at 610nm after oxidation reaction with alkaline $KMnO_4$. Two calibration procedures i.e., initial rate and fixed absorbance methods are adopted for the determination of EMT and TDF in its commercial dosage form after their full optimization and validation.

EXPERIMENTAL
Apparatus: A double beam UV- Visible Spectrophotometer, (LAB INDIA-3000) with UV WIN software and 1cm quartz cell in the wavelength range of 400-800nm was used for spectrophotometric measurements. Drug and the reagents were weighed using Sartorius weighing balance. A water bath (SISCO Instruments) was used to control heating temperature for the development of color.

Chemicals and Reagents: The chemicals and reagents used were of analytical grade. Double distilled water was used throughout the experiment. Emtricitabine and Tenofovir Disoproxil Fumarate working standard was procured from Hetero Labs Pvt Ltd., Hyderabad, India.

Preparations of reagents and solution:
Standard solution of Emtricitabine and Tenofovir: Standard stock solutions of EMT and TDF containing 1mg/ml were prepared separately in distilled water.
Standard solution of 5×10^{-3} M $KMnO_4$: 5×10^{-3}M solution was prepared in distilled water by dissolving 0.073g of $KMnO_4$ in 100ml distilled

PRINCIPAL
K.V.S.R. SIDDHARTHA COLLEGE OF PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.

Drug Development and Industrial Pharmacy

ISSN: 0363-9045 (Print) 1520-5762 (Online) Journal homepage: https://www.tandfonline.com/loi/iddi20

The use of novel tools for the assessment of powders and granules flow properties and for the analysis of minitablets compression process

Hanna Kotlowska, Joanna Krotka, Marta Szymanska, Bartlomiej Kubiak, Malgorzata Sznitowska & Buchi N. Nalluri

To cite this article: Hanna Kotlowska, Joanna Krotka, Marta Szymanska, Bartlomiej Kubiak, Malgorzata Sznitowska & Buchi N. Nalluri (2020) The use of novel tools for the assessment of powders and granules flow properties and for the analysis of minitablets compression process, Drug Development and Industrial Pharmacy, 46:4, 547-556, DOI: 10.1080/03639045.2020.1734020

To link to this article: https://doi.org/10.1080/03639045.2020.1734020

Published online: 04 Mar 2020.

PRINCIPAL
K.V.S.R. SIDDHARTHA COLLEGE OF
PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.

Effective Single Drug Treatment of Lymphatic Filariasis through Enhanced Transdermal Delivery of Ivermectin Liposomes using Solid and Dissolving Microneedles

Jyothirmayee Devineni*, Ch.Durga Pravallika, Boothapati Sudha Rani, Buchi Naidu Nalluri

Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, INDIA.

ABSTRACT

Objectives: The present investigation was to study the combination of liposomes (LP) and microneedles (MNs) as a single drug treatment approach for the delivery of an antifilarial drug, ivermectin (IVM) in which the role of MN arrays (commercial solid MNs of different lengths and laboratory fabricated polymeric dissolving MNs of length 0.6mm) in increasing the *in vitro* permeation of IVM-LP across pig ear skin was studied. **Experimental:** IVM-LP was formulated and optimized using solvent injection method and thin layer film hydration method. The optimized IVM-LP formulation F4 were then incorporated into the dissolving MN arrays and tested for the increased permeation of IVM by the assistance of MNs. A transdermal patch with IVM-LP was prepared as passive permeation study. Solid MNs (poke and patch) were tested for assisting the penetration of IVM from IVM-LP patch. *In vitro* skin permeation studies were carried out using Franz diffusion cells for a period of 24 h. **Results and Discussion:** The optimized IVM-LP was < 100 nm in diameter suitable for lymphatic uptake and MNs of IVM-LP had good mechanical strength, insertion capabilities. From the dermatokinetic study it was evident that the delivery of IVM into the excised porcine skin by MNs was significantly higher than that from passive studies, with apparent permeability coefficient of 0.798 ± 0.009 cm/h for 0.6mm dissolving MNs. **Conclusion:** MN assisted transdermal delivery of IVM-LP could be used to target specifically human lymphatic system where single drug treatment for lymphatic filariasis could be made possible.

Key words: Lymphatic filariasis, Ivermectin, Liposomes, Microneedles, Transdermal drug delivery systems, Bioavailability.

Submission Date: 08-12-2019;
Revision Date: 22-06-2020;
Accepted Date: 07-09-2020

DOI: 10.5530/ijper.54.3s.148

Correspondence:
Dr. Jyothirmayee Devineni
Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada-520010, Andhra Pradesh, INDIA.
Phone: +91 9866175359
E-mail: djyothirmayee9@gmail.com

www.ijper.org

INTRODUCTION

Human lymphatic filariasis, (LF) commonly known as elephantiasis, is a neglected tropical disease in which infection occurs through mosquitoes.[1,2] Infection that is usually acquired in childhood shows hidden damage to the lymphatic system.[3] The painful and disfiguring lymphoedema, elephantiasis and scrotal swelling occur that can lead to permanent disability. These patients also suffer mental, social and financial losses contributing to stigma and poverty.

Current mass drug administration (MDA) given by WHO for LF, contain combinations of Ivermectin (IVM, 0.2mg/kg), Diethlycarbamazine (DEC,6mg/kg) with Albendazole (ALB, 400mg).[1] These drugs kill microfilariae (MF) and late embryonic stages inside the adult female worms. However, they show little effect on adult worms themselves, therefore the aim of MDA is to break transmission.[2] Doxycycline (200mg/day for 4–6 weeks) an antibiotic is also used in combination with MDA (some studies have shown adult worm killing with treatment with doxycycline).[3] Doxycycline kills the adult worms by killing the gram negative bacteria *Wolbachia* which

Effective Single Drug Treatment of Lymphatic Filariasis through Enhanced Transdermal Delivery of Ivermectin Liposomes using Solid and Dissolving Microneedles

Jyothirmayee Devineni*, Ch.Durga Pravallika, Boothapati Sudha Rani, Buchi Naidu Nalluri

Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, INDIA.

ABSTRACT

Objectives: The present investigation was to study the combination of liposomes (LP) and microneedles (MNs) as a single drug treatment approach for the delivery of an antifilarial drug, ivermectin (IVM) in which the role of MN arrays (commercial solid MNs of different lengths and laboratory fabricated polymeric dissolving MNs of length 0.6mm) in increasing the *in vitro* permeation of IVM-LP across pig ear skin was studied. **Experimental:** IVM-LP was formulated and optimized using solvent injection method and thin layer film hydration method. The optimized IVM-LP formulation F4 were then incorporated into the dissolving MN arrays and tested for the increased permeation of IVM by the assistance of MNs. A transdermal patch with IVM-LP was prepared as passive permeation study. Solid MNs (poke and patch) were tested for assisting the penetration of IVM from IVM-LP patch. *In vitro* skin permeation studies were carried out using Franz diffusion cells for a period of 24 h. **Results and Discussion:** The optimized IVM-LP was < 100 nm in diameter suitable for lymphatic uptake and MNs of IVM-LP had good mechanical strength, insertion capabilities. From the dermatokinetic study it was evident that the delivery of IVM into the excised porcine skin by MNs was significantly higher than that from passive studies, with apparent permeability coefficient of 0.798 ± 0.009 cm/h for 0.6mm dissolving MNs. **Conclusion:** MN assisted transdermal delivery of IVM-LP could be used to target specifically human lymphatic system where single drug treatment for lymphatic filariasis could be made possible.

Key words: Lymphatic filariasis, Ivermectin, Liposomes, Microneedles, Transdermal drug delivery systems, Bioavailability.

Submission Date: 05-12-2019;
Revision Date: 22-06-2020;
Accepted Date: 07-09-2020

DOI: 10.5530/ijper.54.3s.148

Correspondence:
Dr. Jyothirmayee Devineni
Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada-520010, Andhra Pradesh, INDIA.
Phone: +91 9866175359
E-mail: djyothirmayee9@gmail.com

www.ijper.org

INTRODUCTION

Human lymphatic filariasis, (LF) commonly known as elephantiasis, is a neglected tropical disease in which infection occurs through mosquitoes.[1,2] Infection that is usually acquired in childhood shows hidden damage to the lymphatic system.[3] The painful and disfiguring lymphoedema, elephantiasis and scrotal swelling occur that can lead to permanent disability. These patients also suffer mental, social and financial losses contributing to stigma and poverty.

Current mass drug administration (MDA) given by WHO for LF, contain combinations of Ivermectin (IVM, 0.2mg/kg), Diethlycarbamazine (DEC,6mg/kg) with Albendazole (ALB, 400mg).[1] These drugs kill microfilariae (MF) and late embryonic stages inside the adult female worms. However, they show little effect on adult worms themselves, therefore the aim of MDA is to break transmission.[2] Doxycycline (200mg/day for 4–6 weeks) an antibiotic is also used in combination with MDA (some studies have shown adult worm killing with treatment with doxycycline).[3] Doxycycline kills the adult worms by killing the gram negative bacteria *Wolbachia* which

ISSN 0975-2366
DOI: https://doi.org/10.31838/ijpr/2020.12.04.069

Research Article

Preparation and Evaluation of Valsartan Cubosomes

P.VISHNU*[1], N.SADHANA[1], K.NAVEENBABU[2], M.SUNITHA REDDY[3], K.MAHESWARI[4]
[1]Department of Pharmaceutical Engineering, B.V Raju Institute of Technology, Narsapur, Medak, Telangana, India.
[2]K.V.S.R. Siddhartha College of Pharmaceutical Sciences, Vijayawada, Krishna Dist, Andhra Pradesh
[3]Center for Pharmaceutical Sciences, IST, JNTUH, Hyderabad, Telangana.
[4]Joginpally college of Pharmacy, Yenkapally, Moinabad, Hyderabad, Telangana
*Corresponding Author
Email ID: vishnu.pharmacy@gmail.com
Received: 05.03.19, Revised: 15.05.20, Accepted: 14.06.20

other Indexed - Copernic

ABSTRACT

Cubosomes are discrete, sub-micron, nano-structured particles of the bi-continuous cubic liquid crystalline phase. The term "bicontinuous" refers to two distinct hydrophilic regions separated by the bi-layer. Bicontinuous cubic crystalline materials have been an active research topic because their structure lends itself well to controlled-release applications. Cubosomes are liquid crystalline nano-structures formed from the cubic phase of lipids, such as monooleate, or any other assembled lipid mixture and studied by means of high-resolution cryogenic transmission electron microscope (cryo-TEM)[1]. These are three dimensional structures resembling like honey-comb with distinct hydrophilic and hydrophobic regions. Cubosomes acts as carrier molecules for drugs, chemicals, peptides and proteins and protect them from degradation [2]. **Valsartan** blocks the **actions** of angiotensin II, which include constricting blood vessels and activating aldosterone, to reduce blood pressure. The drug binds to angiotensin type I receptors (AT1), working as an antagonist[3], which is a BCS class-II drug. In the present study Valsartan Cubosomes were prepared to increase the solubility as well as bioavailability. Six formulations(VF1-VF6) of Cubosomes were prepared by ultra-Sonication method by using different concentrations of glyceryl monooleate (GMO), Pluronic F127 and evaluated for Particle size, Drug release, Entrapment efficiency, Drug content among all VF4 formulations shown stable ,better drug release characters which is used for formulation of In-Situ gels. Seven In-Situ gel formulations(VFG1-VFG7) were prepared by using different concentrations of Carbopol, Sodium alginate, HPMC, Guar gum. Among all formulations VFG7 shown sustain release up to 12hrs with 98.9% drug release.

Keywords: Cubosomes, GMO, Pluronic F127, Valsartan, TEM, Hypertension

INTRODUCTION:

Based on Bio-pharmaceutical classification system(BCS) drugs are classified into four different types in that most of newly synthesized drug molecules are comes under BCS Class-II means these type of drugs have low solubility and high permeability so by increasing solubility of these type drugs we can achieve high solubility, bioavailability. Different approaches are used to enhance the solubility and dissolution rate of BCS Class-II drugs like co solvency, super critical processing and solid dispersions[4].

Valsartan is a BCS Class-II drug which is low soluble. Cubosomes are one of the approach to increase the solubility and bioavailability of drug.

Cubosomes are the nanoparticles of bicontinuous, lyotropic cubic phases, comprised of curved lipid bilayers organized into a three-dimensional honeycomb (cavernous) like structures separating two internal aqueous channels and large interfacial area. Cubic phases are optically isotropic, very viscous, and solid like (crystalline) with cubic crystallographic symmetry. Bicontinuous cubic phases have nonintersecting hydrophilic regions separated by a lipid bilayer that is contorted into a periodic minimal surface with zero curvature; hence they were called as viscous isotropic phases.

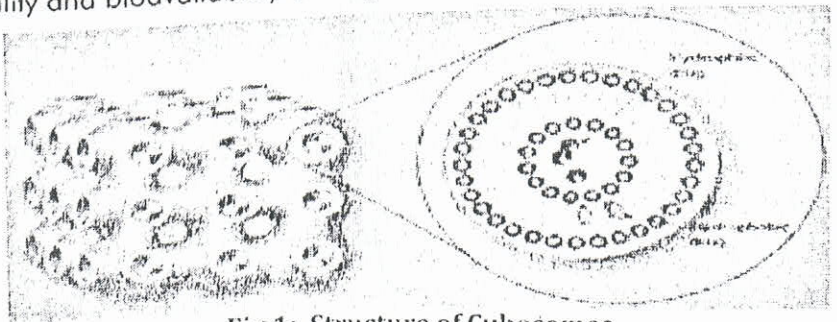


Fig.1: Structure of Cubosomes

Original Article

ASSESSMENT OF 10-YEAR RISK OF DEVELOPING A MAJOR CARDIOVASCULAR EVENT IN PATIENTS ATTENDING A HOSPITAL FOR THE TREATMENT OF OTHER DISORDERS

M. MAHIMA SWAROOPA[1], REDDY PRAVEEN[2], S. K. LAL SAHEB[3], S. K. SAI RINNISHA[4], P. SARANYA[5], D. AAKASH TEJA[6], G. VIJAYA KUMAR[7]

[1]Lecturer, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [2,3,4]Pharm. D Intern, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [5]Lecturer, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [6]Assisstant Professor, Department of Cardiology, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Gannavaram, Vijayawada, Andhra Pradesh, India, [7]Professor, HOD, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India
Email: mandavamahima12@gmail.com

Received: 21 Apr 2020, Revised and Accepted: 25 May 2020

ABSTRACT

Objective: To assess the individual's predicted risk of developing a CVD event in 10 y using risk scores among persons with other disorders/diseases.

Methods: This is a cross-sectional observational study conducted for a period of 6 mo among 283 subjects. Total risk was estimated individually by using Framingham Risk Scoring Algorithm and ASCVD risk estimator.

Results: According to Framingham Risk score the prevalence of low risk (<10%) identified as 67.84% (192), followed by intermediate risk (10%-19%), 19.08% (54), and high risk (≥20%) 13.07% (37). By using ASCVD Risk estimator, risk has reported in our study population was low risk (<5%) is 48.76% (138), borderline risk (5-7.4%) is 13.07% (37), intermediate risk (7.5-19.9%) is about 25.09% (71), high risk (>20%) is about 13.07% (37).

Conclusion: In this study burden of CVD risk was relatively low, which was estimated by both the Framingham scale and ASCVD Risk estimator. Risk scoring of individuals helps us to identify the patients at high risk of CV diseases and also helps in providing management strategies.

Keywords: Cardiovascular diseases, Risk factors, Risk estimation, Framingham Risk Scoring Algorithm, ASCVD risk estimator

DOI: http://dx.doi.org/10.22159/ijpps.2020v12i7.37988. Journal homepage: https://innovareacademics.in/journals/index.php/ijpps

INTRODUCTION

Cardiovascular diseases (CVD) brings up a group of diseases involving the heart and blood vessels and are the number one cause of death, accounting 30% of all deaths in the world. According to a joint report by the Harvard School of Public Health and World Economic Forum, CVD majorly contributes an economic burden leading to a staggering loss of $47 trillion globally over the period 2010-2030 [1].

A Century of research has shown that the occurrence of CVD relates to genetic, physiological, social and environmental factors. Hence, Prevention of CVD can be established by a coordinated set of actions, at public and individual level which aimed at eradicating, eliminating, or minimizing the impact of risk factors on CVDs and their related disability [2].

CVD risk factors are broadly classified into 2 groups: modifiable and non-modifiable. The non-modifiable risk factors are those which one has no control over and include age and sex the modifiable risk factors are contrary and include; diabetes, hypertension, dyslipidemia, obesity, smoking, alcohol, diet, psychosocial factors and physical exercise. While significant advances in genetics and the ability to reduce social inequalities, has become evident that modification of these factors that cause atherosclerosis can also reduce mortality [3, 4].

Risk estimation systems are developed to help the clinicians to assess the effects of risk factors that cause CVD and in planning of therapeutic strategies. Risk scoring makes patients aware of their risk status and can, therefore, serve as enough motivation for engaging in activities to lower overall risk. Many risk estimations systems are in existence where most of them include age, gender, smoking, serum lipids and hypertension as their core variables.

CVD prevention remains as a challenge for the general population, politicians, and healthcare workers [2]. Assessment of an individual's predicted Risk of developing a CVD event in 5 or 10 y has been identified as one of the ways to determine the burden of CVD risk and to guide treatment decisions [5]. Although there are many studies on CV risk prediction, the value of CV risk estimation is always justified because the prevalence of CV risk factors has continuously been changing in a region with different magnitude and direction over the past 30 y. While other factors like obesity, diabetes mellitus and cigarette smoking have become more prevalent. Furthermore, changes have not been similar between both the gender and among different ages [6].

Hence this study aimed to assess total cardiovascular disease risk-the probability of an individual experiencing a cardiovascular event over 10 y using the most recent Framingham Risk Scoring Algorithm and ASCVD risk estimator.

MATERIALS AND METHODS

This is a cross-sectional observational study which was conducted for a period of 6 mo in patients who are admitted as inpatients from November 2018and April 2019 in Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation Andhra Pradesh (India). A total of 283 consecutive samples whose age is above 18 yold, agreed to participate voluntarily were recruited into the study and patients of above 65 y, Unresponsive and, or non-communicative, Patients whose records showed established or a history of any cardiovascular diseases are excluded. All the patients agreed to participate with a written consent form. Ethical clearance obtained from the Institutional Ethics Committee with a Protocol Approval No. UG/359/18.

Data including the patient demographic details, medical and medication histories, diagnosis, treatment chart and data on laboratory investigations are collected from the patient medical records and risk was estimated individually by using Framingham Risk Scoring Algorithm and ASCVD risk estimator.

PRINCIPAL
K.V.S.R. SIDDHARTHA COLLEGE OF PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.

Original Article

ASSESSMENT OF 10-YEAR RISK OF DEVELOPING A MAJOR CARDIOVASCULAR EVENT IN PATIENTS ATTENDING A HOSPITAL FOR THE TREATMENT OF OTHER DISORDERS

M. MAHIMA SWAROOPA[1], REDDY PRAVEEN[2], S. K. LAL SAHEB[3], S. K. SAI RINNISHA[4], P. SARANYA[5], D. AAKASH TEJA[6], G. VIJAYA KUMAR[7]

[1]Lecturer, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [2,3,4]Pharm. D Intern, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [5]Lecturer, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [6]Assisstant Professor, Department of Cardiology, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Gannavaram, Vijayawada, Andhra Pradesh, India, [7]Professor, HOD, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India
Email: mandavamahima12@gmail.com

Received: 21 Apr 2020, Revised and Accepted: 25 May 2020

ABSTRACT

Objective: To assess the individual's predicted risk of developing a CVD event in 10 y using risk scores among persons with other disorders/diseases.

Methods: This is a cross-sectional observational study conducted for a period of 6 mo among 283 subjects. Total risk was estimated individually by using Framingham Risk Scoring Algorithm and ASCVD risk estimator.

Results: According to Framingham Risk score the prevalence of low risk (<10%) identified as 67.84% (192), followed by intermediate risk (10%-19%), 19.08% (54), and high risk (≥20%) 13.07% (37). By using ASCVD Risk estimator, risk has reported in our study population was low risk (<5%) is 48.76% (138), borderline risk (5-7.4%) is 13.07% (37), intermediate risk (7.5-19.9%) is about 25.09% (71), high risk (>20%) is about 13.07% (37).

Conclusion: In this study burden of CVD risk was relatively low, which was estimated by both the Framingham scale and ASCVD Risk estimator. Risk scoring of individuals helps us to identify the patients at high risk of CV diseases and also helps in providing management strategies.

Keywords: Cardiovascular diseases, Risk factors, Risk estimation, Framingham Risk Scoring Algorithm, ASCVD risk estimator

DOI: http://dx.doi.org/10.22159/ijpps.2020v12i7.37988. Journal homepage: https://innovareacademics.in/journals/index.php/ijpps

INTRODUCTION

Cardiovascular diseases (CVD) brings up a group of diseases involving the heart and blood vessels and are the number one cause of death, accounting 30% of all deaths in the world. According to a joint report by the Harvard School of Public Health and World Economic Forum, CVD majorly contributes an economic burden leading to a staggering loss of $47 trillion globally over the period 2010-2030 [1].

A Century of research has shown that the occurrence of CVD relates to genetic, physiological, social and environmental factors. Hence, Prevention of CVD can be established by a coordinated set of actions, at public and individual level which aimed at eradicating, eliminating, or minimizing the impact of risk factors on CVDs and their related disability [2].

CVD risk factors are broadly classified into 2 groups: modifiable and non-modifiable. The non-modifiable risk factors are those which one has no control over and include age and sex the modifiable risk factors are contrary and include; diabetes, hypertension, dyslipidemia, obesity, smoking, alcohol, diet, psychosocial factors and physical exercise. While significant advances in genetics and the ability to reduce social inequalities, has become evident that modification of these factors that cause atherosclerosis can also reduce mortality [3, 4].

Risk estimation systems are developed to help the clinicians to assess the effects of risk factors that cause CVD and in planning of therapeutic strategies. Risk scoring makes patients aware of their risk status and can, therefore, serve as enough motivation for engaging in activities to lower overall risk. Many risk estimations systems are in existence where most of them include age, gender, smoking, serum lipids and hypertension as their core variables.

CVD prevention remains as a challenge for the general population, politicians, and healthcare workers [2]. Assessment of an individual's predicted Risk of developing a CVD event in 5 or 10 y has been identified as one of the ways to determine the burden of CVD risk and to guide treatment decisions [5]. Although there are many studies on CV risk prediction, the value of CV risk estimation is always justified because the prevalence of CV risk factors has continuously been changing in a region with different magnitude and direction over the past 30 y. While other factors like obesity, diabetes mellitus and cigarette smoking have become more prevalent. Furthermore, changes have not been similar between both the gender and among different ages [6].

Hence this study aimed to assess total cardiovascular disease risk-the probability of an individual experiencing a cardiovascular event over 10 y using the most recent Framingham Risk Scoring Algorithm and ASCVD risk estimator.

MATERIALS AND METHODS

This is a cross-sectional observational study which was conducted for a period of 6 mo in patients who are admitted as inpatients from November 2018and April 2019 in Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation Andhra Pradesh (India). A total of 283 consecutive samples whose age is above 18 yold, agreed to participate voluntarily were recruited into the study and patients of above 65 y, Unresponsive and, or non-communicative, Patients whose records showed established or a history of any cardiovascular diseases are excluded. All the patients agreed to participate with a written consent form. Ethical clearance obtained from the Institutional Ethics Committee with a Protocol Approval No. UG/359/18.

Data including the patient demographic details, medical and medication histories, diagnosis, treatment chart and data on laboratory investigations are collected from the patient medical records and risk was estimated individually by using Framingham Risk Scoring Algorithm and ASCVD risk estimator.

PRINCIPAL
K.V.S.R. SIDDHARTHA COLLEGE OF PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.

Original Article

ASSESSMENT OF 10-YEAR RISK OF DEVELOPING A MAJOR CARDIOVASCULAR EVENT IN PATIENTS ATTENDING A HOSPITAL FOR THE TREATMENT OF OTHER DISORDERS

M. MAHIMA SWAROOPA[1], REDDY PRAVEEN[2], S. K. LAL SAHEB[3], S. K. SAI RINNISHA[4], P. SARANYA[5], D. AAKASH TEJA[6], G. VIJAYA KUMAR[7]

[1]Lecturer, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [2,3,4]Pharm. D Intern, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [5]Lecturer, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India, [6]Assisstant Professor, Department of Cardiology, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Gannavaram, Vijayawada, Andhra Pradesh, India, [7]Professor, HOD, Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, Andhra Pradesh, India
Email: mandavamahima12@gmail.com

Received: 21 Apr 2020, Revised and Accepted: 25 May 2020

ABSTRACT

Objective: To assess the individual's predicted risk of developing a CVD event in 10 y using risk scores among persons with other disorders/diseases.

Methods: This is a cross-sectional observational study conducted for a period of 6 mo among 283 subjects. Total risk was estimated individually by using Framingham Risk Scoring Algorithm and ASCVD risk estimator.

Results: According to Framingham Risk score the prevalence of low risk (<10%) identified as 67.84% (192), followed by intermediate risk (10%-19%), 19.08% (54), and high risk (≥20%) 13.07% (37). By using ASCVD Risk estimator, risk has reported in our study population was low risk (<5%) is 48.76% (138), borderline risk (5-7.4%) is 13.07% (37), intermediate risk (7.5-19.9%) is about 25.09% (71), high risk (>20%) is about 13.07% (37).

Conclusion: In this study burden of CVD risk was relatively low, which was estimated by both the Framingham scale and ASCVD Risk estimator. Risk scoring of individuals helps us to identify the patients at high risk of CV diseases and also helps in providing management strategies.

Keywords: Cardiovascular diseases, Risk factors, Risk estimation, Framingham Risk Scoring Algorithm, ASCVD risk estimator

DOI: http://dx.doi.org/10.22159/ijpps.2020v12i7.37988. Journal homepage: https://innovareacademics.in/journals/index.php/ijpps

INTRODUCTION

Cardiovascular diseases (CVD) brings up a group of diseases involving the heart and blood vessels and are the number one cause of death, accounting 30% of all deaths in the world. According to a joint report by the Harvard School of Public Health and World Economic Forum, CVD majorly contributes an economic burden leading to a staggering loss of $47 trillion globally over the period 2010-2030 [1].

A Century of research has shown that the occurrence of CVD relates to genetic, physiological, social and environmental factors. Hence, Prevention of CVD can be established by a coordinated set of actions, at public and individual level which aimed at eradicating, eliminating, or minimizing the impact of risk factors on CVDs and their related disability [2].

CVD risk factors are broadly classified into 2 groups: modifiable and non-modifiable. The non-modifiable risk factors are those which one has no control over and include age and sex the modifiable risk factors are contrary and include; diabetes, hypertension, dyslipidemia, obesity, smoking, alcohol, diet, psychosocial factors and physical exercise. While significant advances in genetics and the ability to reduce social inequalities, has become evident that modification of these factors that cause atherosclerosis can also reduce mortality [3, 4].

Risk estimation systems are developed to help the clinicians to assess the effects of risk factors that cause CVD and in planning of therapeutic strategies. Risk scoring makes patients aware of their risk status and can, therefore, serve as enough motivation for engaging in activities to lower overall risk. Many risk estimations systems are in existence where most of them include age, gender, smoking, serum lipids and hypertension as their core variables.

CVD prevention remains as a challenge for the general population, politicians, and healthcare workers [2]. Assessment of an individual's predicted Risk of developing a CVD event in 5 or 10 y has been identified as one of the ways to determine the burden of CVD risk and to guide treatment decisions [5]. Although there are many studies on CV risk prediction, the value of CV risk estimation is always justified because the prevalence of CV risk factors has continuously been changing in a region with different magnitude and direction over the past 30 y. While other factors like obesity, diabetes mellitus and cigarette smoking have become more prevalent. Furthermore, changes have not been similar between both the gender and among different ages [6].

Hence this study aimed to assess total cardiovascular disease risk-the probability of an individual experiencing a cardiovascular event over 10 y using the most recent Framingham Risk Scoring Algorithm and ASCVD risk estimator.

MATERIALS AND METHODS

This is a cross-sectional observational study which was conducted for a period of 6 mo in patients who are admitted as inpatients from November 2018and April 2019 in Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation Andhra Pradesh (India). A total of 283 consecutive samples whose age is above 18 yold, agreed to participate voluntarily were recruited into the study and patients of above 65 y, Unresponsive and, or non-communicative, Patients whose records showed established or a history of any cardiovascular diseases are excluded. All the patients agreed to participate with a written consent form. Ethical clearance obtained from the Institutional Ethics Committee with a Protocol Approval No. UG/359/18.

Data including the patient demographic details, medical and medication histories, diagnosis, treatment chart and data on laboratory investigations are collected from the patient medical records and risk was estimated individually by using Framingham Risk Scoring Algorithm and ASCVD risk estimator.

PRINCIPAL
K.V.S.R. SIDDHARTHA COLLEGE OF
PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.