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List of National/International papers published-Academic year 2021-2022

S NO	Title of Paper	Name of Author	Department of Teacher	Name of Journal	Year of Publication	ISSN /ISBN number
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2.	Phytochemical Screening And Antidiabetic Potentially Of Pavetta Indica I(Angioperms:Rubiaceae) Methanol Extract On Streptozocin Induced Diabetic Mice	T. Venkatachalam	Pharmaceutical chemistry	Annals Of Phytomedicine	2021-2022	2393-9885
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4.	Focus On The Multimodal Role Of Autophagy In Rheumatoid Arthritis	T. Venkatachalam	Pharmaceutical chemistry	Inflammation	2021-2022	1178-7031
5.	A Review On The Therapeutic Management Of Covid-19 Associated	T.Venkatachalam	Pharmaceutical chemistry	Journal Of Pharmaceutical Research	2021-2022	2456-9119

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24.	Guillain Barre Syndrome -A Review	K C.Arul prakasam	Pharmacy practice	International Journal Of Trend In Scientific Research And Development	2021-2022	2456-6470
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Original Article

Thai Journal of Pharmaceutical Sciences

Gastroprotective effect of *Phyllanthus reticulatus* Poir. against pylorus ligation-, ethanol-induced, and stress-induced ulcer models in Wistar rats

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Received: May 30, 2021
Accepted: July 26, 2021
Published: March 23, 2022

ABSTRACT

Objective: The objective of the present study is to evaluate the antiulcer property of ethanolic extract of *Phyllanthus reticulatus* Poir. against pylorus ligation-, ethanol-induced, and stress-induced ulcer models in Wistar albino rats. **Materials and Methods:** Three models – pylorus ligation-induced ulcer, ethanol-induced ulcer, and swim stress-induced ulcer – were used to induce ulcer in Wistar rats. The animals were treated with 200 mg/kg and 400 mg/kg p. o of the ethanolic extract of *P. reticulatus* Poir, to estimate the gastroprotective potential. The effect of *P. reticulatus* Poir. on pH of the gastric juice, volume of acid secretion, total and free acidity, ulcer index, and % ulcer protection was assessed to determine the gastroprotective potential. **Results:** A decrease in ulcer index was observed in all three models after treatment with *P. reticulatus* Poir. In pylorus ligation model, the doses of 200 mg/kg and 400 mg/kg exhibited % protection of 88.11 and 91.53, respectively. In ethanol-induced ulcer model, 200 mg/kg and 400 mg/kg displayed % protection of 50.40 and 60.94, respectively. In stress-induced ulcer model, 200 mg/kg and 400 mg/kg displayed % protection of 60.94 and 72.31, respectively. A decrease in aggressive factors and an increase in protective factors were observed during the estimation of biochemical parameters. **Conclusion:** The present study proves that the ethanolic extract of *P. reticulatus* Poir. possesses significant gastroprotective property.

Keywords: Gastric ulcer, gastroprotective, *Phyllanthus reticulatus* Poir., pylorus ligation

INTRODUCTION

The World Health Organization estimates that 80% of human population must depend on plant-based traditional medicines for health care.[1] Phytoconstituents derived from botanicals have been found to be effective in major ailments and are less toxic compared to existing drugs. An imbalance between aggressive and defensive factors of gastric mucosa leads to pathogenesis of ulcer.[2] Chronic stress, consumption of alcohol and tobacco, nonsteroidal anti-inflammatory drugs, and *Helicobacter pylori* are considered to be the major factors that act as aggressive factors in the pathogenesis of gastric ulcer. There is a need to discover newer antiulcer drugs to avoid the potential problem associated with the long-term use of synthetic proton-pump inhibitors.[3]

Phyllanthus reticulatus Poir. is a shrub with smooth or lenticellate branches reaching a maximum height of 10 feet that belongs to the family Euphorbiaceae. The leaves of the plants are traditionally used as diabetic and have also been reported to possess diuretic, astringent, and astringent properties. The leaf extract of *P. reticulatus* Poir. has been reported to possess antimicrobial properties against Gram-negative bacteria and the whole plant extract has been reported to have antioxidant property.[4,5] The major phytoconstituents reported to be present in the leaves of *P. reticulatus* Poir. are lupeol, stigmasterol, scopoletin, friedelin, epifriedelinol, betulin, taraxerone, beta-sitosterol, glochidonol, octacosanol, methyl gallate, ellagic acid, corilagin, methyl brevifolin carboxylate, kaempferol, astragalin, quercetin, and isoquercitin.[5] *P. reticulatus* Poir. has been reported to be effective against Gram-negative bacteria such

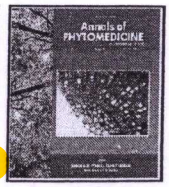
Annals of Phytomedicine 10(2): 292-297, 2021

DOI: http://dx.doi.org/10.21276/ap.2021.10.2.39

Annals of Phytomedicine: An International Journal

http://www.ukaazpublications.com/publications/index.php

Print ISSN : 2278-9839 Online ISSN : 2393-9885



Original Article : Open Access

Phytochemical screening and antidiabetic potentiality of *Pavetta indica* L. (Angiosperms: Rubiaceae) methanol extract on streptozotocin induced diabetic mice

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Article Info

Article history
Received 1 October 2021
Revised 16 November 2021
Accepted 17 November 2021
Published Online 30 December 2021

Keywords
Antidiabetic
Biochemical parameters
Glibenclamide,
Oral glucose tolerance test
Pavetta indica L.
Streptozotocin

Abstract

In the present study, the methanolic leaves extract of *Pavetta indica* L. (PI) was studied for antidiabetic activity in streptozotocin (STZ) induced diabetic mice. The dried leaves were powdered and extracted with methanol solvent by using Soxhlet method. Preliminary phytochemical investigation was carried out for determination of presence of bioactive constituents. Thereafter, the acute toxicity study was conducted for the selection of the dose and further the activity was studied as per OECD guideline. The antidiabetic activity was performed in STZ induced diabetic rats at the doses of 200 and 400 mg/kg body weight (b.w.) p.o. per day for 28 days. The fasting blood glucose levels (BGL), serum insulin level followed by biochemical parameters, *viz.*, glycosylated hemoglobin, total cholesterol (TC), triglycerides (TG), high density lipoproteins (HDL) and low density lipoproteins (LDL) were evaluated and all the results were compared with standard glibenclamide (10 mg/kg b.w.). AST (aspartate aminotransferase), ALT (alanine aminotransferase), and ALP (alkaline phosphatase) levels were also estimated. The leaves methanol extract of PI (MEPI) showed the presence of alkaloids, carbohydrate, flavonoids, phenolic and tannins. Further, the results indicated significant increase in the body weight, liver glycogen, serum insulin and HDL levels and decrease in blood glucose, glycosylated hemoglobin, total cholesterol and serum triglycerides when compared with glibenclamide. MEPI at both the doses (200 and 400 mg/kg) showed a significant decrease in glucose, AST, ALT, and ALP levels in diabetic mice and finally concluded that PI has potential antidiabetic activity in STZ induced diabetes.

1. Introduction

Diabetes mellitus (DM) is a chronic metabolic and an endocrine disorder which is very common to the people worldwide. This disorder is mainly characterized by insufficiency of insulin action and as a result, disruption in carbohydrates, protein, and fat metabolism (Seshiah, 2016). According to International Diabetes Federation (IDF, 2013), in worldwide, the same is expected to rise to 592 million by 2035. It was estimated that about 65 million diabetic patients in India were affected in 2013 and it is expected to cross 109 million by 2030 (IDF, 2013). The mental tension, change in food pattern and especially diet intake and change in lifestyle in the fast daily life (Manickam and Periyasamy, 2013) are the main responsible for this life threatening disorder. There are many synthetic medicines available in market for the treatment of this disorder but either too costlier or have serious adverse effects like insulin resistance, hypersensitivity and metallic taste, hypoglycemic coma, *etc.* (Nyunai *et al.*, 2009). Therefore, in the recent years, natural plant based treatments gained tremendous success in managing diabetic disorder in both developed and developing countries with the safe or very low adverse effects (Patil *et al.*, 2013) with valuable therapeutic agents, both in modern and in traditional medicine. Therefore, all efforts of extensive research have been diverted in the new direction, *i.e.*, towards herbal sources (Dubey *et al.*, 2020). Ethnobotanical information indicates a vast number of medicinal plants show their hypoglycaemic or antidiabetic potentiality with their bioactive secondary metabolites (Lanjhiyana *et al.*, 2011). India with its diverse climatic zones recognized as a hub of medicinal plants. Therefore, the search for safer and effective antidiabetic agents has become the current focus and with this concept, the present activity was selected.

Of late, *Pavetta indica* L. (PI) belongs to the family Rubiaceae, a shrub growing up to 3-5 meters of height. The opposite branches consist of membranous leaves with grey bark, smooth, irregularly scaly when mature greenish cream (Gupta *et al.*, 2013). The leaves are simple, glabrous and variable in shape. The inflorescence is corymbose cyme, with white terminal flowers. The fruit is a berry with two pyrenes and seeds, one per pyrene (The Wealth of India, 1991). Traditionally, the leaves are used to treat liver disease, pain from piles, urinary infections and fever (Kritikar and Basu, 1933). The roots are use as purgative, aperient, diuretic and tonic and also show many therapeutic benefits such as visceral obstructions, jaundice, headaches, urinary diseases and dropsical affections (Suresh *et al.*, 2015). Thereafter, methanolic leaves extract of PI

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Prostaglandins and Other Lipid Mediators 152 (2021) 106520

Contents lists available at ScienceDirect

Prostaglandins and Other Lipid Mediators

journal homepage: www.elsevier.com/locate/prostaglandins

Review

Understanding the possible role of endocannabinoid system in obesity

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ARTICLE INFO

Keywords:
Obesity
Endocannabinoid system
Adipocyte
High fat diet
CB1 receptor
CB2 receptor

ABSTRACT

Background: Maintenance of weight is essential for sustenance, well-being and to endorse prolonged life. The prevalence of obesity is increasing at an alarming rate globally, due to modern lifestyle and dietary habits. Endocannabinoids are fatty acid derivatives and numerous studies are carried out which focuses and targets their relationship with obesity, via multiple signals which have been recently known for exerting crucial role in regulating energy balance.

Purpose: This article aims at examining the prospects of endocannabinoids in obesity via directing the role of ECs in stimulating hunger.

Result: In last few years, irregular stimulation of endocannabinoid system has been suggested as a chief element in the progression of obesity-associated metabolic complications. Certainly, this cascade system comprises of cannabinoid type1 and 2 receptors (CB1R and CB2R) along with their endogenous lipid ligands which are responsible for enhanced feeding behavior as well as lipid metabolism. Significantly, inhibiting CB1R activity might reduce metabolic abnormality linked with obesity.

Conclusion: Conclusion withdrawn on the basis of supporting scientific data and evidences report that the blockade of cannabinoids can serve as a therapeutic potential for treatment of obesity. Future prospective aims at assessing molecular pathways which contributes towards ECS, elicited weight control and to evaluate how these mechanisms are presently relocated into the production of novel cannabinoid drugs exhibiting enriched care.

1. Introduction

Obesity is a multifaceted metabolic syndrome, accompanied by impaired energy homeostasis, irregular expansion of adipose tissue, and endocrine hormonal dysfunction. Obesity has turned into an epidemic, and is affecting population in developed as well as developing countries [1]. The prevalence of obesity is increasing at an alarming rate and can lead to detrimental effects. The latest data tells that annual expenditure on treatment of obesity in USA is $211 US billion [2]. Globally, about 2 billion individuals are affected with elevated body weight, and about 641 million people are obese [3]. The prevalence of obesity is consistently accelerating occurrence around the world. Prevailing evidence reveals that progenies that are overweighed are more susceptible to obesity [4]. As of now various regimens and drugs organizes the primary treatment of obesity. Presently, Orlistat is used for obesity in kids and adults [5]. FDA has approved numerous medications for the treatment of obesity. Lorcaserin and liraglutide exerts their pharmacological action through a common mechanism. Orlistat inversely blocks the pancreatic lipases, elevating dietary fat elimination [6,7]. On account of its common and widespread existence, obesity is associated with increased incidence of several diseases i.e. cardiovascular disorders and diabetes mellitus [8], posing a threat to the human race. In certain cases, lifestyle modifications and physical exercise have been recognized to exert potential benefits in evading obesity.

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https://doi.org/10.1016/j.prostaglandins.2020.106520
Received 8 May 2020; Received in revised form 29 October 2020; Accepted 23 November 2020
Available online 26 November 2020
1098-8823/

Inflammation (© 2020)
DOI: 10.1007/s10753-020-01324-8

REVIEW

Focus on the Multimodal Role of Autophagy in Rheumatoid Arthritis

Swati Chadha,[1] Tapan Behl,[1,4] Simona Bungau,[2,4] Arun Kumar,[1] Rajwinder Kaur,[1] Thangaval Venkatachalam,[3] Amit Gupta,[1] Mimansa Kandhwal,[1] and Deepak Chandel[1]

Received 11 July 2020; accepted 17 August 2020

Abstract— Autophagy exerts its dual role in eukaryotic cells and exerts its cytoprotective action through degradation mechanism and by regulating catabolic processes which results in elimination of pathogens. Under suitable conditions, autophagy is associated with recycling of cytoplasmic components which causes regeneration of energy whereas deregulated autophagy exerts its implicated role in development and pathogenesis of auto-immune diseases such as rheumatoid arthritis. The immune, innate, and adaptive responses are regulated through the development, proliferation, and growth of lymphocytes. Such innate and adaptive responses can act as mediator of arthritis; along with this, stimulation of osteoclast-mediated bone resorption takes place *via* transferring citrullinated peptides towards MHC (major histocompatibility complex) compartments, thereby resulting in degradation of bone. Processes such as apoptosis resistance are also regulated through autophagy. In this review, the current knowledge based on role of autophagy in pathogenesis of rheumatoid arthritis is summarized along with proteins associated.

KEY WORDS: auto-immune; autophagy; rheumatoid arthritis; immune response.

INTRODUCTION

Autophagy can be defined as a degradation pathway which can be characterized *via* isolating the specific cytoplasmic material in a double membrane vesicle termed as autophagic vacuole (autophagosome), followed *via* the fusion of autophagic vesicle with that of lysosome which ensures destruction of organelles as well as misfolded proteins, further carried inside vesicles [1]. Autophagy can be defined as a physiological process which is required for the degradation of proteins and is restricted towards tissue. It can be considered as a physiological process which is involved in turning over of basal organelles and is required for removing the protein aggregates [2]. The process of autophagy is considered as cellular housekeeping pathway, pro-survival mechanism which exerts its major action of removing or eliminating damaged organelles and aggregates of proteins [3, 4]. Along with the removal of aggregated proteins, it serves and provides energy that is employed for synthesizing macromolecules as in case of starvation and during excessive oxidative stress. Thus, it can lead to recycling of intracellular

Swati Chadha, Tapan Behl, Simona Bungau and Rajwinder Kaur contributed equally to this work.

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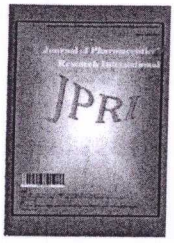
Published online: 21 September 2020



Journal of Pharmaceutical Research International

34(27B): 98-105, 2022; Article no.JPRI.77264
ISSN: 2456-9119
(Past name: British Journal of Pharmaceutical Research, Past ISSN: 2231-2919, NLM ID: 101631759)

A Review on the Therapeutic Management of COVID-19 Associated with Thrombotic Events and Coagulopathies

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2022/v34i27B36010

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/77264

Review Article

Received 07 November 2021
Accepted 10 December 2021
Published 26 March 2022

ABSTRACT

Severe acute respiratory syndrome coronavirus two (SARS-CoV-2) is answerable for the coronavirus illness in 2019 (COVID-19) that chop-chop evolved from a virus in metropolis, Varied coagulopathies are rumored in association with COVID-19, together with disseminated intavasular action (DIC) sepsis-induced coagulopathy (SIC), native microthrombi, blood vessel occulation (VTE), blood vessels thrombotic complications and thrombo inflammation. There's a overplus of publications and conflicting information on hematologic and astringent derangements in COVID-19 with some information suggesting the link to illness progress, severity and/or mortality. There is also growing evidence of potentially usefull clinical biomarkers to predict COVID-19 progression and illness outcomes of these, a link between blood disease and COVID-19 severity or mortality was instructed. During this opinion report, we have a tendency to examine the revealed proof of hematological and astringent laboratory derangements in COVID-19 and also the reticular SARS-CoV-2 evoked inflammation, with a focused discussion on blood platelet count alterations.

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Content available at: https://www.ipinnovative.com/open-access-journals

IP International Journal of Comprehensive and Advanced Pharmacology

Journal homepage: https://www.ijcap.in/

Original Research Article

Development and validation of RP-HPLC and UV method for erlotinib hydrochloride tablets

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ARTICLE INFO

Article history:
Received 14-06-2021
Accepted 07-08-2021
Available online 28-10-2021

Keywords:
Erlotinib
RP-HPLC
Method validation
Tablets

ABSTRACT

A simple, sensitive, precise, selective reverse phase high performance liquid chromatographic method was developed and validated for erlotinib hydrochloride in tablet dosage form.(0.02M)The separation was achieved on C18 column (150mm×4.6mm.i.d.,5.0μm) using potassium dihydrogen phosphate: acetonitrile in the ratio 50:50v/v as mobile phase having pH 4.5 was adjusted with methanol and flow rate 1ml/min. Detection was carried out using a UV detector at 248nm. The column temperature was adjusted at 30°C. The method was validated for precision, linearity and range, stability and robustness. The developed and validated method was successfully applied for the quantitative analysis of ERLONAT tablets. The total chromatographic analysis time per sample was about 7min with Erlotinib eluting at 6.547min.Validation studies demonstrated that this HPLC method is simple, specific, rapid, reliable and reproducible. The standard curves were linear over the concentration ranges, 88.32- 132.48μg/ml for erlotinib. The high recovery confirms the suitability of the proposed method for the determination of Erlotinib in ERLONAT tablets. The results of analysis have been validated according to ICH guideline requirements. The method can be applied for Erlotinib hydrochloride tablets.

1. Introduction

Erlotinib, N-(3-ethynylphenyl)-6,7-bis (2-methoxyethoxy)-4-quinazolinamine (Figure 1), is a new drug for the treatment of lung cancer.[1] Simultaneous quantification of Erlotinib, Gefitinib and Imatinib in human plasma by liquid chromatography tandem mass spectrometry, therapeutic drug monitoring. The mechanism of action involved is an epidermal growth factor receptor inhibitor. It specifically targets the epidermal growth factor receptor (EGFR) tyrosine kinase, which is highly expressed and occasionally mutated in various forms of cancer. It binds in a reversible fashion to the adenosine triphosphate (ATP) binding site of the receptor. For the signal to be transmitted, two members of the EGFR family need to come together to form a homo dimer. These then use the molecule of ATP to autophosphorylate each other, which causes a conformational change in their intracellular structure, exposing a further binding site for binding proteins that cause a signal cascade to the nucleus. By inhibiting the ATP, autophosphorylation is not possible and the signal is stopped.[2]

Simultaneous quantification of erlotinib, gefitinib and imatinib in human plasma by liquid chromatography, tandem mass spectrometry.[3] High performance thin layer chromatographic method for estimation of erlotinib hydrochloride as bulk drug.[4] A Simple HPLC –UV method for the simultaneousquantification of gefitinib and erlotinib in human plasma.[5] Separation and determination of process- related impurities of Erlotinib using reverse phase

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https://doi.org/10.18231/j.ijcaap.2021.026
2581-5555/

Vol 11|Issue 1| 2021 | 6-11.

e-ISSN 2248 - 9169
Print ISSN 2248 - 9150

International Journal of
Experimental Pharmacology

www.ijepjournal.com

EVALUATION OF NOOTROPIC AND ANTICONVULSANT ACTIVITY OF ETHANOLIC EXTRACT OF *CROSSANDRA INFUNDIBULIFORMIS*

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ABSTRACT

To evaluate the Nootropic and Anticonvulsant activity of the ethanolic extract of the leaves of *crossandra infundibuliformis*. Nootropic activity was evaluated by scopolamine induced dementia animal model with elevated plus maze and object identification procedures were done. The Inflexion ratio [IR] specific for continue memory and Discrimination intex [DI], specific for selective memory were evaluated respectively from the above test. and the Anticonvulsant activity was evaluated on an adult wister rats. Two different study models such as, Maximal electroshock [MES] and Isoniazid [INH] induced convulsion method. Nootropic and Anticonvulsant activity were performed in two different concentration such as 200mg/kg, 400mg/kg of EECI. Both the activities were dose dependent. The largest concentration showed the maximum activity.The present study concluded that the ethanolic extract of *Crossandra infundibuliformis* possessed Nootropic and Anticonvulsant Action. Nootropic and Anticonvulsant activity leads some support to the use of *Crossandra infundibuliformis* for different disease in the folkloric medicine of india.

Keywords: Ethanolic extract of *crossandra infundibuliformis*, Nootropic activity, scopolamine, Anticonvulsant activity, Maximal Electricshak, Isoniazid, Wister rats.

INTRODUCTION

Crossandra (*Crossandra infundibuliformis* (L.)Nees) is commonly known as firecracker flower in English, kanaka-ambaram in Tamil, Malayalam, Telugu, Aboli in Marathi, Kanakambara in Kannada. Its flowers are very popular due to their attractive bright colour, light weight, and free flowing nature. Flowers are used for making garlands, offered to temple deities and also used for adorning women's hair. It belongs to the family Acanthaceae. It is mainly grown in open field condition and mostly grown under tropical climate. In India, Crossandra is commercially cultivated in southern states [1].

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Blooming Time: Late winter to Late Autumn. The tube-shaped blossoms are flattened into a 5-lobed disk.

Culture: *Crossandra infundibuliformis* need part shade to full sun. The compost should consist of equal parts of loam and peat moss with sand added for drainage. The compost should be kept moist but not overly wet. Fertilize weekly with a balanced fertilizer dilute to ½ the strength recommended from March to October. The temperature should never drop below 55 degrees or the leaves will turn black. While this doesn't seem to harm the plant, it does make it unsightly. Trim the plant often to keep a desired form. Reporting should be done in February [2].

Propagation: *Crossandra infundibuliformis* are easily propagated by cutting taken in March or by seed.

Phytochemical screening of various solvent extracts of *C.infundibuliformis* revealed the presence of carbohydrates, flavonoids, alkaloids, saponins, tannins, terpenoids, and steroids [3]. The different parts used include root, stem,

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

A REVIEW ON PARKINSON'S DISEASE: ETIOLOGY, PATHOPHYSIOLOGY, DIAGNOSIS AND ITS VARIOUS MANAGEMENTS

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ABSTRACT:

Parkinson disease is the second most prevalent neurodegenerative illness. Parkinson disease is a chronic, progressive disease that affects 1% of people over the age of 60. The disease progresses vary in people, with those diagnosed early in life living longer than those diagnosed later in life. The clinical features typically associated with Parkinson's disease are tremor, rigidity, and bradykinesia, with postural instability frequently appearing as the disease progresses. A thorough history and physical examination should be included in the differential diagnosis of Parkinson's disease. It is a complex neurodegenerative disease with a wide range of motor and non-motor symptoms that necessitate an individualized care plan. Monoamine oxidase-B inhibitor is generally the first step in monotherapy. If motor fluctuations develop, consider adding a catechol-O-methyltransferase inhibitor to extend the duration of levodopa activity. Consider using an MAO-B inhibitor or a dopamine agonist instead. Consider adding amantadine to the treatment of levodopa-induced peak-dose dyskinesias. Although there is no known cure for Parkinson's disease, alternative drug, surgical, and behavioural therapies are available, and new treatments are being developed to help alleviate the adverse effects and symptomatology of this progressive disease.

Keywords: Parkinson disease, alpha synuclein, tremor, levodopa

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International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-6211
Volume 9, Issue 8, August -2021, Impact Factor: 7.429, Available online at: www.ijaresm.com

A Review: Mucormycosis

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ABSTRACT

Mucormycosis is an angioinvasive disease that is characterized by tissue infarction and necrosis. It is an insidious fungal infection caused by members of the zygomycotic and Mucorales species. It can be also described as "Black fungus", and it makes the infected tissue black. It is caused by mold fungi belonging to the genus *Rhizopus, Mucor, Rhizomucor, Cunninghamella,* and *Absidia,* subphylum- Mucormycotina, Order- Mucorales, Class- Zygomycetes. These are rare fungal infections classified based on clinical manifestations into rhinocerebral, disseminated, cutaneous, gastrointestinal, and pulmonary types. It is a fatal fungal infection that mainly affects altered immunity patients. It is a life-threatening fungal infection but rare with high morbidity and mortality. The increased risk of acquiring mucormycosis are patients with diabetes mellitus, neutropenia, hematological malignancy, chemotherapy, hematopoietic stem cell transplantation, solid-organ transplant recipients on immunosuppressive therapy, on peritoneal dialysis, with iron overload, extensive skin injury, human immunodeficiency virus infection, and immunocompetent patients following trauma or burn. This review aims to provide brief details regarding Mucormycosis, epidemiology, etiopathogenesis, clinical manifestation, diagnostic methods, complication, prognosis, morbidity rate, and mortality rate and treatment.

Keywords: Mucormycosis, Epidemiology, Etiopathogenesis, Clinical manifestation, Diagnostic methods, Complication, and Treatment.

INTRODUCTION

Phycomycosis or zygomycosis was first described by Paltauf in 1885[1].The term mucormycosis was coined by the American pathologist R.D. Baker in 1957 for an aggressive infection caused by Rhizopus. Mucormycosis is called an insidious fungal infection caused by members of zygomycotic andMucorales species. Mucormycotina is the common saprobes which are originated in rotten matter or soils [2]. It is an angioinvasive disease that is caused by mold fungi belonging to the *genus Rhizopus, Mucor, Rhizomucor, Cunninghamella, and Absidia*, subphylum Mucormycotina, Order- Mucorales, Class- Zygomycetes and is characterized by tissue necrosis and infarction [3],[4]. Infections mainly caused due to Mucorales are categorized by rapid progression [2]. Rhizopus Oryzae is one of the most common types and it is responsible for nearly 60 % of mucormycosis cases in humans[5].It can be also described as "Black fungus", and it makes the infected tissue black. The fatal rate is estimated to be 40 – 80%[6].It is a life-threatening fungal infection but rare with high morbidity and mortality [7].The clinical presentations of mucormycosis are classified based on anatomic localization, such as rhinocerebral, gastrointestinal, cutaneous, pulmonary, renal, and disseminated mucormycosis [8],[9].The increased risk of acquiring mucormycosis are patients with diabetes mellitus(DM), neutropenia, hematopoietic stem cell transplantation (HSCT), hematological malignancy and chemotherapy, solid-organ transplant recipients on immunosuppressive therapy, on peritoneal dialysis, with iron overload, extensive skin injury, human immunodeficiency virus (HIV) infection and immunocompetent patients following trauma or burns[8]-[10]. The incidence of mucormycosis has also increased majorly in diabetes patients which is the most common risk factor around globally [11], [12].For immunocompetent hosts, a considerable number of mucormycosis cases are reported[13], [14].Mucormycosis is globally distributed and the prevalence of the disease is due to certain risk factors, clinical forms, and causative agents in India.

The most common underlying disease associated with mucormycosis in India is due to uncontrolled diabetes mellitus. Recent reports from India identified important risk factors such as hematological malignancy and solid-organ transplant recipients[12],[13],[15].In India, the most common form of the disease is rhino-orbital-cerebral (RCOM) type, pulmonary type, and cutaneous types, whereas, in developed countries, the pulmonary form is the most common clinical presentation [12]-[14]. The pathogens associated with mucormycosis considerably varied in India and developed countries.Rhizopus Arrhizus is the most common cause of mucormycosis globally[9], [17].Infections due to Rhizopus Homothallicus and Rhizopus Microspous are rising in India [12], [13], [16].The Apophysomyces species are common in India, and Lichtheimia species are common in developed countries[17].Recently, several cases of mucormycosis in COVID- 19 patients have been increasingly reported worldwide, and also a majority in India. The

International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 5 Issue 6, September-October 2021 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

A Review on Spinal Muscular Atrophy: Clinical Classification, Etiology, Diagnosis and Treatment

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ABSTRACT

Spinal muscular atrophy (SMA) is an inherited, progressive neuromuscular disease that can cause weakness, degeneration of anterior horn cells, and muscle atrophy. It was first discovered in infants by physicians Guido Werdnig and Johan Hoffmann. SMA is mainly caused due to the mutation of the survival motor neuron 1 (SMN1). Based on phenotype it is classified into four grades of severity as SMA I, SMA II, SMA III and, SMA IV. SMA is diagnosed by Molecular genetic testing such as Multiplex Ligation-Dependent Probe Amplification (MLPA) and real-time polymerase chain reaction(PCR);laboratory examination includes creatine kinase dosage and electrophysiological tests such as electromyography (EMG), and nerve conduction studies. Various drugs used for the treatment of SMA are Nusinersen, Risdiplam, Zolgensma, Reldesemtiv, and Combination therapy. Spinal muscular atrophy (SMA) Foundation and Pharmacy and therapeutic Committee (PTC), have been conducting many clinical trials for a potential SMA treatment.

KEY WORDS: *Spinal muscular atrophy; Clinical classification; Etiology; Diagnosis; Treatment*

How to cite this paper: Deborah Rose | Subhashini. A | Dr. K. C. Arul Prakasam | Aarthy. P | D. N. Ashritha "A Review on Spinal Muscular Atrophy: Clinical Classification, Etiology, Diagnosis and Treatment" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-5 | Issue-6, October 2021, pp.1440-1443, URL: www.ijtsrd.com/papers/ijtsrd47658.pdf

IJTSRD47658

INTRODUCTION:

The term spinal muscular atrophy (SMA) is a group of genetic disorders which is characterized by weakness, degeneration of anterior horn cells, and resultant muscle atrophy.[1] SMA, a genetic cause of infantile mortality is an autosomal recessive neurodegenerative disorder.[5] It accounts for over 95% of cases, that result from a homozygous deletion or mutation in the 5q13 survival of motor neuron (SMN1) gene.[1]SMA was first described in the 1890s by Guido Werdnig and Johan Hoffmann. The genetic defect was localized to 5q11.2-q13.3 and years later survival motor neuron gene (SMN) gene was identified as the disease-causing gene in 1995.[2] The estimated incidence of SMA is 1 in 6000 to 1 in 10,000 live births and 1 of 40 to 1 of 60 carrier frequency. It is characterized by atrophy and generalized muscle weakness mainly in proximal limb muscles. Based on phenotype it is classified into four grades of severity as SMA I, SMA II, SMA III and, SMA IV.[3]Electromyography and muscle biopsy features of denervation and molecular testing for homozygous mutation or deletion of the SMN1 gene provide efficient and specific diagnosis and molecular testing achieves up to nearly 100% specificity and 95% sensitivity.[4] In most patients, the diagnostic test shows the absence of SMN1 exon 7.[3] Although there is no cure for SMA, and a better understanding of the molecular genetics of SMA has however led to the development of pre-clinical models and numerous potential therapeutic approaches.[1]Various drug used for the treatment of SMA is Nusinersen, Risdiplam, Zolgensma, Reldesemtiv, and Combination therapy. Many clinical trials for a potential SMA treatment have been conducted by SMA Foundation and PTC Therapeutics.[11]

CLINICAL CLASSIFICATION

SMA is categorized based on the age of onset and maximum function attained into types 0, 1, 2, 3, and 4 which are inherited as autosomal recessive genetic disorders. It is associated with mutations in the Spinal motor neuron 1 and Spinal motor neuron2 genes which are located on chromosome 5.[6]

International Journal of Pharmacology and Clinical Research (IJPCR)

IJPCR |Volume 6 | Issue 2 | Apr-Jun - 2022
www.ijpcr.net

Review article | Clinical research

ISSN: 2521-2206

Nano particle targeting brain system

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ABSTRACT

The drug delivery to the brain system is a most challenge to the scientist for developing the drug designed for CNS. The major problem is that all the drugs does not passes through BBB, only nanoparticles and highly lipid soluble drugs may pass through. The BBB is a most essential barrier between the circulating blood and the neural tissue. The criteria for drug delivery includes the following, a) the drug must be stable, b)the drug must have access to brain, c) the dose should be sustained and controlled, d) the effect of drug should be localized. The drug may administer either by systemic administration or by direct delivery of drugs into the brain. The polymers which plays an most important role in the advancement of drug delivery technology by providing controlled release of therapeutic effect, administered in the constant dose over a long period of time. The BBB maintains the brain homoeostasis as well as movement of ion and molecule. Failure in this process results in breakdown of brain cell structure. This may leads to a disease such as Parkinson disease and Alzheimer's disease.

Keywords: Nanoparticles, blood brain barrier (BBB), polymers, controlled drug release.

INTRODUCTION

Drug targeting is the ability of the drug to accumulate in the targetted tissue or organ, quantitatively and selectively and they are Independent to the site and route of administration. The drugs which have been targeted should have the greater affinity towards the specialized cells. The main action of the function is first to recognizes and binds the target and provide the therapeutic action in this target. It includes corresponding behavior of three components, such as targeting moiety, drug and carrier.

Drug delivery to the brain is the process of transport of active molecules across the blood brain barrier for the purpose of targeting brain diseases. Due to lack in the conventional delivery mechanism, aggressive research

International Journal of Farmacia

Journal Home page: www.ijfjournal.com

Formulation and evaluation of curcumin phytosomes

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ABSTRACT

Aim: The aim of the present study was an attempt to prepare and evaluate Curcumin phytosomes by using Soya lecithin as a polymer for treating the Cancer potentially.

Methodology: The formulation FA1 to FA5 were prepared by Reflux method and the formulation FB1 to FB5 were prepared by Rotary evaporation methods, by varying theconcentration of polymer, which were significantly affect the *in vitro* drug release. The *in vitro* drug release studies were carried out by using phosphate buffer pH 6.8.

Results: Drug and physical mixture were characterized by FTIR, the result of FTIR study showed that no interaction between drug and polymer. The *in vitro* drug release and release kinetics of formulations showed controlled release. The other formulation parameters of formulated Phytosomes were evaluated which showed better results.

Conclusion: It was concluded that the formed Phytosomes showed prolonged drug release. Curcumin Phytosomes promote a fast and effective action against the Cancer. From the *in vitro* drug release and release kinetics studies it can be concluded that the formulation FB5 prepared by Rotary evaporation method has better potential of controldrug release than Reflux method.

Keywords: Curcumin, Phytosomes, controlled drug delivery, Soya lecithin.

INTRODUCTION

Cancer is a disease of the cells, which are the body's basic building blocks. Thebody constantly makes new cells to help us grow, replace worn-out tissue and heal injuries. Normally, cells multiply and die in an orderly way. Some times cells don't grow, divide and die in the usual way. This may cause blood or lymph fluid in the body to become abnormal, or form a lump called a tumor. Atumor can be benign or malignant:

Principle of Phytosome Technology

The phytochemical constituents (flavonoids and terpenoides) of the extracts provide them for the direct complexation with Phosphatidylcholine. Phytosome results from the reaction of a stoichiometric amount of the phospholipid with the standardizedextract or polyphenolic constituents in a non-polar solvent. The Phosphatidylcholine is a bi-functional compound composed of lipophilic phosphatidyl moiety and the hydrophilic choline moiety. The choline head of phosphatidylcholine molecule binds to phytocomponent while the lipid soluble phosphatidyl portion comprises the body andtail which then envelops the choline bound material. Hence, the Phytoconstituents build up a lipid compatible molecular complex with phospholipid also called as phyto-phospholipid complex.[1]

Properties of Phytosomes

Following are some of the important properties of phytosomes

Physico-chemical properties

Phytosome are prepared by reaction of stoichiometric amount of phospholipid with the standardized plant extracts as substrate. The spectroscopic data revealsthat the phospholipid substrate interaction is due to the formation of hydrogen bond between the polar head (i.e., phosphate and ammonium group) and the polar functionalities of the substrate. [2] The size of Phytosome varies from 50 nm to a few hundred µm. [3] Phytosome when treated with water assumes a micellar shape resembling liposome and photon correlation spectroscopy (PCS) reveals this liposomal structures acquired by phytosome.[4] The complexes are often freely soluble in aprotic

Research Article

Available Online at: www.ijpir.com

International Journal of Pharmacy and Industrial Research

ISSN Print 2231 – 3648
Online 2231 – 3656

Development and evaluation of clopidogrel bisulphatebuccal patch for treatment of thrombosis

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ABSTRACT

Buccal delivery mucoadhesive polymer as their dosage forms should ideally adhere to themucosa and withstands salivation, tongue movement and swallowing for a significant period of time. Moreover, buccal drug delivery offers a safer method of drug utilization, since drug absorption can be promptly terminated in case of toxicity by removing the dosage form the buccalcavity. It is also possible to administer the drug to patients, who cannot be dosed orally to prevent accidental swallowing. Buccal releases of Clopidogrel bisulphate is enabled so that it can be retained in the oral cavity from desired and localize the dosage form in a specific region and control the release rate of drug. Nine batches of Clopidogrel Bisulphate buccal patches were prepared by using three different polymers (HPMC (ESLV), pectin, sodium alginate). Based on the physico-chemical parameters such as appearance, thickness, tensile strength, uniformity of weight, drug content and in vitro diffusion studies H2, P4, and S8 were selected as best formulation. The FTIR graphs of drugs excipients and formulation showed that there is no extra peak or broadening of peaks were observed and thus it indicates that there is no incompatibility between drug and excipients. From the release kinetic results the r^2 value of H2 was found to be higher in zero order release kinetics. In case of korsmeyer peppas model the result indicated that release exponent 'n' value is 0.45<n>0.89. This indicates that the non fickian type (case – II) diffusion mechanism. The amount of drug released are 97.78% of optimized H2 formulation shows a good release. The H2 formulation was subjected to stability studies for 3 months. At the end of three months the H2 formulation showed no significant changes in appearance, colour, texture and drug content at both the room temperature and 40 ± 2°C & RH 70 ± 5%. From the results, it may concluded that the buccal patches of H2 containing (HPMC – ESLV) in the ratio of 1:6 achieved the objectives of quick release, within 60 sec and accurate dosing (97.78%). Thus, the present study delivers the drug constantly & slowly demonstrated potentials for rapid absorption can be effective therapy, and patient compliance for the treatment of thrombosis.

Keywords: Clopidogrel Bisulphate, buccal patches, Thrombosis, buccal cavity

INTRODUCTION

The novel bioadhesive mucosal dosage forms including adhesive tablets, gels, patches and more recently the use of polymeric films for oral cavity delivery, also known as mouth dissolving buccal patches gained attention in formulation research and growing popularly day by day in the global pharma industry[1].

Oral route has been the commonly adopted and most convenient route for drug delivery. This route has been received more attention in the pharmaceutical field because of the more flexibility in the designing of dosage form than drug delivery design for other routes, ease of administration as well as traditional belief that by oral administration the drug is well absorbedas the food stuffs that are ingested daily.[2]

The limitations of the most obvious and trusted drug delivery techniques those of the ingested tablet and of the intravenous/intramuscular/ subcutaneous injections have been recognized for some time. The former delivers drug in

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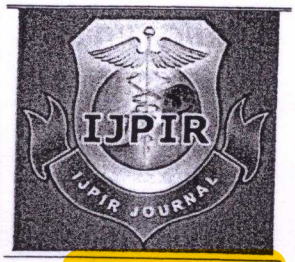
Research Article



ISSN Print 2231 – 3648
Online 2231 – 3656

Available Online at: www.ijpir.com

International Journal of Pharmacy and Industrial Research

Formulation and evaluation of orally disintegrating tablets of ibuprofen with improved oral palatability

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ABSTRACT

The aim of this study was to formulate and evaluate the oral tablet formulations of Ibuprofen fast oral disintegration and increasing the oral palatability by masking the bitter taste of the drug component. As the drug imparts a bitter taste it is optimised in aspect of sweeteners and flavours also obtained by coating a different polymer. The plan of work comprises of characterisation of API with pre formulation studies such as Angle of Repose, Bulk Density, Tapped Density, Compressibility Index, Hausner's Ratio, Particle Size Distribution, Drug excipient comparability study, Solubility study. This is followed by taste masking achieved by addition of sweeteners and flavours and coating with hydrophobic additives. The drug component then processed with the developmental parameters such as Direct compression, Dry granulation and Wet granulation. This part of the formulation is further scaled to identification and optimization of the disintegrants in the formulation. Once the stability parameters of the formulation are accessed, it is then proceeded with analytical process conducted in order to select and evaluate the best formulation among them.

Keywords: Pre-formulation parameters, Taste masking of tablets, Ibuprofen, Hydrophobic polymers, Oral dispersion.

INTRODUCTION

Oral drug delivery is the most desirable and preferred method of administering therapeutic agents for their systemic effects, it is the most popular route for drug therapy. Compared to other oral dosage forms, tablets are the manufacturer's dosage form of choice because of their relatively low cost of manufacture, package, and shipment. The most common solid dosage forms in contemporary use are tablets, which may be defined as, unit forms of solid medicaments prepared by compaction.[5] For the past one decade, there has been an enhanced demand for more patient-friendly and compliant dosage forms.[8]

Recent market studies indicate that more than half of the patient population prefers ODTs to other dosage forms [3]and most consumers would ask their doctors for ODTs (70%), purchase ODTs (70%), or prefer ODTs to regular tablets or liquids

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INTERNATIONAL JOURNAL OF PHARMACY AND ANALYTICAL RESEARCH

ISSN: 2320-2831

IJPAR |Vol.11 | Issue 2 | Apr - Jun -2022
Journal Home page: www.ijpar.com

Research article *Open Access*

Formulation and evaluation of nevirapine extended release tablets

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ABSTRACT

Nevirapine is a non-nucleoside reverse transcriptase inhibitor (NNRTI) drug which is used in thetreatment human immunodeficiency virus type 1 (HIV-1) infections. The present study is to develop a pharmaceutically stable, cost effective, pharmaceutically equivalent, and quality improved formulation of Nevirapine ER tablets. To achieve this goal various prototype formulation trials will be taken and evaluated with respect to the various quality control tests such as dissolution, assay, acid resistance. The formula will be finalized by comparing the invitro dissolution profile with that of the marketed VIRAMUNE XR Tablets. In this study Nevirapine Extended release tablets were prepared by using hydrophobic polymers. Thirteen formulations of extended release tablets of Nevirapine were developed by using Lactose Monohydrate and Micro crystalline cellulose as diluent and Magnesium stearate aslubricant in different proportions and varying grades of Eudragit, Ethyl Cellulose and povidonein different proportions. The formulation F12 was found to be best of all the formulations showing drug release matching the innovator product. The formulation F12 was evaluated for all the quality control tests.

Keywords: Nevirapine, extended release, hydrophobic polymers, Eudragit, Ethyl cellulose.

INTRODUCTION

An ideal drug delivery system provides treatment for acute diseases or chronic illness to the patients for many years a number of oral dosage forms are available. Some are liquids (e.g: syrups, elixirs, tinctures, suspensions and emulsions), whereas the most common ones are solids (e.g: tablets and capsules). Tablets and capsules are generally formulated to release the drug immediately after oral administration to hasten systemic absorption. These are called as Immediate-release products. [1]

However, after absorption of the drug from the dosage form is complete, plasma drug concentrations decline according to the drug's pharmacokinetic profile.

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Review Article

Available Online at: www.ijpir.com

International Journal of Pharmacy and Industrial Research

ISSN Print 2231 – 3648
Online 2231 – 3656

Review on gastro - retentive drug delivery system and advancements in controlled release

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ABSTRACT

The novel approaches of the Gastro - Retentive drug Delivery system improve the drug Bio - availability and patient compliance by increasing the Gastric residence time and controlling the drug release. Various GRDDS approaches can be utilized to retain the dosage forms in the stomach and to release the drug slowly for an extended period of time. GRDDS can be used to prolong the residence time of delivery system in the stomach. This results in targeting of drug release at a specific site for the systemic or local effects. Various drug which are unstable in alkaline PH, soluble in acidic PH, having narrow absorption window, site of action specific to stomach can be developed by using this technique. Gastro - retentive drug delivery system can be used to overcome challenges associated with conventional oral dosage forms and to release the drug at a specific absorption site to improve the Bioavailability of the drug. Gastro retentive dosage forms greatly improves the pharmacotherapy of stomach by releasing the locally and thus results into high concentration of drug at the Gastro mucosa which can be sustained over a longer duration of time. The challenges include fast gastric emptying of the dosage form which result in poor Bio - availability of drug. The purpose of this paper is to briefly describe the approaches of gastro - retentive drug delivery system such as high density, low density (Floating system), mu co adhesive, Expandable, magnetic system and raft forming system.

Keywords: Gastro retention, GIT's Physiology, Gastric residence time, Floating system, muco - adhesive system.

INTRODUCTION

Generally the drugs which get easily absorbed in GIT exhibit short half - lives and are eliminated quickly from systemic circulation and to achieve a suitable therapeutic activity of such drugs, it is necessary to give the dose frequently. To overcome these side effects, Gastro retentive drug delivery system were developed. Gastro retentive delivery is one of the site specific delivery of the drugs at stomach. It is obtained by retaining dosage form into stomach and drug is being released at sustained manner to specific site either in stomach or intestine. These systems were designed to prolong the residence time of a drug in the GIT. Gastric retention can be done by using mu co adhesive, size-based and altered density systems. GRDDS continuously release the drug for a prolonged period before it reaches its site of absorption and thereby insures optimal bio - availability of drugs having a low absorption window. Oral route of drug administration is the most convenient and commonly used method of drug delivery. However, this route has several physiological problems. Including an unpredictable gastric emptying rate that varies from person to person, a brief gastrointestinal transit time (80-12h), and the existence of an absorption window in the upper small intestine for several drugs. These difficulties have prompted researchers to design a drug delivery system which can stay in the stomach for prolonged and predictable period. Attempts are being

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Available online at www.icjpir.com ISSN: 2349-5448

INTERCONTINENTAL JOURNAL OF PHARMACEUTICAL INVESTIGATIONS AND RESEARCH

ICJPIR |Volume 9 | Issue 1 | Jan-Mar- 2022 Research Article

Formulation development and evaluation of metformin Hydrochloride and vildadagliptin immediate release Tablet

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ABSTRACT

The aim of the current work was to formulate and determine a fixed dose combination of immediate release oral solid dosage form containing two anti-diabetic drugs for the management of type 2 diabetes mellitus. Metformin HCL500mg and Vildagliptin 50mg immediate release tablets were prepared by wet granulation method. A total number of six different batches (F1, F2, F3, F4, F5 and F6) were developed to optimize the quantity of super disintegrants Crosscarmellose sodium, Micro Crystalline Cellulose and PVP K 30. Drugs – excipients compatibility were examined by FTIR studies. The results revealed that there were no interaction between the drugs and excipients used. The above batches were evaluated for various pre-compression characteristics like bulk density, tapped density, compressibility index, hausner's ratio and angle of repose and the results of all six batches complies with the standard values. Various physico chemical evaluations such as dimensions, thickness, hardness, friability, disintegration time, *in-vitro* drug release and assay were performed. Amongst six batches, the formulation F6 showed 86% for Vildagliptin and 102% for Metformin Hcl at the end of 45 mins and selected as optimized formulation. The Stability studies were performed at 40^{0}C and 75% RH, 25^{0}C and 60%RH. Samples were analyzed at regular intervals as mentioned in stability protocol. The stability study of the formulated product complies with ICH guidelines in the initial two month, it showed no significant change in the physicochemical parameters and *in vitro* release pattern. The encouraging results confirm the effectiveness of fixed dose combination and may improve patient compliance.

Keywords: vildadagliptin, Hydrochloride

Journal of Pharmacreations

PharmaCreations

ISSN: 2348-6295

Pharmacreations \ Vol 9 \ Issue 2 \ Apr - Jun - 20222

Jouranl Home page: www. pharmareations.com

Research article Open Access

Formulation and evaluation of sustainedrelease matrix tablets of a selective antihypertensive drug

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ABSTRACT

The present work was to formulate and evaluate sustain release matrix tablets of Valsartan, an angiotensin II Receptor type 1 antagonist. Sustain release formulation are those which delivers the drug locally or systemically at a predetermined rate for a fixed period of time. The matrix tablet was prepared by direct compression method using by various concentration of chitosan and sodium alginate with combination of various release retardant polymer. The powder mixtures were subjected to various pre-compression parameters such as angle of repose, bulk density, tapped density and Carr's index shows satisfactory result and the compressed tablets are evaluated for post-compression parameters such as weight variation, thickness, hardness, friability,drug content, *in-vitro* dissolution and stability studies. *In-vitro* dissolution studies were carriedout for 24 hours using 0.1 N HCL for first 2 hours and pH 6.8 phosphate buffer for 24 hours and the result showed that formulations F_4 and F_7 showed good dissolution profile to control the drug release respectively. Formulation containing higher concentration of chitosan and sodium alginate along with polymers sustained the drug release for the period of 24 hours. The compatibility of the drug, polymers and other excipients were determined by FT-IR Spectroscopy. Results showed that the drug was compatible with polymers and other excipients. The release data was fitted to various mathematical models such as Zero-order, First-order, Higuchi equation and Korsmeyer- Peppas model to evaluate the kinetics and the drug release. The drug release followed first order and the mechanism was found to be non-Fickian. The stability studies were carried out for 3 months and result indicates that the selected formulations (F_4 and F_7) were stable.

Keywords: Carbopol 934P, Chitosan, sodium alginate, sustain release matrix tablet, Valsartan.

INTRODUCTION

Oral delivery of drugs is the most preferable route of drug delivery due to the ease of administration, patient compliance and flexibility in formulation, etc. Many of the drug delivery systems available in the market are oral drug delivery type systems.[1] Approximately 50% of the drug delivery systems available in the market are oral drug delivery systems and historically too, oral drug administration has beenthe predominant route for drug delivery. It does not pose the sterility problem and minimal risk of damage at the site of administration.[2]

Pharmaceutical products designed for oral delivery are mainly immediate release type or conventional drug delivery systems, which are designed for immediate release of drug for rapid absorption. These immediate release dosage forms have some limitations such as:

1. Drugs with short half-life require frequent administration, which increases chancesof missing dose of drug leading to poor patient compliance.
2. A typical peak-valley plasma concentration-time profile is obtained which makesattainment of steady state condition difficult.
3. The fluctuating drug levels may lead to precipitation of adverse effects especiallyof a drug with small therapeutic index, whenever overmedication occurs.

International Journal of Farmacia

Journal Home page: www.ijfjournal.com

Formulation and evaluation of sustained release tablets of gemifloxacin using natural polymers

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ABSTRACT

Extended-release drug-delivery systems are designed to release drugs over a prolonged period employing steady-rate drug release or controlled release to achieve stable and higher therapeutic potential while minimizing adverse side effects. Sustain release tablets of gemifloxacin were prepared by using polymer Xanthan gum, guar gum, carbopol 937 in all formulation. The ingredients given in table, except glidant and lubricant were thoroughly mixed in mortar and pestle. The wet mass passed through sieve no.16 and c for 30-45. The present work to aim the design, fabrication and evaluation of Gemifloxacin sustained release tablets by wet granulation technique. In this technique Guar Gum and Xanthan Gum were used as polymers for drug released upto extended time period. The Formulations F6 found to satisfy the desired criteria for GFX released from the formulation. The drugs released from the formulations and released mechanism followed for "first order kinetics & Non-Fickian diffusion mechanism" respectively. Finally to achieve a Gemifloxacin sustained released tablets and drugs released up to 12 hrs. The Comparison of the optimized formulation (F6) with market formulation (FM).

Keywords: Sustained release, Gemifloxacin, natural polymers, Guar Gum, Xanthan Gum

INTRODUCTION

Gemifloxacin Mesylate is a new fluoroquinolone antibacterial agent with a broad spectrum of activity. It is a fourth generation fluoroquinolone, has high potency against Gram-positive, Gram-negative bacteria and its bactericidal activity is through inhibition of bacterial topoisomerase II and IV enzymes which are critical in the maintenance, synthesis and replication of DNA. Gemifloxacin mesylate showed good in vivo activity in a model of infective keratitis due to St. aureus, in comparison to all third generation fluoroquinolones. It is freely soluble in water. Bioavailability is approximately 71 %. The half-life of drug is low that is 7 h. The purpose of the present investigation is to develop a sustained release, ophthalmic delivery system of Gemifloxacin Mesylate with more residence time in the eye which leads to improvement of bioavailability, patient compliance and to reduce the frequency of administration. The conventional liquid ophthalmic formulations are washed out from the precorneal area immediately upon instillation because of constant lacrimal secretion, nasolacrimal drainage and short precorneal residence time of the solution. Narrow permeability of the cornea contributes to the low absorption of ocular drugs. Rapid elimination of the eye drops administered often results in a short duration of the therapeutic effect making a frequent dosing regimen necessary. As a result, frequent instillation of solution or higher drug concentration is needed to achieve the desired therapeutic response. Due to tear drainage, most of the administered dose is absorbed via the naso-lacrimal duct to the GI tract, leading to side-effects. Major advancement to overcome these disadvantages has been made by the development of in situ-forming gels. These systems consist of polymers that exhibit sol-to-gel phase transitions as a result of specific physical / chemical change induced by the physiological environment in the cul-de-sac as pH, temperature or a specific ion. Such a system can be formulated as a liquid dosage form suitable to be administered by instillation into the eye, which upon exposure to physiological conditions of eye shifts to the gel phase, thus leads to increasing the pre-corneal residence time of the delivery system and enhancing ocular bioavailability. Polaxamer is non-ionic surface active agent, and block copolymers consisting of polyethylene oxide and polypropylene oxide units. Their relatively low toxicity and capacity to form clear gels make them particularly suitable for dermatological or ophthalmic formulations as well as in the area of controlled drug delivery systems and it is known for exhibiting the phenomenon of reverse thermal gelation under a certain concentration and temperature. Though thermo sensitive copolymers are employed widely, they suffer from a major drawback of having weak mechanical strength, which leads to rapid erosion of polymer. This problem can be solved by using blends of poloxamers with

Research Article

ISSN Print 2231 – 3648
Online 2231 – 3656

Available Online at: www.ijpir.com

International Journal of Pharmacy and Industrial Research

Formulation and evaluation of keterolac tromethamine colon specific drug delivery system

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ABSTRACT

The oral route is the most popular route used for administration of drugs, which is due in part to the ease of administration and to the fact that gastrointestinal physiology offers more flexibility in dosage form design than most other routes. Natural polysaccharides are non-extensively used for the development of solid dosage forms for delivery of drugs to the colon. Various major approaches utilizing polysaccharides for colon specific delivery are fermentable coating of drug core. The preparation of the matrix tablets with guar gum and pectin containing keterolac was done by wet granulation method. The average weight was found to be within the prescribed limit. The hardness of the tablets was found to be in the range of 3.34±0.752 to 7.84 ±0.508 (kg/cm2). Thicknesses of the tablets were found to be in the range of 1.14±0.02 to 3.50±0.01 mm for tablets. The friability of the tablets was found to be less than 0.5 %. The invitro drug release profile of these tablets showed delayed release characteristics. Compatibility studies such as DSC and FTIR studies were carried out to understand the drug-polymer compatibility and revealed that there was no possible interaction between them.

INTRODUCTION

Oral route is considered most natural, uncomplicated, convenient and safe in respect to Parentral route due to its ease of administration, patient acceptance, and cost effective manufacturing process. The oral route is the most popular route used for administration of drugs, which is due in part to the ease of administration and to the fact that gastrointestinal physiology offers more flexibility in dosage form design than most other routes. The terms Sustained release, prolonged release, modified release, extended release or depot formulations are used to identify drug delivery systems that are designed to achieve or extend therapeutic effect by continuously releasing medication over an extended period of time after administration of a single dose[1]. Enhancement of colonic absorption by these agents appears to be drug specific. For example mixed unicelles composed of either taurocholate (or) glycocholate with monolein. Olic and lauric acid enhanced the absorption of 5-fluoro uracil, heparin etc. Since many of these absorption enhancers are acidic in nature, local high concentration might alter luminal pH and have significant effects on the colonic microbial flora, which can result in epithelial pathologies. The agents also produce transport windows in colonic epithelia large enough for the passage for many bacterial toxins[2].

The present investigation is aimed to formulate and evaluate compressed coating tablets of keterolac tromethamine to target the colon. Formulations that release drug in to the colon rather than the upper intestinal tract are beneficial for a number of clinical situations. Local delivery of the drugs has distinct advantages that dosing level is less with minimal side effects and hepatic bypass could be avoided while the optimum therapeutic level is effectively produced and maintained[3].

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International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 6 Issue 4, May-June 2022 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

Depression- Types, Causes, Symptoms, Risk Factor, and Treatment

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ABSTRACT

Depression is one of the most common causes of illness in the world. Depression is a mood disorder characterized by feelings of inadequacy, anxiety, mood swings, restlessness, decreased activity, loss of interest, and sadness, which severely disrupt and negatively affect a person's life, sometimes to the point where suicide is attempted or occurs. Depression has become a troubling trend that not only affects a person's psychological well-being data are suggest that female patients affected more than men not only adults students, children, teenager also suffer from depression. Depression caused by genetic factor, stress factor, etc, risk factor of depression are living alone person, female gender, alcohol abuse, drug abuse. Complication of depression raises their risk of suicide. Several medical comorbidities that depression can exacerbate, Anti-depressant medication are caused server side effect such as anticholinergic effects, CNS effect, GI effect, Cardiovascular effects, Sexual dysfunction. Depression is a serious medical illness that affects a large number of people. Women are affects more than men. As an end, some people a threat to themselves, attempting or actually committing suicide. The early signs of depression and help people find the correct therapy and services, and improve the quality of life.

KEYWORDS: Depression, Stress, Treatment, Anti-depressants, Risk factor

How to cite this paper: Pushparaj A | Shangeetha S | Jebish G. S | Glady Golria Grant CJ "Depression- Types, Causes, Symptoms, Risk Factor, and Treatment" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-4, June 2022, pp.84-90, URL: www.ijtsrd.com/papers/ijtsrd49950.pdf

IJTSRD49950

INTRODUCTION

Depression is now regarded as one of the most common disease in the world. It is an illness that affects everyone, regardless of socioeconomic level, educational attainment, gender, or race. Despite the fact that depression has no gender bias, it is obvious that woman is treated for depression at a higher rate than men. This does not indicate that women are more susceptible to depression, instead, because of their emotional character, women's depression is more easily identified. Not only adults, but 2% of students, are affected, In addition 5% of children and 5% of teenager suffer from depression. Depression is a common occurrence that goes unnoticed. Depression characterized by sadness, loss of interest, feelings of guilt, feelings of tiredness, hopelessness, less concentration.(1) Depression can indicate dysthymic disorder, major depressive disorder, seasonal affective disorder, episodic depression, or be a symptoms of another mood illness. Psychosis, often known as bipolar disorder, is a form of mental illness (2). Major depression prior to pregnancy (3) adolescence, or at the end of life is referred to as postpartum depression. (4)

TYPE OF DEPRESSION

When diagnosing a first depressive episode, the ICD-10 Classification of Mental and Behavioral Disorders examine the categories of mild, moderate, and severe depression. Additional depressed episodes are categorized as follows. Recurrent depressive disorder is divided into several groups.

MAJOR DEPRESSION

Clinical depression or unipolar depression is other names for major depression. The ICD-10 Classification of Mental and Behavioral Disorders are used to determine these symptoms two or many years which is predicted of major depression.

DYSTHYMIA

Dysthymia is a kind of depression that is more persistent but less severe than major depression. It is more common in women than in males, and it is also more common among the elderly.

ISSN NO : 1869-9391

Assessing the prevalence of respiratory symptoms and quality of life among textile mill workers - Namakkal district, Tamil nadu

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Abstract:

ISSN NO : 1869-9391

The prevalence of occupational lung disease among workers in various textile mills is a significant problem. Long-term exposure to cotton dust can cause an abnormally large annual loss of forced expiratory volume in one second (FEV1) and a higher proportion of people with persistent respiratory problems. People exposed to cotton dust also reported airway allergies and a positive skin reaction. The objective of the study is to assess the prevalence of respiratory symptoms among textile mill workers in ,Namakkal district -Tamil Nadu. 400 workers were included in this study . Prevalence monitoring data was collected via pre-tested and structured interviewer-administered questionnaire adopted from the American Thoracic Society division of lung disease and quality of life was assessed through Rand 36 questionnaire. The study shows nearly 91.9% of the subjects had respiratory complaints . Majority of the workers experienced breathlessness and cough. Age, educational status, experience, smoking, alcohol habits and usage of mask were significantly associated with the respiratory symptoms. Workers who were between age 18-30, educated above secondary, with experience ≤5, working in weaving section , who were without respiratory symptoms and using mask experience better quality of life. This study concluded that the level of respiratory symptoms in the textile mill workers was relatively high. Educating the workers about the consequence of cotton dust exposure, encourage the use of masks and the provision of personal protective equipments (mask) are the important task to be followed to reduce respiratory symptoms in textile mills.

Key words:

Textile mills, Cotton dust ,Respiratory symptoms, Personal protective eqipments , Quality of life

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ISSN NO : 1869-9391

Prevalence and assessment of Self Medication practice along with associated factors among the population of Namakkal District

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Abstract :

ISSN NO : 1869-9391

Background and objectives :In India self medication is an common practice of treating minor ailments. This study was aimed to determine the Prevalence and assessment of self medication practice along with associated factors among the population of Namakkal district. This study also determines the perception and attitude towards practice of self medication. **Materials and methods:** A cross sectional study design was conducted to describe the prevalence and assessment of self medication practice among the population and the relationship between the self medication related variables and demographic variables. **Results:** Among 852 participants, 633 participants were practiced self- medication and 219 participants never practiced self-medication. study shows, that 37.4% of male and 62.2% of female and 0.3% of transgender participants practice self-medication. Shows that majority of them were literate 93.5% and 6.5% were illiterate. 21% were 12^{th} and below, 46.4% were UG level, 24.6% were PG level and 1.6% were PHD level. 32.7% were reported know about the medicine by consult a pharmacist. study shows there is a significant association between the ailments and gender and there is a significant association between ailments and education status. **Conclusion**: Irrational use of medicine is due to lack of knowledge about the complications that can occur by practicing self medication without proper diagnosis, this indicates the need for an educational campaign on necessity of proper medication use among the public.

Keywords : selfmedication, prevalence, ailments, namakkal, Irrational use

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International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 6 Issue 3, March-April 2022 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

Guillain Barre Syndrome - A Review

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ABSTRACT

Guillain Barre Syndrome is characterized by the emergence of distal, relatively symmetrical paraesthesia. It occurs when the body's defensive mechanisms mistakenly assault parts of the neurological system. It is classified into subtypes as Acute inflammatory demyelinating polyneuropathy (AIDP),Acute motor axonal neuropathy (AMAN),Acute motor sensory axonal neuropathy (AMSAN),Pharyngeal–cervical brachial variant, and Miller Fisher syndrome.GBS can be caused by a variety of infections such as Campylobacter jejuni infection, cytomegalovirus, Epstein-Barr virus, and Human Immunodeficiency virus. It mainly causes the motor, sensory, and autonomic dysfunction. In the diagnosis of GBS, a lumbar puncture is an important diagnostic tool.Anti-GD1a is linked to the GBS subtype AMAN. Miller-Fisher syndrome is linked to anti-GQ1b.Its treatment includes, Plasma exchange, Immunoglobulin, and corticosteroids. As it is incurable, supportive care and respiratory support is recommended.

KEYWORDS: *Guillain Barre Syndrome, Axonal neuropathy, Demyelination, Paraesthesia*

How to cite this paper: Preethi T | Jayaprakash U | Deborah Rose | Dr. K C Arul Prakasam "Guillain Barre Syndrome - A Review" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-3, April 2022, pp.1420-1426, URL: www.ijtsrd.com/papers/ijtsrd49745.pdf

IJTSRD49745

INTRODUCTION:

Guillain-Barré syndrome or GBS is a demyelinating polyneuropathy that was first identified in 1859. Ascending motor weakness, sensory and autonomic dysfunction are common symptoms, which are often followed by prodromal disease. Campylobacter jejuni, cytomegalovirus (CMV), Mycoplasma pneumoniae, Epstein-Barr virus, and influenza virus have all been found as antecedent infections. GBS has also been linked to vaccination and parturition. GBS is characterized by the emergence of distal, relatively symmetrical paraesthesia. Progressive limb weakening occurs in conjunction with or shortly after sensory difficulties. Patients are usually able to determine a specific day when sensory and motor abnormalities commenced. In half of the patients, pain is a significant factor.(1). GBS occurs when the body's defensive mechanisms mistakenly assault parts of the neurological system. The myelin coating around the nerve may be damaged as a result of an autoimmune reaction. This causes nerve inflammation, which causes a conduction block. Severe cases induce subsequent axonal degeneration, which causes muscle weakness or paralysis, among other symptoms. The hallmark is acute paralysis with loss of tendon reflexes that develops over days or weeks. The most common symptoms are ascending paralysis weakness that starts in the feet and hands and progresses to the trunk. Some subtypes produce changes in sensation or discomfort, as well as autonomic nervous system malfunction. An infection is frequently the cause of the condition. It is the most prevalent cause of paralysis that is not caused by trauma. It has the potential to cause life-threatening complications in some people. (4) This potentially fatal illness is quite uncommon, affecting about one or two people per 100,000 worldwide, with slightly more males affected than females. All age groups are susceptible; the rate of occurrence increases with age, with a slight peak among young people. Although there is no cure for the condition, there are numerous therapies that can help to alleviate symptoms and shorten the length of the illness. (2)

Original Research Paper

Volume - 11 | Issue - 09 | September - 2021 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Pharmaceutical

A REVIEW: USE OF KETOGENIC DIET IN VARIOUS DISORDERS

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ABSTRACT The use of a ketogenic diet in various disease conditions is discussed in this article. The study's goal is to see how the ketogenic diet can help with different ailments. The keto diet is a high-fat, low-carb diet. It requires consuming significantly less carbohydrate and substituting it with fat. When carbs are removed, the body enters a metabolic state known as ketosis. While in ketosis, the body becomes extraordinarily efficient at burning fat for energy. Epilepsy, Parkinson's disease, Alzheimer's disease, obesity, diabetes, metabolic syndrome, Poly cystic ovarian syndrome (PCOS), and cancer are the disorders for which it could be extremely effective.

KEYWORDS : Ketogenic Diet, Parkinson's Disease, Alzheimer's Disease, Obesity, Diabetes, Metabolic Syndrome, Poly Cystic Ovarian Syndrome (PCOS), Cancer

INTRODUCTION

The ketogenic diet (or keto diet, for short) is a low-carb, high-fat diet. The ketogenic diet entails substantially lowering carbohydrate consumption and replacing it with fat. The body enters a metabolic state known as ketosis when carbs are reduced[1]. Ketosis is a metabolic state in which the body burns ketone bodies as a source of energy. The body becomes extremely effective at burning fat for energy while in ketosis. It also causes fat to be converted to ketones in the liver, which can be used to provide energy to the brain. Blood sugar and insulin levels can be drastically reduced on a ketogenic diet. Ketogenic diets may also have benefits in weight reduction, diabetes, cancer, epilepsy and Alzheimer's disease. The ketogenic diet is available in various forms. including: Standard ketogenic diet (SKD): It's a high-fat, low-carbohydrate, moderate-protein diet. It usually has 70 percent fat, 20 percent protein, and barely 10% carbohydrates. Cyclical ketogenic diet (CKD): This diet includes periods of high-carb refeeding, such as 5 ketogenic days followed by 2 high-carb days. Targeted ketogenic diet (TKD): This diet allows you to eat carbohydrates in between workouts. High-protein ketogenic diet: This diet is comparable to a traditional ketogenic diet, but with additional protein. Typically, the fat-to-protein-to-carbohydrate ratio is 60% fat, 35% protein, and 5% carbohydrates[2].

FOODS INVOLVED IN KETOGENIC DIET:

FOODS TO EAT:

A keto diet contains 70% fats, 25% protein, and 5% carbohydrate. Eat foods such as fish, egg, meat, butter, cheese, nuts, oils which are rich in fats and contains low carbohydrate. Between 20-30g of net carbs is recommended for everyday dieting. [3]

Table 1: *Foods To Eat:*

Keto source	Calories	Fats (g)	Net carbs (g)	Protein (g)
Protein source				
Ground beef (4 oz., 80 /20)	280	23	0	20
Pork chop (4 oz.)	286	18	0	30
Chicken thigh (4 oz.)	250	20	0	17
Salmon (4 oz.)	236	15	0	23
Liver (4 oz.)	135	5	0	19
Egg (1 large)	70	5	0.5	6
Veggie source				
Cabbage (6 oz.)	43	0	6	2
Cauliflower (6 oz.)	40	0	6	5
Broccoli (6 oz.)	58	1	7	5
Spinach (6 oz.)	24	0	1	3
Green beans (6 oz.)	26	0	4	3
Dairy source				
Heavy cream (1 oz.)	100	12	0	0
Greek yogurt (1 oz.)	28	1	1	3
Mayonnaise (1 oz.)	180	20	0	0
Cottage cheese (1 oz.)	25	1	1	4
Cream cheese (1 oz.)	94	9	1	2
Nut source				
Almonds (2 oz.)	328	28	5	12
Coconut flour (2 oz.)	120	4	6	4

Table 2: Sample menu options for ketogenic diet:

Vegetarian menu	Nonvegetarian menu
Breakfast	Breakfast
Cheese /paneer pakora Bullet coffee /tea mixed with coconut oil, cream and butter) /coffee with cream /coconut milk Grilled mushrooms with buttered vegetables tofu Coconut milk or almond milk	Scrambled whole eggs /hard boiled eggs with mozzarella and salami slices Bacon wrapped meatloaf Chicken wings with cheesy cauliflower puree Ham and cheese omellete Coconut milk or almond milk
Mid-morning	Mid-morning
Onion frittata and Mushroom Coconut with cabbage rolls Walnut crust cream of tomato soup with Apple crumb pie with stir fried broccoli and cheesy crackers	Chicken cracklings or Pork rinds Mushroom cream sauce with Hamburger patties and bacon Parmesan cream sauce and Roast chicken (with the skin left on) Cauliflower cheese with Roast pork belly Cream cheese roll-ups and Smoked salmon
Lunch	Lunch
Spinach pancakes made with lots of cheese and flaxseed flour Cauliflower curry in coconut Oil and coconut milk Soya curry Sour cream with Chilli beans, salsa and cheese Full - fat yoghurt tofu pudding Salad stirs fried in butter topped with cheese Red channa salad with olive oil	Pie Meat Hummus lettuce wraps and herb butter chicken Baked fish with butter sauce Cauliflower sauteed in flaxseed or olive oil Bacon Tuna salad with lettuce leaves Egg mayonnaise with green salad

IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals
ISSN 2349-7203
HUMAN

Human Journals
Research Article
October 2021 Vol.:22, Issue:3

An Assessment of Knowledge, Attitude, Practices of Sacubitril/Valsartan Among Physicians in The Department of Cardiology and Clinical Pharmacists in Southern India

IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals
ISSN 2349-7203
HUMAN

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Submitted: 23 September 2021
Accepted: 29 September 2021
Published: 30 October 2021

HUMAN JOURNALS
www.ijppr.humanjournals.com

Keywords: Sacubitril/Valsartan, Heart failure pharmacotherapy, Angiotensin receptor neprilysin inhibitor.

ABSTRACT

Background: Sacubitril/valsartan is the first of its kind under the classification angiotensin receptor neprilysin inhibitor which is now a class I recommendation in the management of heart failure. Physicians and clinical pharmacists must be thoroughly knowledgeable about this drug. This study was done to assess the knowledge, attitude and practices towards sacubitril/valsartan among physicians in the department of cardiology and clinical pharmacists in Southern India. **Methods:** An observational cross-sectional study was conducted through both online forms and face-to-face interviews of physicians in the department of cardiology and clinical pharmacists in Southern India. The study included 66 participants (34-physicians & 32-clinical pharmacists) whose responses were collected through a self-prepared questionnaire from October 2020 to January 2021. The questionnaire included 25 questions based on both qualitative and quantitative research variables and analyzed significance using Microsoft Excel v.2019. **Results:** Study participants were broadly classified as physicians and clinical pharmacists and their knowledge, attitude and practices regarding sacubitril/valsartan were assessed. Among physicians, 26.4% (9) had high, 52.9% (18) medium and 20.5% (7) received low scores. 3.1% (1) had high, 50% (16) medium and 46.8% (15) had low scores. The median score was more among physicians (p=0.009). Comparing the score of the knowledge module with the experience of physicians and CPs did not show a linear relationship. **Conclusion:** There exists gap in knowledge about sacubitril/valsartan regarding when dosage needs to be modified and when the drug is contraindicated among physicians and clinical pharmacists. The median score of physicians is higher. This may be due to their increased exposure to drugs used in the cardiology department. Despite having a good attitude toward the drug, its acceptability has been poor in patients of low socioeconomic status as it is unafforadable.

IJRAR.ORG E-ISSN: 2348-1269, P-ISSN: 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

THE SAFETY, TOLERABILITY AND MECHANISM OF ACTION WITH THE INDICATION OF NOVEL ANTIDEPRESSANTS

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Deparment of pharmacy practice,

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ABSTRACT:

Brexanolone, Esketamine, Vortioxetine and Vilazodone are four novel antidepressants whose mechanism of action, safety and tolerance are discussed in this review article. Patients who have failed to respond to specific antidepressants due to ineffectiveness or intolerance may benefit from trying a new antidepressant with a different mechanism of action. These drugs may be a possibility when looking for novel antidepressants. Depression may be induced by a complicated interplay of neurotransmitters such as serotonin, norepinephrine, glutamate and histamine in certain brain locations rather than a simple serotonin deficit. The therapeutic advantages of the above mentioned new antidepressants are mediated through several neurotransmitters. When developing a treatment strategy, keep in mind the intricacy of the underlying neurobiological mechanism.

***Index Terms*- Novel antidepressants, safety, tolerability, mechanism of action, neurotransmitters.**

INTRODUCTION:

Major depressive disorder is a serious public health issue that causes severe impairment in psychological, vocational and social functioning[1]. Along with psychotherapy approaches, selective serotonin reuptake inhibitors(SSRIs) are the recommended first-line alternatives for the treatment of depression, however many individuals do not respond to different options or are intolerant to the unwanted effects of drugs[2]. Despite various therapy regimens, around 60% of major depressive disorder patients still report persisting deficits following treatment[3]. This remaining symptomatology and functional impairment puts you at a higher risk of relapsing into future major depressive disorder episodes. Individuals are negatively impacted by MDD's devastating health related quality of life impacts, which result in academic,

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International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 4 July-Aug 2021, pp: 1458-1464 www.ijprajournal.com ISSN: 2249-7781

IJPRA Journal

Prevalence and Severity of Menopause Symptoms among Perimenopausal and Postmenopausal Women -A Cross-SectionalStudy.

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Date of Submission: 05-08-2021 Date of Acceptance: 21-08-2021

ABSTRACT:

Introduction:
Menopause (MP) is a common phenomenon occurring as women approach middle age. MP is marked with various premenopausal (PRMP), perimenopausal (PEMP) and postmenopausal (POMP) symptoms.

Aim: To conduct a study on the prevalence of menopause symptoms and to assess the healthy habits in perimenopausal and postmenopausal women.

Method: This cross-sectional study was carried out in Komarapalayam and various places of Tamil Nadu on 350 participating women (PEMP and POMP) for 6 months. Data collection was done through a pretested questionnaire throughgoogle forms. The questionnaire translated in the local language consisted ofsocio-demographic data, menopausal symptoms, awareness and perception about MP. The STRAW classification was used to classify the observed MP in the present study. In addition, MRS (Menopausal Rating System) was used to categorizeMP symptoms.

Results:A totalof 350 women were enrolled for the study;maximum were observed in the age group of 33 to 45 years (35.94%). The occurrence of MP was natural (54.28%) in most of participating women. In the present study, the maximum MP symptoms were reported in PRMP conditions(38.57%). Hypertension (19.42%) co-morbidity was observed in maximum women. The symptoms of joint and muscular discomfort (24%), sleep problems (23%), anxiety (17%) were maximum in the very severe category. The present study recorded that (61%) of women were not aware of MP, and only 57% of women were found convenient with MP.

Conclusion: The present study recorded the prevalence of menopausal symptoms as well as self-rated severity through the MRS. Thus, our findings reflect menopausal symptoms in our specific study population and have been consistent with previous international research.

Keywords: Menopause, Perimenopause, Premenopause, Postmenopause, prevalence, symptoms

I. INTRODUCTION

The word menopause (MP) means cessation of the menstrual cycle. It is also be defined as a decrease in hormone production by the ovaries. The Greek word '**Menos'** means month, and **'pausis'** means a pause or cessation.[1]

According to the WHO Scientific Group on Research on MP in the 1990s, various physiological changes occur in the body; some result from the cessation of ovarian function and related menopausal events. Others are a function of the ageing process.[2] Many women experience symptoms around the time of MP, most of which areself-limiting and not life-threatening. For example, ovaries stop functioning and production of steroid and peptide hormone falls, some of these result fromthe cessation of ovarian function and related menopause events.[3] All the women who live beyond the age of 45-50 years experience a transition period from reproductive to non-reproductive stage of life. But some women can go through MP early. It can result from surgery, like if their ovaries are removed in a hysterectomy, or damage to their ovaries, such as from chemotherapy.[4]

MP is generally diagnosed in retrospect since confirmation occurs only after a 12-month cessation of menstrual periods. Perimenopause (PEMP) is defined as the transition before the last menstrual cycle, when a woman may experience variable or irregular menstrual cycles and hormonal fluctuations, and the 12 months after the final menstrual period[5]. Premenopause (PRMP) is the stage after menarche but before entering menopausal stages with normal fertility function during this phase.[6,7] Postmenopause (POMP) is defined as the stage beginning 12 months after the last menstrual cycle.[8]

International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-6211
Volume 10, Issue 4, April-2022, Impact Factor: 7.429, Available online at: www.ijaresm.com

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A Review on Osteoporosis

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ABSTRACT

Osteoporosis, which is characterised by increased bone fragility and is caused by a variety of factors such as menopause and ageing, is the most common chronic metabolic bone disease. In their lifetime, one in every three women over the age of 50 and one in every five men will suffer from osteoporosis. Every fracture signals the onset of a new one. There are no clinical signs or symptoms of osteoporosis until a fracture occurs. Osteoporosis weakens bones and thus commonly causes fragility fractures, despite the fact that it is not harmful in and of itself. These can be the beginning of a series of fractures, leading to deterioration and loss of independence.Furthermore, osteoporosis leads to a lower quality of life, a longer disability-adjusted life span, and a significant financial burden on the health-care systems of countries that are accountable for such individuals. Osteoporosis can be avoided if the condition is diagnosed early, before fractures occur, and the bone mineral density is assessed, as well as early therapy. Where fracture liaison services exist, they are a well-known resource for systematically identifying, assessing, treating, and referring patients.

KEYWORDS: Osteoporosis, Bone Mineral Density, T-Score, Bisphosphonates

INTRODUCTION

Osteoporosis is a bone disease that causes low bone mineral density (BMD), impaired bone microarchitecture/mineralization, and/or decreased bone strength, all of which increase the risk of fracture. This asymptomatic condition frequently goes undiagnosed until it causes a low-trauma fracture of the hip, spine, proximal humerus, pelvis, and/or wrist, which often necessitates hospitalisation. [1,2] Low bone mass, deterioration of bone tissue, and disruption of bone microarchitecture are all symptoms of osteoporosis, which can lead to decreased bone strength and an increased risk of fractures. [3]Osteoporosis is a silent disease until it is aggravated by fractures, which can develop after minor trauma or without trauma in rare circumstances. Fractures are prevalent and impose a significant medical and personal hardship on the elderly who suffer from them, as well as a significant economic burden on the country. Before a fracture occurs, osteoporosis can be prevented, diagnosed, and treated. Importantly, there are effective treatments to reduce the risk of additional fractures even after the first one has happened. Osteoporosis prevention, detection, and treatment should be a requirement for primary care physicians. [1]Patients with related fractures experience significant pain, suffering, disability, and, in some cases, death. Furthermore, increased longevity has led in an increase in the number of older individuals around the world; in India, life expectancy is currently about 67 years and is expected to rise to 71 years by 2025 and 77 years by 2050. Furthermore, approximately 10% of the Indian population is over 50 years old at the moment; but, by 2050, this proportion is expected to rise to 34%. As a result of increased lifespan and a larger proportion of the Indian population over the age of 50, the number of people affected by osteoporosis is anticipated to rise. According to estimates from 2013, 50 million persons in India had T-scores of -1. [5, 6, 7, 8] Although osteoporosis is most commonly associated with women, it can also affect men, with an estimated one in every five Americans suffering from osteoporosis or low BMD. Apart from being the leading cause of fractures in the elderly, osteoporosis is also strongly linked to people being bedridden, which can result in catastrophic consequences. [4] Bone tissue is continuously lost and restored by resorption and production; bone loss occurs when the resorption rate exceeds the creation rate. From birth until maturity, bone mass is moulded (grows and gets its final shape): bone mass reaches its peak (referred to as peak bone mass (PBM) at puberty, after which bone mass begins to deteriorate. Genetics, health during growth, nutrition, endocrine state, gender, and physical activity all have a role in peak bone mass. Bone remodelling, which entails removing old bone and replacing it with new bone, is used to repair microfractures and keep them from becoming macrofractures, so contributing in the maintenance of a healthy skeleton. Menopause and growing older produce an imbalance in resorption and creation rates, with resorption exceeding absorption, increasing the risk of fracture. Certain variables that cause greater resorption than creation cause bone loss, exposing the microarchitecture. Individual trabecular plates of bone are lost, resulting in an aesthetically compromised structure with dramatically reduced mass; this increases the risk of fracture, which is exacerbated by other aging-related functional reductions. Rapid bone remodelling, as defined by biochemical indicators of bone resorption or creation, appears to enhance bone fragility and fracture risk, according to growing research [3].

International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 6 Issue 3, March-April 2022 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

A Review on Atopic Dermatitis: Etiology, Clinical Features, Pathogenesis, Diagnosis, and Various Treatments

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ABSTRACT

Atopic dermatitis is a recurrent, chronic inflammatory skin disease which affects children. Dermatitis is derived from the Greek words "derma" (skin) and "itis" (inflammation). It affects 10-20% of adolescents and 1-3 percent of adults over their lifetime are caused by a complicated interaction between relevant genes, the environment of the host, pharmacological aberrations, and immunological variables. Two primary theories have been postulated. The first theory is that the adaptive immune system is out of balance, and the second is that the skin barrier is impaired. There is no specific test for Atopic dermatitis. Topical or systemic treatments are indicated depending on the severity of the Atopic dermatitis. It includes emmolients, corticosteroids, calcineurin inhibitors, phosphodiesterase 4 inhibitors, biological and wet wrap therapy. Once remission has been achieved, proactive maintenance therapy should be used to limit the number of flare-ups.

KEYWORDS: *Atopic Dermatitis, Filaggrin, Flare-ups, Human monoclonal antibody*

How to cite this paper: Jayaprakash U | Preethi T | C. J. Glady Gloria Grant "A Review on Atopic Dermatitis: Etiology, Clinical Features, Pathogenesis, Diagnosis, and Various Treatments" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-3, April 2022, pp.1476-1487, URL: www.ijtsrd.com/papers/ijtsrd49758.pdf

IJTSRD49758

INTRODUCTION

Wise and Sulzberger coined the term Atopic Dermatitis to describe a "puzzling kind of local or broad lichenification of skin. (1) Atopic dermatitis is a recurrent, chronic inflammatory skin disease which affects children. Atopy is a genetic predisposition for producing immunoglobulin E antibodies in reaction to minute levels of common environmental proteins including pollen, house dust mites, and food allergies. Dermatitis is derived from the Greek words "derma" (skin) and "itis" (inflammation). (2)As part of an allergic triad, it can occur with asthma and allergic rhinitis; an estimated 30% of children with atopic dermatitis acquire asthma later in life. (3) A variety of mechanisms contribute to the pathogenesis of Atopic dermatitis, including skin barrier deficiencies, disruption of innate immune responses, adaptive immune response defects with the development of robust type 2 immunity, and changes in the skin microbiome. (4) Atopic dermatitis begins in childhood and progresses from acute lesions affecting the face and dorsal portions of the limbs in infancy to lesions affecting the face, neck, and flexures in older children. Currently, ten to twenty percent of youngsters have Atopic dermatitis. (5) All people with Atopic dermatitis experience pruritus, as well as pain, sleep disturbances, and mental health issues. The severe symptoms and skin lesions can have a serious influence on one's health and quality of life (QOL). (6) In this paper, the fundamentals of Atopic dermatitis epidemiology, genetics, pathophysiology, and management have been examined, as well as evidence of progress in recent decades. (1)

EPIDEMIOLOGY:

Atopic dermatitis affects 10-20% of adolescents and 1-3 percent of adults over their lifetime. (1) In comparison to developing countries, Atopic dermatitis has been more prevalent in industrialized countries. Its frequency is also higher in metropolitan areas than in rural or agricultural areas in developed countries. (7) The International Study of Asthma and Allergies in Children (ISAAC) has revealed the most

International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-6211
Volume 10, Issue 4, April-2022, Impact Factor: 7.429, Available online at: www.ijaresm.com

A Review on Pain and Its Management with Opioid Analgesics

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ABSTRACT

Pain is a general term used todescribe uncomfortable sensations in the body whichstem from activation of the nervous system.Pain is classified as nociceptive, neuropathic, or nociplastic. It is possible to experience more than one type at the same time, identifying the type of pain will help healthcare professionals narrow down the potential causes and develop a treatment plan.With multiple neurotransmitters and receptors involved, the pain pathway is complex with the transmission of noxious information from the periphery to the central nervous system and cortex.Transduction, transmission, pain modulation, and perception are the four steps involved in the pain pathway. Opioid analgesics are pain-relieving drugs that act on opioid receptors inducing morphine-like effects. They are classified into natural opium alkaloids synthetic and semisynthetic. They are mainly used as an antidiarrheal, cough suppressant, anesthesia, for acute pulmonary edema and to treatopioid dependence.

KEYWORDS: Pain, Opioid analgesics, Opioid receptors, Dorsal horn, Codeine

INTRODUCTION

Opioids are medications used in the management and treatment of pain. (1) Opioids, sometimes known as narcotics, are pain relievers recommended by doctors to manage chronic or severe pain.Patients recovering from surgery or suffering from severe pain associated with cancer, as well as adults and children who have been seriously injured in falls, road accidents, or other catastrophes, can all benefit from them. Opioids are the most effective medications for treating severe pain, but they also induce addiction and overdose fatalities, resulting in a global opioid epidemic. As a result, the development of safer opioids is critical.(2)Pain is an unpleasant sensory and emotional experience that is linked to or defined in terms of actual or possible tissue damage. Nociceptorsare particular nerve receptors that connect every tissue in the body andare designed to detect painful or noxious stimuli, such as extreme heat, mechanical damage such as a pinch, or irritating chemicals. When the Nociceptors sense a painful stimulus, the nerve fires an impulse that goes back to the spinal cord along with the nerve fibre. The pain message is then controlled by the brain by a spinal neuron, which travels up through the thalamus before terminating in a variety of sites throughout the cortex. (3)Psychological elements like prior experiences, beliefs, fear, and anxiety have a role. (4)Chronic pain is characterized by pain that develops from acute to chronic and lasts beyond the healing process. Chronic pain makes it difficult for individuals to work and impairs their quality of life. (5)Cancer, fibromyalgia, neuropathic pain, persistent post-surgical pain, arthritis, childhood and adolescent pain, headache and migraine, orofacial pain, visceral pain, musculoskeletal pain, and pelvic pain are some of the conditions that cause pain. (6) According to an article, 17.1 percent of men and 20.0 percent of women said they had chronic pain. Male prevalence peaked at 27.0 percent in the 65–69-year-old age group, while female prevalence peaked at 31.0 percent in the 80–84-year-old age group. Chronic pain was shown to be linked to older age, female gender, and lower levels of completed education.(7)

TYPES OF PAIN:

Pain is usually divided into three categories: Nociceptive, Neuropathic, and Nociplastic (8)

- NOCICEPTIVE/INFLAMMATORY

Stimulus: Injury or Inflammation

Neurons: Nociceptor and non-nociceptor

Site: Peripheral and central nervous system.

Clinical setting: Acute trauma, post-operative arthritis

Function: Protective, Healing/ Repair, pathological

Pain sensitivity: High or low threshold(9)

WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES

Volume 11, Issue 6, XXX-XXX Review Article

SJIF Impact Factor 7.632

ISSN 2278 – 4357

DETERMINANT FACTORS AND INTERVENTION TO IMPROVE ADHERENCE IN PATIENTS WITH SCHIZOPHRENIA: A SYSTEMIC REVIEW OF MEDICATION NON-ADHERENCE.

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Article Received on
26 March 2022,

Revised on 15 April 2022,
Accepted on 04 May 2022

DOI: 10.20959/wjpps20226-22149

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ABSTRACT

Non-adherence to medications is frequent in all disciplines of medicine, and patients with psychotic disorders face extra hurdles that exacerbate the problem. This is likely to affect 50% of all patients, increasing the likelihood of relapse and hospitalization. Understanding the factors that influence antipsychotic drug adherence is important since non-adherence is a major cause of psychotic relapse. Each recurrence accumulates social toxicity and disability. The most common strategies for gauging patient adherence are indirect evaluations based on efficacy and acceptability. Novel assessment methods are being developed that can directly assess adherence while simultaneously providing synchronous feedback to doctors and serving as a patient intervention. To cause a specific forecast, a negative attitude against drugs was required. There are a variety of treatment options available. Long-Acting Injectable (LAI) Antipsychotics (APs) are a theoretically beneficial strategy for ensuring adherence and minimizing symptomatic exacerbations and relapse in patients with psychotic disorders throughout the maintenance phase. Although Directly Observed Therapy (DOT) is the most common intervention, it entails direct observation and verification. Adherence-improving interventions must take into account growing intensity and changing causes. Improved determining factors affecting adherence and a novel assessment method, on the other hand, can help with early detection and management. In selecting and implementing intervention measures, it's also critical to determine the motivations for poor adherence that are unique to each patient.

KEYWORDS: Adherence, Antipsychotics, Assessment, Medication Attitude, Interventions.

© 2021 Journal of Pharmacy & Pharmacognosy Research, 9 (1), 58-68, 2021
ISSN 0719-4250
http://jppres.com/jppres

Original Article

Anti-hyperglycemic and hypolipidemic effects of *Saraca asoca* (Roxb.) Wild. flowers in alloxan-treated diabetic rats

[Efectos antihiperglucémicos e hipolipidémicos de flores de *Saraca asoca* (Roxb.) Wild. en ratas diabéticas tratadas con aloxano]

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Abstract

Context: *Saraca asoca* (*Leguminosae*) has been widely used in the Ayurvedic system of medicine for various ailments, and it has been used to treat diabetes as a folk medicine.

Aims: To investigate the anti-hyperglycemic and anti-hyperlipidemic effect of ethanolic extracts of *S. asoca* (EESA) flowers in alloxan-induced diabetic rats.

Methods: The anti-hyperglycemic activity of EESA was evaluated by using normal and alloxan-induced (120 mg/kg, i.p.) diabetic rats. In the sub-chronic animal model of diabetes mellitus, EESA was orally administered to normal and alloxan-induced-diabetic rats at doses of 200 and 400 mg/kg p.o. per day for 28 days.

Results: Fasting blood glucose (FBG), insulin, glycated hemoglobin (HbA1c) levels, lipid profiles, alkaline phosphatase (ALP), and body weights were monitored at the end of 28 days in the EESA treated diabetic rats. The anti-hyperglycemic effect of EESA was more pronounced at the doses of 200 and 400 mg/kg in alloxan-treated diabetic rats as compared with vehicle-treated rats. EESA also showed a significant ($p<0.05$) increase in serum insulin levels and body weights, while there was a significant reduction in the levels of ALP, HbA1c, serum triglyceride and total cholesterol. EESA also showed a significant anti-hyperlipidemic effect, as evidenced by the increased HDL-c level of alloxan-induced diabetic rats.

Conclusions: The results of the current investigation indicate that EESA possesses a significant anti-hyperglycemic effect and anti-hyperlipidemic effect.

Keywords: alloxan; anti-hyperglycemic; diabetes mellitus; hypolipidemic; Oral glucose tolerance test; *Saraca asoca*.

Resumen

Contexto: *Saraca asoca* (*Leguminosae*) se ha utilizado ampliamente en el sistema de medicina ayurvédica para diversas dolencias y para tratar la diabetes como medicina popular.

Objetivos: Investigar el efecto antihiperglucémico y antihiperlipidémico de extractos etanólicos de flores de *S. asoca* (EESA) en ratas diabéticas inducidas por aloxano.

Métodos: Se evaluó la actividad antihiperglucémica de EESA utilizando ratas diabéticas normales e inducidas por aloxano (120 mg/kg, i.p.). En el modelo animal subcrónico de diabetes mellitus se administró EESA por vía oral a ratas normales y con diabetes inducida por aloxano en dosis de 200 y 400 mg/kg p.o. por día durante 28 días.

Resultados: La glucosa en sangre en ayunas (FBG), la insulina, los niveles de hemoglobina glucosilada (HbA1c), los perfiles de lípidos, la fosfatasa alcalina (ALP) y los pesos corporales se controlaron al final de los 28 días en las ratas diabéticas tratadas con EESA. El efecto antihiperglucémico de EESA fue más pronunciado a las dosis de 200 y 400 mg/kg en ratas diabéticas tratadas con aloxano en comparación con ratas tratadas con vehículo. EESA también mostró un aumento significativo ($p<0,05$) en los niveles de insulina sérica y el peso corporal, mientras que hubo una reducción significativa en los niveles de ALP, HbA1c, triglicéridos séricos y colesterol total. EESA también mostró un efecto antihiperlipidémico significativo, como lo demuestra el aumento del nivel de HDL-c de ratas diabéticas inducidas por aloxano.

Conclusiones: Los resultados de la investigación actual indican que EESA posee un efecto antihiperglucémico significativo y un efecto antihiperlipidémico.

Palabras Clave: aloxano; antihiperglucémico; diabetes mellitus; hipolipidémico; prueba tolerancia glucosa oral; *Saraca asoca*.

ARTICLE INFO
Received: June 28, 2020.
Received in revised form: September 29, 2020.
Accepted: September 30, 2020.
Available Online: October 17, 2020.

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