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2.	Angilicam Avinash, **P. Dwarakanadha Reddy**, S. V. Satyanarayana	Design and Evaluation of Captopril-loaded Niosomes	Asian Journal of Pharmaceutics & 1998-409X	16 (3) :1-7	2022
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4.	Mohammed Monirul Islam , Nimbagal Raghavendra Naveen, **PosinaAnitha**, Prakash S. Goudanavar, G. S. N.	The Race to Replace PDE5i: Recent Advances and Interventions	Journal of clinical medicine &ISSN 2077-0383	11, 3140; 1-22	2022

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pharmaceuticals

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Article

Development of Nanocrystal Compressed Minitablets for Chronotherapeutic Drug Delivery

Nagaraja Sreeharsha [1,2,*,†], Nimbagal Raghavendra Naveen [3,*], Posina Anitha [4], Prakash S. Goudanavar [3,†], Sundarapandian Ramkanth [5], Santosh Fattepur [6,*], Mallikarjun Telsang [7], Mohammed Habeebuddin [8] and Md. Khalid Answer [9]

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Abstract: The present work aimed to develop a chronotherapeutic system of valsartan (VS) using nanocrystal formulation to improve dissolution. VS nanocrystals (VS-NC) were fabricated using modified anti-solvent precipitation by employing a Box–Behnken design to optimize various process variables. Based on the desirability approach, a formulation containing 2.5% poloxamer, a freezing temperature of −25 °C, and 24 h of freeze-drying time can fulfill the optimized formulation's requirements to result in a particle size of 219.68 nm, 0.201 polydispersity index, and zeta potential of −38.26 mV. Optimized VS-NC formulation was compressed (VNM) and coated subsequently with ethyl cellulose and HPMC E 5. At the same time, fast dissolving tablets of VS were designed, and the best formulation was loaded with VNM into a capsule size 1 (average fill weight—400–500 mg, lock length—19.30 mm, external diameter: Cap—6.91 mm; Body—6.63 mm). The final tab in cap (tablet-in-capsule) system was studied for in vitro dissolution profile to confirm the chronotherapeutic release of VS. As required, a bi-pulse release of VS was identified with a lag time of 5 h. The accelerated stability studies confirmed no significant changes in the dissolution profiles of the tab in cap system (f_2 similarity profile: >90). To conclude, the tab in cap system was successfully developed to induce a dual pulsatile release, which will ensure bedtime dosing with release after a lag-time to match with early morning circadian spikes.

Keywords: chronotherapeutic system; nanocrystals; design of experiments; Box–Behnken; valsartan

1. Introduction

Untimely release of the un-quantified drug may lead to numerous deaths and hospitalization, as evidenced by miscellany studies across the world [1]. Circadian rhythms can

ORIGINAL ARTICLE

Design and Evaluation of Captopril-loaded Niosomes

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Abstract

Aim: The goal of this study is to design a niosomal carrier system for captopril for the treatment of hypertension that is capable of delivering the encapsulated drug over a prolonged period of time by overcoming the limitations of conventional dosage forms. Captopril is a water-soluble drug but has low permeability. The main objective is to improve bioavailability and permeability. **Materials and Methods:** The niosomes are prepared by thin film hydration method, using materials like non-ionic surfactants (Span 20, Span 40, Span 60, and Span 80) and solvents such as chloroform and ethanol. **Results and Discussion:** The FTIR results revealed that there is no interaction between captopril and excipients. All the formulations showed better encapsulation efficacy. SEM analysis revealed the size reduction of captopril-loaded niosomes. The dissolution studies showed prolonged drug release. **Conclusion:** On comprising all formulations, F3 showed sustained release of 98.44% up to 12 h. This may be due to the longest saturated alkyl chain and shows the highest entrapment.

Key words: Bioavailability, Captopril, Niosomes, Prolonged drug release

INTRODUCTION

Niosomes are known as non-ionic surfactant vesicles which are microscopic lamellar structures formed on admixture of a non-ionic surfactant, cholesterol, and dicetyl phosphate with subsequent hydration with aqueous media.[1] Niosomes are capable of entrapping a variety of drugs and found as an alternative to liposomes. The niosomes have similar physical properties when compared to liposomes and are comparatively inexpensive delivery systems.[2]

In current years, transferring the drug molecules to the desired site in the biological systems has become a very precise and sophisticated area of pharmaceutical research. The role of the drug delivery system is not only limited to a drug package just meant for administration and convenience but also to bring a required improvement in pharmacological efficacy and safety by carrying the drug molecules to the required site in the most convenient manner.[3] Drug delivery system using colloidal particulate carriers like niosomes has distinct merits over conventional dosage form as the colloidal particulate can act as drug reservoirs.[4] Among different nanovesicular carriers, niosomes are selected as a carrier of choice because of its dominance over others carrier with regard to stability and cost effectiveness.[5] Conventional drug delivery systems face some significant challenges, such as unfavorable pharmacokinetics and distribution, which can lead to undesirable side effects. Drug degradation in blood circulation by the reticuloendothelial system and insufficient drug uptake at the specific site can reduce drug efficacy. Nanocarriers have been extensively investigated in the past decades to overcome the challenges associated with conventional drug delivery systems, due to the advantages such as (i) facilitate targeted drug delivery to the diseased site; (ii) enhance absorption as surface area increases and hence increase bioavailability; (iii) improve pharmacokinetics and biodistribution of active agents; and (iv) increase retention in biological systems and extend the efficacy of drugs.[6]

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Case Report

Duchenne Muscular Dystrophy in Male Child Diagnosed by Dystrophin Gene Deletion Test

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ABSTRACT

Duchenne muscular dystrophy is an x-linked recessive disease, affecting 1 in 3600 to 6000 live male births, DMD is inherited musculoskeletal disease. DMD is named by a French neurologist Guillaume Benjamin Amand Duchenne in 1860. Dystrophies are caused by mutation in the dystrophin gene DMD (Xp21.2). Multiplex Ligation dependent Probe Amplification has been used as the initial diagnostic test of choice. MLPA can diagnose 70% of DMD patients, having deletions/duplications. Creatine kinase levels can also be used as a diagnostic marker for DMD. Genetic testing is mandatory irrespective of biopsy, results in the muscle biopsy is not required if the diagnosis is secured first by genetic testing. Current management of DMD involves physiotherapy and corticosteroid therapy, which delays loss of ambulation for 1-3 yrs.

Keywords: Duchenne muscular destrophy, multiplex ligation dependent probe amplification.

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INTRODUCTION

Duchene Muscular Dystrophy is an debilitating early onset, sever, rapidly progressive musculoskeletal disorder. It is associated with a functional deficiency of dystrophin. It is belonging to a pathological group of diseases known as dystrophinopathies[1].

DMD occur as a result of mutations such as deletions (60-65%), duplications (5-15%) in the dystrophin gene (DMD locus Xp21.2), leads to absence or defect in the dytstrophin protein results in progressive muscle degeneration and loss of independent ambulation.

Multiplex Ligation dependent Probe Amplification is a widely used method and is initial diagnosis test of choice for DMD. MLPA diagnose patients with deletions/duplication of patient with point mutations, need direct sequencing of all coding regions. Muscle biopsy and creatine kinase levels are considered as a diagnostic markers[2].

Infants are rarely symptomatic. Poor head holding in infancy may be the earlier sign of weakness. A Gowers sign and trendelenburg gait occurs at 5-6yrs age. Some are confined to wheelchair by 7yrs of age. Respiratory complications like weak and ineffective cough, frequent respiratory infections, decreasing respiratory reserve and pharyngeal weakness.Pseudo hypertrophy of claves and wasting of thigh muscles are classic features of DMD. Cardiomyopathy is seen in 50-80% of patients. Mental retardation, epilepsy is slightly most common in DMD patients.

Use of glucocorticoids in DMD slows the decline in muscle strength and function in DMD. And treat cardiac and respiratory complications. Use dietary supplements like coenzyme. Q10, carnitine, amino acids (glutamine, arginine) and antioxidants (fish oil, vitamin E)[3].

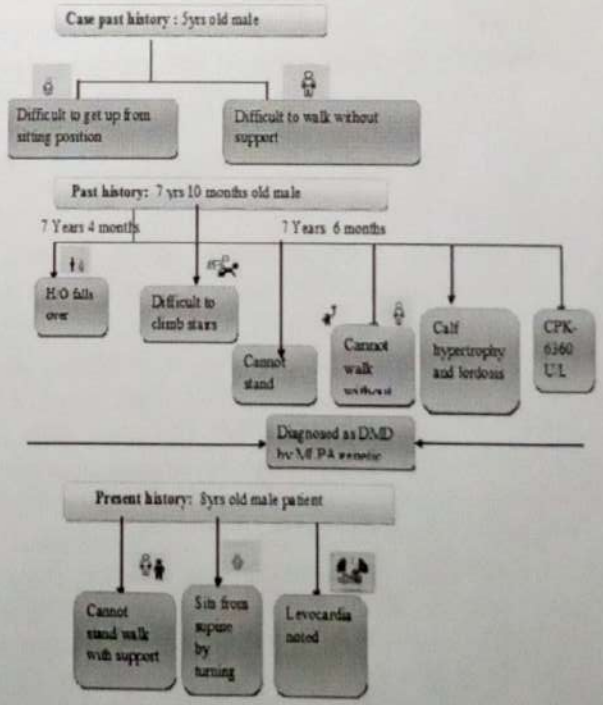

Figure 1: Past and present medical history

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Assessment of medication adherence, prevalence, and risk factors for Bronchial asthma patients by the clinical pharmacist.

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Abstract:

Introduction: Asthma is a condition in which airways become inflamed, narrow, and swell and produce mucous which causes difficulty in breathing. Adherence towards medication is the degree to which patients behave corresponds with an agreed recommendation from health care providers. The main objective of the study isthe Assessment of medication adherence, prevalence, and risk factors for Bronchial asthma patients by a clinical pharmacist.

Methodology: It is a prospective cross-sectional type of study to be conducted in the department of general medicine in Government General Hospital (RIMS HOSPITAL) Kadapa, Andhra Pradesh. This study was conducted for 6 months with a sample size of 75 patients were diagnosed with Bronchial asthma.

Results: According to our study majority of patients were illiterate when compare to literate about asthma. In this study male patients are more than female, based on occupation farmers (22) are more mechanics were (2) were fewer. In the majority of the patient comorbidities, Bronchial Asthma with HTN (48.9%) was high, seasonal variations were also one of the major risk factors (17.33%).

Conclusion: In males most prevalent risk factor is smoking and there is a significant difference (P- < 0.0001) in most of the illiterates having poor medication adherence. The most prevalent risk factors for developing asthma inpatients were found to be seasonal variations, smoking, and family history. The prevalence rate of bronchial asthma was found to be 0.44%.

Keywords: Bronchial asthma, medication adherence, prevalence, and risk factors

Introduction:

Asthma is a chronic breathing condition that causes shortness of breath, chest tightness, and cough with wheezing. Experience the worsening of asthma symptoms in Asthma people, known as 'exacerbations'. According to World Health Organization (WHO), adherence is "the degree to which use of medication by the patient corresponds with the prescribed regimen[1,2] or also refers as prescribed medication was taken by patients and continue to take prescribed medication.[3]COPD and Bronchial asthma are worldwide health problems, according to WHO nearly 235 million people have asthma when asthma is under-diagnosed and under-treated the prevalence rate was higher worldwide. The prevalence of asthma was increased over time to 4.15 million disability-adjusted life years are caused by asthma. Zayeri et al. showed that the prevalence of asthma was 9.38, which was higher than the global rate. The prevalence of asthma in Kuwait was 15%, 15.5 % in Khartoum, diagnosed asthma in Qatari was 19.8%.[4]Recent cross-sectional nationally conducted by National Family Health Survey (NFHS)-3 reveal the prevalence of adult men and females in India were 1,696 and 1,627 per

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Review

The Race to Replace PDE5i: Recent Advances and Interventions to Treat or Manage Erectile Dysfunction: Evidence from Patent Landscape (2016–2021)

Mohammed Monirul Islam [1,*,†], Nimbagal Raghavendra Naveen [2,*], Posina Anitha [3], Prakash S. Goudanavar [3,†], G. S. N. Koteswara Rao [4], Santosh Fattepur [5,*], Muhammad Muhitur Rahman [6], Predeepkumar Narayanappa Shiroorkar [7], Mohammed Habeebuddin [7], Girish Meravanige [7], Mallikarjun Telsang [8], Sreeharsha Nagaraja [9,10], Syed Mohammed Basheeruddin Asdaq [11] and MD. Khalid Anwer [12]

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Abstract: For a few decades, globally, erectile dysfunction (ED) has become more prominent even in young adults and represents a mounting health concern causing a significant effect on men's quality of life. There is an expectation that by the end of 2025, the number of ED cases can rise to 322 million. We aimed to comprehensively analyze the scientific output of scholarly articles and studies in the field of ED (2016–2021). Data from scholarly articles were collected using Pubmed, and clinical trials-related information was accessed from the clinical trials website. An extensive patent search was conducted using databases such as USPTO (United States patent and trademark office) and EPO (European patent office), WIPO (World Intellectual Property Organization), etc. Owing to the high market value of ED drugs, considerable interest was attained to grab the opportunities. The race to replace the phosphodiesterase type 5 inhibitor (PDE5 inhibitor-PDE5i) can be identified as evident from the significant number of patents filed and the inventions cleared with clinical trials. Some other intriguing interventions are identified for ED treatment but have yet to gain public acceptance. The current analysis consists of overall evolution and unexplored corners of research on ED treatment strategies with a current global projection.

Keywords: erectile dysfunction; PDE5i; patent search; clinical trials

2021-22

Case Report

A Case Report on Stavudine Induced Lipodystrophy

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ABSTRACT

Drug induced adverse drug reactions are more common in long term therapy particularly in immune compromised patients. Some of the drugs causes Redistribution of body fat (Lipodystrophy) in Human Immunodeficiency Virus (HIV) infected patients and loss of body fat (Lipoatrophy). Stavudine is the one of the first line regimens drugs used for HIV infection belongs to the category of Nucleoside reverse transcriptase enzyme inhibitor (NRTIs). In the present case, we have reported the stavudine induced severe Lipodystrophy (Lipoma). A patient visited the hospital with the symptoms of lump on back of neck as, she received Stavudine fixed dose combination (SLN) as a drug for her diagnosis of HIV for past seven years. After clear examination Lipodystrophy (Lipoma) was confirmed and suspected with the cause due to stavudine fixed dose regimen. The drug was stopped and the patient was opted to surgery for permanent cure. The patient was recovered from her condition and other antiretroviral drugs were recommended for her treatment.

Key words: Antiretroviral therapy, Adverse drug reaction, Lipodystrophy, HIV, Lipoatrophy.

INTRODUCTION

Stavudine is the first line fixed dosage regimen (SLN) for Human Immunodeficiency Virus (HIV) infection from the category of Nucleoside reverse transcriptase enzyme inhibitor (NRTIs). Lactic acidosis is the most common adverse drug reaction of the drug Stavudine.[1] In some studies, it has been reported that the use of Stavudine fixed dosage regimen (SLN) produce the Lipodystrophy syndrome that is called as Lipoma.[2] Lipodystrophy is the changes in body fat (loss/gain) and associated metabolic disturbances seen in some people living with HIV. This can be genetic or acquired. Drug reaction is most important cause for the development of Lipodystrophy. The following drugs are reported with Lipodystrophy like Stavudine, Zidovudine and protease inhibitors except Atazanavir.[3]

CASE REPORT

A 28 years old female patient visited to Government General Hospital, Kadapa with complaints of pain at back side of neck region in outpatient ward. She was diagnosed with HIV disease for last eight years and received Zidovudine, Lamivudine and Nevirapine (ZLN) as initial drug fixed dose combinations of 300mg, 150mg and 200 mg respectively in a single tablet twice daily. As she found anaemic (Hb<8 mg/dl) after one year with this fixed dosage regimen(ZLN) her drug therapy was changed to Stavudine, Lamivudine and Nevirapine single tablet fixed dosage regimen (SLN) twice daily. After usage of SLN fixed dosage combination for seven years she developed lump at back side of neck that is fat accumulation. During her visit after clear examination the condition was diagnosed as drug induced Lipodystrophy and the suspected drug was Stavudine fixed dosage regimen (NRTIs) by the ART Physician. Her CD4+T-cell count was 878 cells/mm.[3]

OUTCOME AND FOLLOW-UP

After suspecting the condition, the patient was advised to stop Stavudine fixed dosage regimen (SLN) and Prescribed with another antiretroviral regimen that is Tenofovir, Lamivudine and 300mg, 300mg, 600mg respectively one tablet taken once a day on empty stomach. Patient was continued with the prescribed TLE regimen for five years but left Lipoma condition untreated as

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Formulation and design optimization of nano-transferosomes using pioglitazone and eprosartan mesylate for concomitant therapy against diabetes and hypertension

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Pioglitazone

ABSTRACT

Hypertension, a form of cardiovascular diseases, is considered a major risk factor associated with deaths in type 2 diabetes patients. The current medication systems for treating such chronic coexisting diseases are limited and challenging due to the difficulties in overcoming the side effects from complex therapeutic and treatment regimen. The objective of the present study is to design and optimize pioglitazone (PIO) and eprosartan mesylate (EM)-loaded nano-transferosomes (NTs) using Design-Expert software, aiming its transdermal delivery as a novel combination therapy for concomitant treatment of hypertensive diabetic patients. The developed formulations were characterized for various parameters, including *in-vitro* skin permeation, skin irritation, *in-vivo* antidiabetic, and antihypertensive activities. NTs were prepared using PIO and EM as the two model drugs and optimized using Box-Behnken design by considering phospholipid (X1), surfactant (X2), ratio of solvents (X3), and sonication time (X4), as independent variables, each at three levels. Entrapment efficiency (Y1 and Y2) and flux (Y3 and Y4) of PIO and EM, respectively, were selected as dependent variables. Among all the prepared formulations, one optimized formulation was chosen by the point prediction method and evaluated for drug-polymer compatibility, particle size, and surface charge analysis, followed by skin permeation and pharmacodynamic studies. The optimized nano-transferosomal gel (ONTF) showed all responses which confirm with the values predicted by the design. Pharmacodynamic studies showed improved and prolonged management of diabetes and hypertension in Wistar rats after the ONTF was applied, compared to oral and drug-loaded NT formulations. Results of the current study suggest that the development of such combinational delivery system can result in a rational therapeutic regimen for effective treatment of concomitant disease conditions of diabetic hypertensive patients.

1. Introduction

Various novel approaches in drug delivery systems have recently been emerging. Some of these approaches are being rapidly developed to reduce drug degradation and associated side effects, to improve the bioavailability of drug(s), to favor and facilitate the accumulation of drug(s) in the preferred bio-zone, and to achieve high levels of patient compliance (Ahmed Faheem et al., 2020). In this regard, one novel approach that is emerging as a keystone strategy to treat various types of diseases is combination drug therapy. Besides having relatively better effectiveness than single-agent therapies, especially in cases of cancer (Jia et al., 2009), combination therapy provides several other advantages including a decreased dosage and its intervals while providing superior levels of efficacy, increased therapeutic efficacy, and decreased drug resistance (Al-Lazikani et al., 2012).

Treating different cellular targets with multiple drugs and using multiple drugs to target similar cellular pathways are the two generally accepted approaches for combination drug therapy, of which, the former

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Estimation of Risk Factors for Computer Vision Syndrome and Impact of Clinical Pharmacist

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ABSTRACT

Computer use has become ingrained in our daily lives. The increased usage of computers has resulted in an increase in the number of people suffering from ocular symptoms that have been labelled as computer vision syndrome (CVS). It's impossible to pinpoint a single etiologic element that produces computer vision syndrome; instead, it's a complex mix of factors. It is a prospective, interventional study conducted on online carried out from December (2020) to may (2021). Data collected from online Google forms and the sample size enrolled in the study was 236. According to our study we come to know that males (62.1%) are more affected than females (37.9%) and 20-30 years age category subjects are more affected than 31- 40 years and also students are more affected when compared to females. The most common symptoms the most common symptoms that we observed in our study are eye burning, eye itching, watery eyes, blurred vision and dryness of eyes all these are ocular symptoms. Among extraocular symptoms most common are neck pain, back pain, headache, shoulder pain. The responses what we received are 236 members out of these 97 members are lack of knowledge while handling the computers, so after those who are having poor knowledge we provided a patient information leaflet and suggested them to follow the tips for 28 day period. After 28 day period 75% of the computer users gained knowledge.

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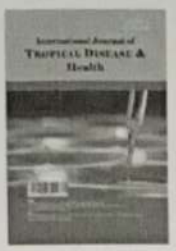
INTRODUCTION

Computer use has become an integral element of daily life. This increase in computer use has resulted in an increase in the number of people suffering from ocular complaints known as computer vision syndrome (CVS). The American Optometric Association defines computer vision syndrome (CVS) as "a complex of eye and vision problems related to activities that stress near vision and are experienced in relation to or during the use of computers."

If children play computer games too much, they may develop physical and psychological difficulties. With the right furnishings, proper posture, and good behaviours like taking rest breaks and limiting time spent playing computer games, you can reduce or eliminate these dangers [1].

Etiology

It's difficult to pinpoint a single etiologic element that causes computer vision syndrome, but it's likely a combination of factors.



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Educational Intervention to Improve the Knowledge, Attitude, Practices of Health Care Professionals and Students Regarding the Pharmacovigilance in Tertiary Care Hospitals

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Authors' contributions

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

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ABSTRACT

Introduction: An adverse drug reaction (ADR) is any noxious, unintended, and undesired effect of a drug, which occurs at the doses which are used in humans for prophylaxis, diagnosis, or therapy, which is reported by "the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related problem" known as PV. ADRs are significantly underreported worldwide. A KAP survey usually conducted to collect information on the knowledge, attitudes, and practices about general and/or specific topics of a particular population.

Aim and Objectives: To evaluate the KAP studies on the educational intervention to improve the knowledge, attitude, practice of health care professionals and students regarding the

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An updated review on potential therapeutic drug candidates, vaccines and an insight on patents filed for COVID-19

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ABSTRACT

The outbreak of COVID-19 was recognized in December 2019 in China and as of October5th, the pandemic was swept through 216 countries and infected around 34,824,108 individuals, thus posing an unprecedented threat to world's health and economy. Several researchers reported that, a significant mutation in membrane proteins and receptor binding sites of preceding severe acute respiratory syndrome coronavirus (SARS-CoV) to turned as novel SARS-CoV-2 virus and disease was named as COVID-19 (Coronavirus disease 2019). Unfortunately, there is no specific treatment available for COVID-19 patients. The lessons learned from the past management of SARS-CoV and other pandemics, have provided some insights to treat COVID-19. Currently, therapies like anti-viral treatment, immunomodulatory agents, plasma transfusion and supportive intervention etc., are using to treat the COVID-19. Few of these were proven to provide significant therapeutic benefits in treating the COVID-19, however no drug is approved by the regulatory agencies. As the fatality rate is high in patients with comorbid conditions, we have also enlightened the current in-line treatment therapies and specific treatment strategies in comorbid conditions to combat the emergence of COVID-19. In addition, pharmaceutical, biological companies and research institutions across the globe have begun to develop thesafe and effective vaccine for COVID-19. Globally around 170 teams of researchers are racing to develop the COVID-19 vaccine and here we have discussed about their current status of development. Furthermore, recent patents filed in association with COVID-19 was elaborated. This can help many individuals, researchers or health workers, in applying these principles for diagnosis/prevention/management/treatment of the current pandemic.

1. Introduction

The coronavirus, believed to be originated 800 years before from the bats, as confirmed by many researchers (Y. Chen et al., 2020; Paules et al., 2020). On basis of genetic features, family coronaviridae is categorized as α, β, λ, and δ, where alpha (α) and beta (β) coronavirus are proven as pathogenic to humans and mammalians. Coronaviruses are a form of positive strand non segmented RNA viruses that can cause serious respiratory and neurological illness (Weiss and Leibowitz, 2011). Six different types of coronaviruses can cause disease among the humans, two of them can cause middle east respiratory syndrome coronavirus (MERS-CoV) and severe acute respiratory syndrome (SARS-CoV), while the rest four (HKU1, 229E,NL63 and OC43) are less pathogenic will cause only common cold (Cui et al., 2019; S. Su et al., 2016). MERS-CoV and SARS-CoV outbreak was happened in Middle east (2012) and China (2002) respectively (Zaki et al., 2012; Zhong et al., 2003). Again, in December 2019, few patients who are linked with seafood market in Wuhan of China, were shown pneumonia like symptoms. Consequently, about 20,000 sequences from each sample were obtained to match the genome. Genome matches confirmed 85% similarity with SARS-like β-coronavirus (N. F. C. Zhu et al., 2020). Further investigations on isolated virus conforms the new strain of Coronavirus and named this new

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Prospection of microfluidics for local drug delivery

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Abstract

Background: Significant endeavors can be made to develop effective drug delivery systems. Nowadays, many of these novel systems are gained attention as they focus primarily on increasing the bioavailability and bioaccessibility of several drugs to finally minimize the side effects, thus improving the treatment's efficacy.

Concept: Microfluidics systems are unquestionably a superior technology, which is currently revolutionizing the current chemical and biological studies to diminutive chip-scale devices by offering precise dosage, target-precise delivery, and controlled release. Microfluidic systems emerge as a promising delivery, owing to their potential for defined handling and transporting small liquid quantities. The latest microfabrication developments have opened to even apply to several biological systems. Here, we review the fundamentals of microfluidics and their application for local drug delivery.

Keywords: Brain Delivery.; Drug Targeting; Local Drug Delivery; Microfluidics; Ocular Delivery.

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Review Article

NSAID Induced Stevens Johnson Syndrome or Tumor Epidermal Necrolysis

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ABSTRACT

Non-steroidal Anti-inflammatory Drugs (NSAIDs) are the drugs which commonly prescribed and consumed by worldwide. NSAIDs are the several drugs which are having the high risk of inducing SJS or TEN. SJS or TEN are the cutaneous reactions involves in detachment of mucosal or skin membrane. Female were more affected than male. Major cause of SJS or TEN were the genetic (HLA –A and HLA- B), drugs, infection (mycoplasma pneumonia and herpes simplex virus). The exact pathogenic mechanism of SJS or TEN are uncertain. People who are having more than 40 years are the mostly affected by SJS or TEN. Due to the rarity of these diseases, sufficient evidence is still lacking to support the best choice of treatment for patients with SJS or TEN. Most of the drugs like antibiotics, anticonvulsant and NSAIDs which causes the SJS or TEN. Diagnostic test like skin prick test, PCR test, serology test was used to diagnose the SJS or TEN. Patients are treated with various drugs like immunomodulators (IVIG), Cyclosporine, systemic corticoSteroidals, TNF inhibitors, Plasmapheresis in addition to best supportive care.

Keywords: NSAIDs, Steven Johnson Syndrome, Tumor epidermal necrolysis, Drug reactions, Adverse reaction.

INTRODUCTION

Stevens John Syndrome and Toxic Epidermal Necrolysis (SJS and TEN) are adverse cutaneous drug reaction or allergic reaction involves the detachment of skin and mucosal membrane. These are rare painful blistering, skin rashes, related to variety of drugs (NSAIDS, antimicrobial) or infection (mycoplasma or herpes simplex), characterized by detachment of skin area. Based upon the severity and percentage of detachable skin area they are classified.[1-3] Stevens Johnson syndrome and toxic epidermal necrosis was first described in 1922 and 1956 respectively. Both diseases are in the same spectrum but difference in severities.[4] SJS affects nearly <10% of body surface area, TEN affects more than 30% and overlap of both SIS and TEN affects 10-30%.[5] (Table 1).

NSAIDS are the most commonly used and prescribed drug worldwide and they thought that these drugs are the leading causative agent of adverse drug reaction.[6] NSAIDS may causes SJS in 15.93% (in the study of tejask. Patel *et al*). Most of the studies reveals the NSAIDS include Acetaminophen, propionic acid, aspirin are majorly involved drugs in SJS or TEN. Mortality rate for SJS and TEN were 1-5% and 23-45% respectively.[1,6-9]

In study of Slew-EngChoon *et al.* the composition of racial in India were 15.1%.[10] In NSAIDS there are 4 cases are reported in which 1 is SJS, 1 is TEN, and remaining 2 is overlap of both SJS or TEN, (acetaminophen causes the Toxic Epidermal Necrolysis in one patient and Aspisol causes SJS in one patient, and both drugs causes SJS and TEN in two patients.[5] The general mechanism of NSAIDs were shown in Figure 1.

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