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No. of Pages: 52

No Processing Charge & Publication Fee

REVIEW ARTICLE

Reminiscence and Apprise of Drug Design and Development

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ABSTRACT

Drug design involves a systematic protocol for the synthesis of new drug molecules based on the prior knowledge about the biological target or pathophysiology of the disease. The present study focuses on the insights of drug design with an emphasis on the different factors affecting the design of drug molecules, types of drug design and different stages of drug development as per FDA guidelines. This work also highlights about the success story behind the development of Paclitaxel (Taxol), a natural product as an anti-cancer drug and some important USFDA approved drugs.

The Role of a Holistic *Zincum metallicum* Homeopathic Medicine System in the Treatment of Polycystic Ovarian Syndrome (PCOS) and other Disorders – A Review

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ABSTRACT

Zincum metallicum, a holistic homeopathic medicine, has a huge characteristic range of action in the treatment of diseases and the maintenance of health systems. It helps build the immune system. Oxidative stress is a known factor in chronic diseases. Zinc in the form of *Zincum metallicum* or any other form acts as an antioxidant by reducing oxidative stress and helping to treat many conditions. Some of this *Zincum metallicum* is potent in treating various diseases caused by oxidative stress or sedentary lifestyle. *Zincum metallicum* has been shown to treat polycystic ovarian syndrome (PCOS) by regulating insulin resistance and lipid levels in women with PCOS and improving ovarian function. It is also helpful for the reproductive organs as it improves sperm count in men and ovarian function in women. *Zincum metallicum* not only treats the disease, but also acts on other organs to improve the metabolic activity of the system. Since *Zincum metallicum* acts on the central nervous system, it helps in the treatment of various diseases related to the nervous system, such as Parkinson's disease. *Zincum metallicum* helps in the treatment of liver related diseases such as hepatitis, liver cirrhosis. Mild zinc deficiencies are likely to cause chronic metabolic disorders resulting in health complications. *Zincum metallicum* is great for treating metabolic disorders.

***Key Words*:** *Zincum metallicum*, PCOS, Parkinson's disease, Reproductive systems.

RESEARCH ARTICLE

Identification of Drug Related Problems and Evaluation of Clinical Pharmacy Service in Geriatric Patients with Polypharmacy

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ABSTRACT

Background: The high-rate chronic problems of elderly patients' attributes to various drug related problems (DRPs). The decrease in healthy life-years is partly attributable to the institution of polypharmacy to treat various co morbidities. Multiple factors such as inappropriate prescribing and polypharmacy can cause DRPs. Hence, identification and prevention of incidence of DRPs is crucial in geriatric patients.

Aim: The study aims to identify DRPs and to investigate the level of knowledge, medication adherence, and role of deprescribing among patients attending a tertiary care center.

Method: This prospective observational study included geriatric patients aged ≥60years with polypharmacy. The patients were assessed for DRPs, knowledge of disease, medication self-adherence and deprescribing through questionnaires. Documented data was analysed using descriptive statistical analysis.

Results: Among the DRPs, drug-drug interaction (78.49%), and prescription error (74.19%), was high among the geriatric patients. Most patients (76%) taking more medication for multiple medical condition were willing to cease the medication on doctor's advice. Most of the patients have knowledge about their disease (65%), symptoms of a disease (71%) and the affected body part (81%). Most of the participants had high adherence (96%) to the medications.

Conclusion: The study concludes that geriatric patients with polypharmacy, who have multiple medical issues, are prescribed a greater number of medications, which may lead to DRPs. Therefore, physicians should prescribe evidence-based medicine and educate patients about their disease. Furthermore, clinical pharmacist should provide extra pharmaceutical care regarding medication knowledge and awareness to improve medication adherence for geriatric patient to prevent DRPs and improve their quality of life.

Key words: Adherence, Polypharmacy, Geriatrics, Medication errors.

Assessment of Knowledge, Attitude and Practice towards Diabetes Mellitus among Non-Diabetic Individuals of Anand District, Gujarat

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ABSTRACT

Introduction: Diabetes Mellitus (DM) is a significant threat to the world and it is the fourth leading cause of death worldwide. There are very limited studies on the assessment of knowledge, attitude and practice from both urban as well as rural parts of India in non-diabetic individuals, which reflect poor awareness among Indian population. This study aimed to assess knowledge, attitude, and practice of non-diabetic individuals about risk factors, occurrence, symptoms, and preventive measures for diabetes mellitus in Anand district, Gujarat. *Methods:* A well validated Questionnaire based observational survey study was conducted on non-DM individuals. Socio-demographic characteristics (age, gender and occupation) and knowledge, attitude, and practice towards DM were recorded. *Results:* About 68.43% participants denote diabetes as a severe condition. Knowledge regarding the cause of DM (14.51%), awareness about signs and symptoms (10%), and consequences of DM (8%) demonstrated by population. Majority of participants (>50%) were not involved in any preventive measures with inadequate practice for diabetes mellitus. Students and educated participants had relatively more awareness about diabetes mellitus occurrence and prevention compared to those illiterate or least educated participants. *Conclusion:* Majority of participants have moderate to poor knowledge and inadequate practice regarding diabetes mellitus, but had a positive attitude towards its prevention measures and management. There is a need to carry out large-scale awareness programs for the general population for future prevention of DM and improved quality of life.

Keywords: Diabetes Mellitus, Knowledge, Attitude, Practice, Socio-demographic, Prevention, non diabetic individuals, general population.

Evaluation of GPR120 Agonist GW9508 as NLRP3 inhibitor for Inflammasome mediated Colon cancer-an *in-silico* study

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ABSTRACT

Colorectal cancer, one of the most prevalent cancer is still evading drug therapy due to poorly understood mechanism. Surgical and radiological treatments are the options available for these patients. Inflammasome mediated discovery of drugs for various cancers are progressing in recent times. Nucleotide- binding domain leucine-rich repeat- containing receptors protein 3 (NLRP3), is a ATPase nucleotide-binding oligomerization domain and blocking of this oligomerization process manifests down regulation of inflammasomes. NLRP3 has thus attracted interest among researchers due to its role in cascade of events triggering colorectal cancer. Bioinformatics tools in identifying NLRP3 inhibitors have shown several natural and synthetic compounds. GPR 120 agonists have proved to be effective in inflammatory pathway although originally designed for diabetes. In this article, we wish to disclose our preliminary research in positioning GPR 120 agonist GW9508 as an inhibitor for NLRP3 towards colorectal cancer treatment. Docking with the crystalized structure recently deposited in the protein data bank (6NPY) as a target for NLRP 3 revealed high dock score for the GPR 120 agonist GW9508 comparable to the known NLRP3 inhibitor.

RESEARCH ARTICLE

Pharmacoinformatics and Antiangiogenic Activity of *Morinda tinctoria* Phytochemicals by Targeting Vascular Endothelial Growth Factor Receptor-2

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ABSTRACT

In cancer progression, angiogenesis plays a crucial role in the formation of newer blood vessels. Vascular endothelial growth factor (VEGF) is an important factor which stimulates angiogenesis. By blocking VEGF signaling, the anti- angiogenic potential can be accomplished. In this study, the potential can be achieved by the phytochemicals using *Morinda tinctoria* Roxb. belongs to the family Rubiaceae. The structures of the phytochemicals were downloaded from PubChem database and they were screened *in silico* for their physicochemical properties, pharmacokinetics parameters, drug likeness and toxicity profiles using various online tools and databases including Swiss ADME, pkCSM and ProTox II. All the phytochemicals were virtually screened against VEGFR-2 Tyrosine Kinase domain targets namely 3VHE, 4GA8 and 6GQQ) using iGEMDOCK. Molecular docking with VEGFR-2 target was performed by using AutoDock 4.2 software and the docking results were visualized using Biovia Discovery Studio version 16.1.0. Binding score and interaction profile were compared with the standard anti-angiogenic drugs Gefitinib and Pazopanib. The results revealed that Kaempferol-3-O-rutinoside, Ursolic acid, Acacetin-7-O-glucopyranoside and β-sitosterol showed greater binding energy and good interaction profile. In conclusion, these compounds may be taken as lead molecules to identify new chemical entities for cancer therapy.

***Keywords*:** *Morinda tinctoria*, Anti-angiogenic, Anticancer, Insilico analysis, Docking, VEGFR-2.r.