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Scientific Tracks & Abstracts

(Day 1)

Bayan M Darwesh et al., J Pharma Care Health Sys 2017, 4:4 (Suppl)
DOI: 10.4172/2376-0419-C1-023

The experience of using an automated dispensing system to improve medication safety and management at King Abdulaziz University Hospital

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The use of automated dispensing systems has been lauded for improving patient safety within the processes of healthcare. Adverse drug events, for example, are a common manifestation of faults in the service delivery of a pharmacy department that endanger patient safety. Even though automation may reduce the occurrence of such errors, concerns have been raised about the efficiency and safety of the automated systems since a large number of patients still suffer medication associated injuries. Though the use of these systems is common in some developed countries, there is paucity of safety and efficacy data from the Arab nations. We therefore report our experience using automated dispensing systems in all our units at the KAUH following a successful pilot run of this technology. We installed the automated dispensing system and monitored the number of controlled and uncontrolled medications used before and after the automation, the incidence of wrong bin opening and the number of IV medication preparations after the installation of the system. The number of controlled and uncontrolled medications dispensed in KAUH generally reduced. The decrease in the number of uncontrolled medication was statistically significant, p value=0.004. We also observed an increase in the number of IV medication preparations consequent to reduced workload and improvement in staff utilization. After installation of the automated dispensing system there was a high incidence of wrong bin opening, which reduced gradually after the first two months.

Biography

Bayan M Darwesh has completed her PharmD from King Abdulaziz University in Jeddah. She is the Director of Pharmacy Department at King Abdulaziz University Hospital in Jeddah, KSA. She is responsible to initiate pharmacy automation projects to streamline and modernize the daily routine workflow in line with international standards.

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Notes:

Rubab Zohra, J Pharma Care Health Sys 2017, 4:4 (Suppl)
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Development of gastro-retentive drug delivery systems based on N-isopropyl acrylamide hydrogels

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It was planned to synthesize dual-responsive hydrogels from N-isopropyl acrylamide (NiPAAm), acrylic acid (AA) and methacrylate (MA). Hydrogels were prepared by free radical copolymerization using ethyl alcohol as a solvent, a redox initiator, benzoyl peroxide (BPO) and ethylene glycol dimethacrylate (EGDMA) and diethylene glycol dimethacrylate (DEGDMA) as cross-linkers. The network parameters like polymer mesh size (ξ) (23.78 to 820 Å), molecular weight between the cross-links (M_c) (970-356096 gmol-1) and crosslink density (q), (0.0928 to 0.00025) were calculated at various pH using the Flory-Rehner theory. Hydrogels exhibited the non-Fickian diffusion mechanism. FTIR spectral analysis and (TGA/DSC) were carried out to characterize the systems and new LCST was found to be increased. Tramadol HCl was used as the model drug to investigate the drug loading and unloading behavior of these gels. It was concluded that these systems exhibited a sharp change in their media sorption capacity and mesh size of the networks with the change in the pH and temperature of the swelling media, proposing their strong candidature for being used as oral drug delivery systems. The results favored the idea to apply these hydrogels to use as targeted drug delivery systems for the proximal part of the gastro-intestinal tract.

Biography

Rubab Zohra is working as an Associate Professor at Department of Chemistry in Forman Christian College (A Chartered University), Lahore, Pakistan.

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Notes:

Saeed M Albaraki et al., J Pharma Care Health Sys 2017, 4:4 (Suppl)
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Pharmacoeconomics of plasma fractionation local manufacturing: General review

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Plasma-Derived Medicines (PDM) products obtained through processing and fractionation of human plasma and are regularly used in clinical practices for a variety of diseases. The most important (PDM) products available in the markets are coagulation factors (FVIII and FIX), albumin and immunoglobulins (IVIG). The PDM products involve a multi-billion dollar trade and the global market of such biological products is growing dramatically due to the newly emerging therapeutic applications. On the other hand, shortage in supply of PDM is very common globally. This being a biological industry is seriously influenced by political conflicts, manmade disasters and epidemic diseases. During the last few decades, the global industrial market of PDM has undergone very dramatic changes such as merging of the manufacturers and acquisition of small scale companies as well as increasing levels of regulation with respect to product safety. It has been reported that around 30 million liters of plasma are fractionated each year worldwide. However, unfortunately due to very high cost of treatment and shortage of supply, these clinically precious tools are not affordable for a majority of patients living in developing countries. The Ministries of Health in some developing countries developed their own local fractionation programs to secure the accessibility of PDM. These programs include local PDM production, long term supply contracts and self-sufficiency fractionation contract of locally produced plasma. Finland, Hong Kong, Malaysia, New Zealand, Norway, Poland and Singapore are relying on self-sufficiency fractionation toll of local plasma. In spite, of the crucial role of this essential bio-industry, no country within the Middle East has any successful large scale trial for a local fractionation project. Limited exceptions have been reported from Egypt and Tunisia Ministries of Health of the Middle East countries should think seriously to start local manufacturing of PDM to secure their population and afford such bioproduct for the patients. The overall goal of the workshop is to increase the awareness of the health professionals and health decision makers about the recent developments and changes in this industry and the importance of establishing a local fractionation program to secure a regular supply for our patients. The five main objectives of this workshop are: (1) To highlight the pharmaco-economics of PDM, (2) To provide a better understanding of local PDM manufacturing, (3) To suggest methods for starting local fractionation projects according to the demand and the levels of blood donation, (4) To provide suggestions and solutions for overcoming problems associated with establishing of local PDM manufacturing projects and (5) Presenting a case studies of Saudi Arabia and Norway for local manufacturing trials.

Biography

Saeed M Albaraki has completed his PhD from University of Leeds, UK in Industrial Pharmacy and Pharmaceutical Engineering. Presently, he is the Deputy Director of the Scientific Research Centre of the Armed Forces Medical Services, KSA. He has published his research work on pharmaceutical formulation, manufacturing, plasma fractionation and pharmaceutical engineering in reputed journals and has also presented his work in national and international scientific conferences and meetings.

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Tuba Aydin et al., J Pharma Care Health Sys 2017, 4:4 (Suppl)
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Effects of herniarin on sepsis induced rats' liver

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Sepsis development can result in death, through the passage of microorganisms into the blood entering the body and spreading to all organ systems. *Artemisia dracunculus* L., tarragon, which is used in various parts of the world as spice, has long been used in traditional therapy. Tarragon leaves have important coumarin content and contain high amounts of herniarin (HRN). One of the most frequently used animal models in the study of sepsis is cecal ligation-puncture in rats'. In the present study, effects of HRN, isolated from tarragon was investigated on sepsis induced rats' liver tissues. Therefore, 40 male rats were divided into 4 groups as Sham, Control, HRN-150 and HRN-300. HRN was orally given (at doses of 150 and 300 mg/kg) and then rats' cecums were ligatured and perforated by a cannule. After 24 hours after administration of HRN, rats were euthanized under high dose anesthesia. Both histopathologic and biochemical examinations were performed in the liver tissues of sepsis induced rats. Lipid peroxidation (LPO) and glutathione (GSH) levels, as well as superoxide dismutase (SOD) and catalase (CAT) activities were measured as biochemical parameters. In the control group, as compared with sham group, both LPO level and CAT activity increased significantly ($p<0.05$), in contrast to the decreased amouts of GSH and SOD activity. In the HRN groups, the LPO and CAT was significantly decreased and also decreased amouts of GSH and SOD activity was increased dose dependently. According to the results histopathologically, damage findings are decreased as parallel to the biochemical data in a dose-dependent manner. As conclusion HRN dose-dependently decreased sepsis resultant liver damage ($p <0.05$).

Biography

Tuba Aydin has completed her PhD from Ataturk University in 2012. She is currently working as an Assistant Professor in the Faculty of Pharmacy at the Agri Ibrahim Cecen University, Turkey, where she has been a Faculty Member since 2013. She has expertise in isolation and characterization of phytochemicals from natural products.

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G N K Ganesh, J Pharma Care Health Sys 2017, 4:4 (Suppl)
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Development of nano drug delivery system to treat basal cell carcinoma

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Nano emulsions are the novel carriers which offer major enhancements in therapeutics through site specificity, their capacity to escape from multi-drug resistance and to reduce side effects due to its self-assembled nature that is inherently receptive to its direct environment and the flexibility of the components which can be combined to result in structures with multiple responsive functionalities. The aim of the study was to prepare nanoemulsion gel containing Imiquimod by spontaneous emulsification method by using oleic acid as oil, Labrasol as a surfactant and PEG-600 as a co-surfactant which found to be compatible by FT-IR. The optimized formulation after thermodynamic studies is subjected for various evaluations. The particle/globule size of optimized formulation was found to be 127 nm with 29 mV zeta potential. The TEM analysis reveals that droplets in the nanoemulsion appear dark and the droplet size was in agreement with the results obtained from droplet size analysis using zetasizer. *In vitro* release study using franz-diffusion cells resulted in the cumulative release from nanoemulgel and marketed cream at the end of 24 hours were 65.12±1.23 and 43.41±1.21, respectively and the flux calculation shows the linear drug release of the formulation indicating a zero-order kinetics rather than marketed cream. Percentage hemolysis was found to be less than 5% for formulation and marketed cream. *In vitro* cytotoxicity study using HaCat cell lines reveals the IC50 values of the plain drug (IQ), prepared nanoemulgel and marketed cream to be 182.2 µg/ml, 260 µg/ml and 200 µg/ml, respectively.

Biography

G N K Ganesh has completed his PhD from Jagadguru Sri Shivarathreeshwara University, Mysore. Presently he is working as a Professor in JSS College of Pharmacy, India. He has published more than 30 papers in reputed journals and has been serving as an Editorial Board Member of 3 reputed journals. He has presented many papers in both national and international conferences. He has more than 15 years of experience in both academic and research.

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R Suresh Kumar, J Pharma Care Health Sys 2017, 4:4 (Suppl)
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A modified formulation approach for the novel combination of Nifedipine and Lignocaine HCL for the effective treatment of hemorrhoids

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Hemorrhoids are one of the most common ailments where the lowest part of rectum and anus veins swollen. It is estimated that about 75% of people will have hemorrhoids at some point in their lives. Modern therapies for hemorrhoids include various nonsurgical and surgical options with a trend towards outpatient procedures and day case surgery. In the present study, we hypothesized that the combination of topical Nifedipine to Lidocaine loaded nanoemulgel would improve pain control by causing a relaxation of the smooth muscle of the internal anal sphincter where it relieves the symptoms of pain by the effect of analgesic action due to Lignocaine and wound healing by Nifedipine. Initially nanoemulsion was prepared optimized by pseudo tertiary phase diagram. The optimized formulation was incorporated to gel base to form nanoemulgel. The formulated nanoemulgel was smooth, shiny and homogenous with pH of 5.9, viscosity of 3541 cps, spreadability of 40 gm.cm/sec, extrudability of 9 gm/cm^2 and bioadhesion of 4 kg/cm^2. Drug content of optimized formulation was found to be 98.17% (Nifedipine) and 97.04% (Lignocaine HCl). *In vitro* study was performed and the nanoemulgel showed a cumulative drug release of 41.12% (Nifedipine) and 45.41% (Lignocaine HCl) at 360 min. The nanoemulgel was found to be stable upon storage for 3 months, no major change was observed in their physical appearance, pH and rheological properties with pharmaceutically acceptable and more economic with improved topical formulations for the treatment of anal fissure for better life of the effected patients.

Biography

R Suresh Kumar has completed his PhD from Jagadguru Shri Shivaraathreeshwara University Mysuru (JSS University), India. He is the Coordinator at Department of Pharmaceutics in JSS College of Pharmacy, India. He has published more than 25 papers in reputed journals and has been serving as an Editorial Board Member of reputed journals.

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Kaselekela Ponshano, J Pharma Care Health Sys 2017, 4:4 (Suppl)
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The effectiveness of Telma-H with Amlodipine drug in the treatment of essential hypertension at the Copperbelt University community

Kaselekela Ponshano
Copperbelt University, Zambia

Hypertension is described as the persistent increase in blood pressure (BP) above 120/80 mmHg. With the introduction of newer medicines such as TELMA-H (Telmisartan+hydrochlorothiazide) as well as Amlodipine, many patients used to take other antihypertensive drugs for the management of hypertension which proved to be not bearing positive results to some patients. TELMA-H+Amlodipine drug was suggested to be introduced to some of the hypertensive patients whose responses to other antihypertensive were not good. A study was done to assess its effectiveness at the Copperbelt University health facility. A total of 35 male and female clients with unstable BP as well as those not responding well on other antihypertensive drugs were enrolled on the study. The patient's drug regiments were changed upon their review dates. A register was then opened for all the clients enrolled. The information captured on the register included names of clients, their current BP, their previous drug regiments and the dates the therapy changed. The treatment were administered once daily for 2 months. A follow-up was made to all patients weekly starting from 1 to 8. Every week there BP were monitored and measured. Reduced BP was observed to the desired levels. The systolic and diastolic blood pressure reduction were identified in all the clients than to those whom we did not change the therapy. The reduction in BP improved the quality life. Treatment of hypertension using TELMA-H+Amlodipine was proved to be effective in the management of hypertension.

Biography

Kaselekela Ponshano has completed his Advanced Diploma in Pharmacy from Evelyn Hone College, Zambia and advanced studies in the rational management of medicines from Swiss Tropical Institute, Switzerland. He is the Coordinator for Pharmacovigilance in the Northern Region of Zambia. He has published more than 2 papers in reputed journals and has served as the Secretary for the Copperbelt University Senior Administrative Staff Association (CUSASA). He is currently the Senior Pharmacy Technologist at the Copperbelt University.

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(Day 2)

Collins Ovenseri Airemwen, J Pharma Care Health Sys 2017, 4:4 (Suppl)
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Formulation and evaluation of Gastro-Retentive Floating Matrix Tablets (GRFMTs) of Metformin using *Grewia mollis* gum

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Grewia polysaccharide gum was obtained from the inner stem bark of the edible plant *Grewia mollis* Juss, (Family: Tiliaceae). Granules were prepared by wet granulation technique using the extracted natural gums at varying concentrations (2, 4, 6 and 8% w/w). Sodium bicarbonate (30%) and tartaric acid (5%) were incorporated as the gas generating agents. All granules were evaluated for micromeritic properties. Granules were compressed at an optimized compression pressure of 35 arbitrary units on the load scale using a single punch tableting machine. Tablets were evaluated for hardness, friability, floating lag time, *in vitro* buoyancy test and drug release profiles. Compatibility test of the excipients with the API (metformin) was also done using FTIR. Results revealed that all formulated GRFM granules were free flowing with angle of repose and Carr's index ≤31o and ≤14% respectively. The floating lag time for GRFM tablets formulated with *Grewia mollis* was ≤850 s. The *in vitro* buoyancy test of GRFM tablets formulations using the natural gum alone (i.e., without the incorporation of Eudragit® RL100) were <12 hours while those formulations with the incorporation of Eudragit® RL100 were >12 hours. There was a significant difference in tablet hardness with increase in binder concentration ($p<0.05$). The percentage maximum release ($m\infty$) and time to attain this ($t\infty$) for all GRFMTs were ≥87% and ≥4 hours, respectively. All the formulations fitted well into Higuchi model release kinetics. Release exponent (n) for all the formulations have their exponent values >0.45, hence their release mechanism was by non-Fickian diffusion. GRFM tablets of metformin have been developed for the first time using *Grewia mollis* gum which can sustain drug formulation for up to 10 hours and improve the bioavailability of drugs with narrow absorption window in the upper part of the GIT. Batch GM5 showed a better sustained release profile which can be taken as the optimized formulation.

Biography

Collins Ovenseri Airemwen has received his Doctor of Pharmacy (PharmD) degree from the University of Benin, Benin City, Nigeria and Master of Philosophy degree in Pharmaceutics and Pharmaceutical Technology from the same university. He is currently pursuing his PhD and has published more than 8 papers. His research focuses on controlled drug delivery system.

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Notes:

Mona Alqahtani et al., J Pharma Care Health Sys 2017, 4:4 (Suppl)
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Assessment of disability and medication adherence in patients with rheumatoid arthritis

Mona Alqahtani, Saja Almazrou, Hadir Aljohani and Maram Aljbreen
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Background & Objective: Rheumatoid Arthritis (RA) patient's adherence to pharmacologic therapy is important to achieve therapeutic goals and improve outcomes. Our study objectives are to explore the adherence level, disability index and pain score in patients with rheumatoid arthritis and to understand the relationship between certain patient variables with adherence and disability.

Design & Settings: A cross-sectional study with a self-administered questionnaire to RA patients. Participants gave their consent and were recruited from outpatient pharmacy waiting areas in different tertiary hospitals in Riyadh, the capital city of Saudi Arabia.

Patients & Methods: This study included (126) adults with rheumatoid arthritis. A self-administered questionnaire was given to RA patients using a special tool that collects demographic and clinical information, adherence and outcome assessment. Four pages survey that contains three sections: (1) demographic and clinical data, (2) Adherence measured using 8-item Morisky Medication Adherence Scale (MMAS-8) by using validated Arabic version to assess patient's adherence, and (3) Health Assessment Questionnaire (HAQ) to assess patient's outcomes.

Results: Scores of (MMAS-8 items) ranging from 0 to 8 shows that approximately one-half the participants were (n=66) 52.3% are non-adhered or show low adherence while (n=12) 9.5% of patients were adhered (high adherence), the remaining participants (n=48) shows 38% medium adherence. Those non-adhered, almost (n=23) 18.2% of them shows low adherence after the first 5 years of diagnosis. About (n=35) 27.7% of none adhered had from 2-3 medications used for RA while those had more than three medications shows only (n=19) 15% low adherence. There were no significant differences between clinical and demographic variables between groups.

Conclusion: The vast majority of RA patients have low to medium adherence score. Advanced age, years of diagnosis and number of medication significantly affect disability score. However, there is no relationship between these factors and pain score.

Biography

Mona Alqahtani is a student in College of Pharmacy, King Saud University, Saudi Arabia.

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Notes:

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Pharmacophore guided design, synthesis and biological evaluation of novel HDAC8 inhibitors with antitumor potential

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Epigenetic regulation of gene expression is explicitly controlled via chromatin remodeling, which in turn is controlled through Post-Translational Modifications (PTM) of histone tails. The known PTMs include acetylation, methylation, phosphorylation, sumoylation and ubiquitylation. In neoplasms, the mechanism of histone acetylation gets imbalanced through the overexpression of Histone Deacetylase (HDAC) and/or inactivation of Histone Acetyl Transferase (HAT). Moreover, it extends to a plethora of effects including aberrant gene expression, oncogene activation, tumor suppressor gene inactivation and tumor progression. HDAC inhibitors regulate the gene expression and display anticancer potential. In the present study, a pharmacoinformatic approach was applied to develop a pharmacophore model based on a data set of 42 N-(2-aminophenyl) benzamide analogues reported for HDAC inhibitory profile. The generated model comprised of six chemical points, namely two hydrogen bond donors, two hydrogen bond acceptors and two aromatic rings. The statistically validated model (R^2, SD, RCV^2, etc.) was further employed as a basis to design a library of 138 leads, which was checked for matching fitness against the model. The final hits were selected for chemical synthesis depending on binding interaction(s) after molecular docking, binding free energies and *in silico* ADME properties. These synthesized hits, containing oxadiazole and thiadiazole heterocycles, were investigated for their *in vitro* HDAC8 inhibitory and antitumor activity. Among all the compounds, the hydroxamic acid analogue containing p-tolyl substituted thiadiazole displayed better HDAC8 inhibitory potential and significant anticancer activity in comparison to FDA approved HDAC inhibitor, SAHA. These results warrant further investigations to substantiate the compound as a promising drug for the treatment of cancer.

Biography

Manal Mohammed is currently pursuing her PhD in Pharmaceutical Chemistry at JSS University, India. Her PhD work focuses on the design and synthesis of novel compounds as histone deacetylase (HDAC) inhibitors for cancer therapy. Her research interests include molecular modeling and *in silico* design of novel molecules using computational tools.

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