



# 2<sup>nd</sup> PHARM.D. INTERNSHIP RESEARCH DAY

**King Saud University**

**College of Pharmacy**





# What is the Pharm.D. Internship Research Day?

Pharm.D. Internship Research Day is an annual forum to highlight research projects of final-year undergraduate Pharm.D. students.

The primary goals of Research Day are to showcase the various types of research in Clinical Pharmacy department, share our mutual interests, and develop intra- and interdepartmental collaborations.

The ideation to organise this Research Day created in year 2014 and it aims to prepare Pharm.D. students for presenting their studies in scientific conferences. Afterwards, this effort has been continued in year 2015, in which all the final-year Pharm.D. students in College of Pharmacy were compulsory to participate in this Research Day to present their studies.

Research Day provides a great opportunity to learn about the clinical research conducted within the School of Pharmacy.



## Message from the Dean ...

Every year at this time we celebrate the research of our undergraduate students during the Research Day. Engaging undergraduate students in scientific research will have a big impact on their understanding of research methodology and stimulate their interests to continue graduate studies.

Undergraduate students at College of pharmacy at King Saud University are required to conduct a research project and present it at the end of their last year before graduation. This requirement is happening for more than four years.

I congratulate all our students who are presenting their research this year during the Research Day. They worked hard and were committed to complete the assigned tasks on time. Also, I thank all faculty members who supervised the students and those participated in organizing the Research Day at College of Pharmacy.

**Best Regards,**

**Hisham Aljadhey, *Pharm.D., PhD.***

***Dean, College of Pharmacy***





## Organizing Committee

### Girls Section

**Dr.Maha Mishal AlRasheed, PhD**

*Assistant Professor of Pharmacogenetics  
Clinical Pharmacy Department (chairperson)*

### Boys Section

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*Professor of Clinical Pharmacy  
Clinical Pharmacy Department,  
Director of Drug and Poison Information Centre*

**Dr. Tariq Mohammed Alhawassi , PhD**

*Assistant Professor of Clinical Pharmacy  
Medication Safety Research Chair*

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**Dr.Maha Mishal AlRasheed, PhD**

*Assistant Professor of Pharmacogenetics  
Clinical Pharmacy Department*

**Dr. Tariq Mohammed Alhawassi , PhD**

*Assistant Professor of Clinical Pharmacy  
Medication Safety Research Chair*

## Speakers and Moderators

**Dr. Dana Bakheet**

*Scientist and Chairman of Training and  
Education at Research Center of KFSH&RC  
Vice Dean and Associate Professor at  
College Of Medicine at Alfaisal University*

**Dr.Fadilah AlEanizy**

*Assistant Professor at Pharmaceutical and  
microbiology and biotechnology  
Pharmaceutics Department,  
College of Pharmacy  
King Saud University*

**Dr.Hadeel AlKofide**

*Assistant Professor  
Clinical Pharmacy Department,  
College of Pharmacy  
King Saud University*

**Dr. Haya AlMalag**

*Assistant Professor  
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**Dr. Ghada Bawazeer**

*Msc. , PharmD , BCPS  
Clinical Pharmacy Department,  
College of Pharmacy  
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**Dr. Nourah AlZoman**

*Associate professor  
Pharmaceutical Chemistry Department,  
College of Pharmacy  
King Saud University*



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**Nawal AlHarbi** , HSDG (logistic team)



قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ ۚ إِنَّمَا يَتَذَكَّرُ أُولُو  
{الْأَلْبَابِ}

سورة الزمر – آية رقم 9



# SCIENTIFIC PROGRAM

APRIL 13, 2016

(BOYS SECTION)





# BOYS

Time	Topic	Speaker and Group
10:30 - 10:40	Welcome Address	<b>Dr. Mohammed Nasir AlArifi</b> Professor of clinical pharmacy College of Pharmacy King Saud University  <b>Dr.Tariq Mohammed Alhawassi</b> Assistant Professor of Clinical Pharmacy College of Pharmacy King Saud University
Session I		
10:40-10:50	The Impact of a Continuing Education Program on Future Health Care Professionals’ Knowledge towards Generic Medicines at Pharmacy College in Central Region of Saudi Arabia	Omar Yakout, Ahmed Elmansy, Sammy Arafah
10:50 -11:00	Knowledge of Community Pharmacy about the Risks of Medication Use during Pregnancy and Lactation	Ali Alqahtani, Mahmoud Qabha, Naif Almotari ,Abdoallh Alhwerani
11:00-11:10	Knowledge and Attitudes about Vitamin D and Impact on Sun Protection Practices among people lives in Riyadh, Saudi Arabia	Meshal A. Al-Zaaqi, Ahmed S. Al-Malki, Faisal D. Al-Amri
11:10-11:25	Coffee Break	
Session II		
11:25-11:35	Evaluating The Impact of the Pictorial Warnings on Tobacco Products in GCC Countries Against Other International Pictorial Warnings: A Mixed Method Approach	Anwar Khalifa, Hossam Alanazi, Sadoun Alrouji
11:35-11:45	Evaluation of Knowledge and Attitude Towards Asthma Care in Hospital and Community Pharmacy Settings at Central Saudi Arabia	Majed F. Almutairi, Fawaz T. Alanzi, Musaed M. Alshahrani



<b>11:45-11:55</b>	Awareness of Dietary Supplements Use among Male Adults in Saudi Health Clubs	Ahmad Altwaijry, Marwan Alrasheed
<b>11:55 -12:05</b>	Assessment of Patients' Knowledge Towards Warfarin and Its Interactions in Outpatient Anticoagulant Clinic	Faisal Alotaibi , Mohammed Almasoud
<b>12:05-12:15</b>	Overutilization of Antipsychotics Use in Patients with Delirium Upon ICU Discharge	Solaiman M Alhawas , Abdulrahman Z Rahbeeni, Turki S Almutairi.
<b>12:15-12:25</b>	Population Pharmacokinetic of Vancomycin in Saudi Patients	Awad Alharbi , Fahad Bin Sulaiteen

<b>12:25-1:00</b>	<b><i>Prayer and Lunch Break</i></b>	
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<b>1:00-1:30</b>	<b>Awards and Closing Remarks</b>	<p><b>Dr.Hisham Aljadhey, <i>Pharm.D., PhD.</i></b> <i>Dean, College of Pharmacy</i></p> <p><b>Dr. Mohammed AlArifi , PhD</b> Professor of clinical pharmacy College of Pharmacy King Saud University</p> <p><b>Dr.Tariq Mohammed Alhawassi, PhD</b> Assistant Professor of Clinical Pharmacy College of Pharmacy King Saud University</p>
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# ABSTRACTS

(BOYS SECTION)





# **The Impact of a Continuing Education Program on Future Health Care Professionals' Knowledge towards Generic Medicines at Pharmacy College in Central Region of Saudi Arabia**

**Student(s) Names:** Omar Yakout, Ahmed Elmansy, Sammy Arafah.

**Supervisor(s) Names:** Dr. Mohammed N. Al-Arifi, Dr. Salmeen Babelghaith.

## **ABSTRACT:**

### **Background**

Nowadays the use of generic medicines have increased. Since generic medicines are cheaper than brand medicines and therefore save budgets on medicines. Many studies reported that pharmacy students had negative opinions about the quality, safety, and efficacy of generic medications. Therefore, health care providers' knowledge and perception towards generic medicine plays a key barrier to the promotion of generic medicines.

### **Objective**

To evaluated the impact of continuing education (CE) program on future health care professionals' knowledge towards generic medicines.

### **Methods**

A prospective, one-group and pre- and post-test design to assess the effects of education program on knowledge of future health care professionals towards generic medicines was used. The subjects of this study were final year of pharmacy students (Pharm D), a total of 24 Pharm Ds received continuing education (CE) intervention.

### **Results**

A total of 24 students participated in this study. About 91 % of the respondents indicated that they had heard about generic and branded medicines. Pharm D students' knowledge score significantly increased from 7.2 before the CE program to 9.4 after CE program intervention ( $P=0.001$ ).

### **Conclusions**

Overall, there were knowledge deficits among pharmacy students regarding generic medicines, however continuing education (CE) program in generic medicines plays an important role in the improvement of the knowledge of future health care professionals. We recommend an action to be taken to modify curricula to ensure better understanding of future practitioners about the use of generic medicine.



# Knowledge of Community Pharmacy about the Risks of Medication Use during Pregnancy and Lactation

**Student(s) Names:** AlQahtani Ali, Qabha Mahmoudm, Almotari Naif, AlHwerani AbdoAllh.

**Supervisor(s) Names:** Dr. Mohamed N. Al-Arifi, Dr. Salmeen D. Babelghaith.

## ABSTRACT:

### Objectives

To assess knowledge, and informational resources of community pharmacists about the safety of medication use during pregnancy

### Methods

A cross sectional study was carried over a 4 months period, a self- administered questionnaire was distributed to 350 community pharmacists. The data were analyzed using IBM-SPSS; version 22 both descriptive and inferential statistical analyses were applied.

### Results

A total of 256 participants out of 350 completed the survey (73 %). When asked about prescription medications, pharmacists were equally divided as to whether they consider valporic acid unsafe (48.8 %) or in need of a risk-benefit assessment (46.1 %). Similarly, 50.4 % of pharmacists considered phenobarbital unsafe, or require a risk-benefit assessment (44.1 %). But 91.4 % of pharmacists identified that isotretinoin is contraindicated. in addition, most of pharmacists considered alprazolam unsafe (69.7%). Regarding analgesics, 92.6 % of pharmacists thought that acetaminophen are safe in early pregnancy while 55.1 % of pharmacists believed that aspirin require a risk-benefit assessment. Two-third of pharmacists thought that amoxicillin is safe in first trimester. About dietary supplements, 48.4 % of pharmacists reported that vitamin A supplements are not safe to take in the first trimester, but 5.9 % said safe.

### Conclusions

Community pharmacists vary in their knowledge about the risks and safety of medications prescribed in pregnancy. The results highlighted the importance of establishing continuing efforts on the effects of medication use during pregnancy.



# Knowledge and Attitudes about Vitamin D and Impact on Sun Protection Practices among People Lives in Riyadh, Saudi Arabia

**Student(s) Names:** Meshal A. Al-Zaaqi, Ahmed S. Al-Malki, Faisal D. Al-Amri.

**Supervisor(s) Names:** Dr. Mohamed N. Al-Arifi, Dr. Salmeen D. Babelghaith.

## ABSTRACT:

### Background

Vitamin D deficiency is associated with numerous chronic diseases including cancer, heart disease and diabetes type 1 and 2.

### Objectives

To investigate the knowledge, attitude and practice towards vitamin D deficiency, sun exposure, supplementation and fortification in a sample of people who lives in Riyadh, Saudi Arabia.

### Methods

A cross sectional descriptive study to provide data that might help frame public health messages, we conducted an online survey among people who lives in Riyadh, Saudi Arabia, to determine knowledge and attitudes about vitamin D and associations of these with sun protection practices. Of the 1000 people invited to participate, 496 (49.6 %) completed the questionnaire.

### Results

Around 98.4% heard about vitamin D, most of them knew that the sun is important source of vitamin D, unfortunately only 46.4% who's like going out to sun. 93.1% knew the importance of vitamin D on health, and 48.4% knew the presence of relation between vitamin D deficiency and other diseases (diabetes, cardiovascular, and depression ..etc.). Around 52.2% of respondent suffering of muscle pain and fatigue, only few of them take treatment for it. Many of respondents reported that they achieve their VD requirement by sunlight exposure, vitamin D supplementation, Milk products, fatty fish, fruits, vegetables and eggs, respectively.

### Conclusions

Results showed some understanding towards the insight of vitamin D among Saudi people. The results emphasized the importance of establishing continuing education programs to the public helps structure more awareness and knowledge about vitamin D importance.



# Evaluating the impact of the pictorial warnings on tobacco products in GCC countries against other international pictorial warnings: a mixed method approach

**Student(s) Names:** Anwar Khalifa, Hossam Alanazi, Sadoun Alrouji

**Supervisor(s) Names:** Dr. Nasser F. Bin Dhim

## ABSTRACT:

### Background

The impact of pictorial warnings (PC) on tobacco products implemented in Gulf Cooperation Council Countries (GCC) have never been evaluated before.

### Objective

This study aims to establish the basis of why one would expect different effects from different PC and to compare the effect of the GCC PCs to those implemented in United Kingdom (UK) and Australia.

### Methods

In this cross-sectional study we've recruited a participants in 3 different samples ( Experts, participants from Saudi Arabia (SA), participants from United States (US)) each sample has rated 9 PCs ( 3 from UK, 3 from AU, and 3 from GCC).

### Results

Overall, 14 tobacco control experts were completed the experts' questionnaire. Total participants from SA was 111 and 115 from US.

For the image ranking we've used Friedman test which indicated a statistical difference in experts ratings of the PCs with a  $p < 0.001$ . Furthermore, there were significant difference in consumers ratings on the Brief Worry Scale ( $p < .001$  for both SA and US samples) and on the self-assessment manikin ( $p < .001$  for both samples).

Mixed model analysis has shown a significant differences between the PCs from AU and from GCC ( $p < .001$ ) and PCs from UK and those from GCC ( $p < .001$ ). In terms of experts rating, there was a significant differences between the PCs from Australia and the PCs from GCC ( $p < .001$ ) and PCs from UK and those from GCC ( $p < .001$ ).

Experts comments were overall negative about the PCs implemented in GCC.

### Conclusions

This study has showed that PCs originated from the GCC and currently implemented in Saudi Arabia were significantly of lower effect than those implemented in AU and UK.



# Evaluation of knowledge and attitude towards asthma care in hospital and community pharmacy settings at central Saudi Arabia

**Student(s) Names:** Majed F. Almutairi, Fawaz T. Alanzi, Musaed M. Alshahrani

**Supervisor(s) Names:** Dr. Mohamed N. Al-Arifi, Dr. Salmeen D. Babelghaith

## ABSTRACT:

### Aim

The purpose of this study is to evaluate the knowledge and attitude towards asthma care in hospital and community pharmacy settings at central Saudi Arabia.

### Materials and Methods

A cross-sectional study was carried out over a period of 2-month from July 2015 to August 2015. The study population involves pharmacists registered with the Health Affairs Directorate and was practicing in community pharmacy and hospital pharmacies.

### Results

More than two-third of participants (62.6%) claimed that they know the short-acting beta 2-agonist is the most efficient drug to relieve bronchial smooth muscle in acute attacks, about (34.2%) of them knew that the side effects of inhaled steroids and sympathomimetic drug. A very low percentage of participants know (16.2%) the knowledge of asthma pathophysiology. About 86.2% reported that poor asthma control is due to poor inhaler technique and 83.2%, did not know the appropriate time to use the peak flow meter. However, regarding attitudes, more than 97% of the pharmacists agreed to the need for special training and 99.4% reported that the person should learn education skills to become an asthma educator. Analysis based on pharmacist groups found hospital pharmacists had knowledge and attitude scores higher than community pharmacists, and the difference was significant ( $P < 0.05$ ).

### Conclusions

The study results revealed that the pharmacist is having low knowledge about pharmacotherapy of asthma and suggested for continuing education programs of pharmacy practitioners, can provide a more effective patient education, improve patient knowledge, and use inhaled medications properly.



# Awareness of dietary supplements use among male adults in Saudi health clubs

**Student(s) Names:** Ahmad Altwaijry, Marwan Alrasheed

**Supervisor(s) Names:** Dr. Wael Mansy

## ABSTRACT:

### Background:

Dietary supplements include vitamins, minerals, and other less familiar substances. Nowadays, supplements have been widely used in sports for different reasons. Lack of knowledge and using the supplements heavily without any indication or consultation may be harmful, in addition it could be waste of money.

This study aims to assess the prevalence and awareness of nutritional supplements' intake among male adults who exercise in gyms in Riyadh, Saudi Arabia.

### Methods

The study is cross sectional study; data will collected using a face-to face interview method in the fitness time health clubs. Participants were males and randomly chosen and the interview and survey are optional.

### Results

445 participants, 66.7% of them were between 18-25 years of age. About 75% of them either gained their university degree or still undergraduate. The most frequently consumed supplements were protein (55.7%), multivitamin (41%) and amino acids (35.2%). About 70% of supplement consumers didn't seek medical advice and half of them purchase their supplement supply overseas. The main source of the medical information about supplements was by using internet (52%). 63% of the participant believed that the supplements has positive impact on their exercise tolerance, and 61% believed the supplements will provide their bodies with extra energy.

### Conclusions

The high nutritional supplement consumption rate among exercisers in this study should draws attention of both youth and sport as well as SFDA authorities towards this age group of the Saudi community who not only self-prescribe their supplementation but didn't offered any medical supervision or even educational programs.



# Assessment of Patients' Knowledge towards Warfarin and its Interactions in Outpatient Anticoagulant Clinic

**Student(s) Names:** Faisal Alotaibi , Mohammed Almasoud

**Supervisor(s) Names:** Dr.Mohammed Alarifi , Dr. Salmeen D. Babelghaith.

## ABSTRACT:

### Background

Warfarin sodium has been widely used as anticoagulant since 1954. Drug-drug interactions and drug-food interactions influence on the compliance and success of drug treatment. Therefore deficiencies in the knowledge of patients about warfarin drug interactions/ food interactions could result in fluctuation in warfarin anticoagulant clinical outcomes that may lead to bleeds or clots and adverse medical consequences.

### Methods

This study is cross sectional study , data collected by survey design. The population were patients of anticoagulant clinic at King Khalid University Hospital, Riyadh city, Saudi Arabia. A questionnaire was used to collect the demographic data and knowledge of warfarin.

### Results

A total of 219 participated in this study, 170 of them were men and the mean age was 54.8 years. The majority of patients were known the indication of Warfarin. About 70% of them were aware about the interaction of Warfarin and Aspirin or other non-steroidal anti-inflammatory medications. Participants' knowledge on the effect of a missing a dose and its management (23.4%), the complications if their INR below the goal (42.1%) and for Warfarin and leafy green vegetables interactions were, however inadequate.

### Conclusions

This study found that patients had inadequate knowledge about warfarin and its interaction. An education program should be implemented to improve the patients' knowledge on warfarin and its interactions as well as patients' compliance.



# Overutilization of Antipsychotics Use in Patients with Delirium upon ICU Discharge

**Student(s) Names:** Solaiman M. Alhawas , Turki S. Almutairi , Abdulrahman Z. Rahbeeni

**Supervisor(s) Names:** Dr. Mohammad Aljawadi

## ABSTRACT:

### Background

Antipsychotics are commonly used in practice to treat delirium in intensive care unit (ICU). However, many patients end being discharged from the ICU on them.

**Objective:** To determine antipsychotics overutilization and its predictors among patients with delirium in the ICU.

**Design:** Retrospective cohort study.

**Setting:** Electronic ICU research institute data repository which includes 34 health systems from 2008 to June of 2014 dealing with more than 300 hospitals over 34 states across USA.

**Participants:** Adults diagnosed with delirium. The sample included 16173 patients after applying exclusion criteria.

### Results

In this cohort, mean age was 64.5 years (SD =15.8) and 52% of patients were male. The main ethnic group was Caucasian (83.2%) followed by African American (8.2%) and others (8.6%). Most frequently reported comorbidities were heart diseases (38.5%), Acute Respiratory Distress Syndrome (31.5%) and Acute Kidney Injury (16.5%). Haloperidol, quetiapine and olanzapine respectively were most commonly prescribed antipsychotics.

Out of the 16,173 patients, incidence of antipsychotics was 32%. Approximately, 26% of discharged patients continued on antipsychotics. In addition, 4.5% of total sample size were discharged from the hospital with antipsychotics.

### Conclusions

Due to the side effects and the cost burden of these findings, they shed the light on the importance of discontinuing antipsychotics upon discharge. Pharmacists should have a role in preventing inappropriate use of antipsychotics by making a policy for their utilization. Further investigation is required for this issue in KSA.



# Population Pharmacokinetic of Vancomycin in Saudi Patients

**Student(s) Names:** Awad Alharbi , Fahad Bin Sulaiteen

**Supervisor(s) Names:** Prof. Hisham Abou Auda

## ABSTRACT:

### Objectives

The identification of population pharmacokinetic parameters of Vancomycin in Saudi patients to get optimum dosing regimen that should achieve maximum benefit of Vancomycin with less adverse effects. Population pharmacokinetic models and equations will be developed for this purpose .

### Methods

A retrospective cohort study was conducted in KSUMC. Eighty-nine adult and adolescent Saudi patients admitted to KSUMC and received Vancomycin were included in this study. Patients other than Saudi, patients with chronic kidney disease, and pregnant female patients were excluded. All of data were collected through patients' charts by using the electronic system.

### Results

Significant differences in vancomycin trough levels were observed between males and females (11.4 mg/L and 14.9 mg/L,  $p=0.039$ ). Also significant differences ( $p<0.0001$ ) were found between nephrotoxicity and non-nephrotoxicity groups (25.3 mg/L vs. 11.4 mg/L, respectively). Diabetic and hypertensive patients have significantly higher trough levels of vancomycin compared with non-diabetic and normotensive patients. Patients administering bisoprolol have higher trough levels of vancomycin whereas phenytoin reduced vancomycin trough level below the therapeutic range. The total body clearance of vancomycin in these patients averaged  $142.64 \pm 20.67$  mL/min and creatinine clearance was found to be  $121.5 \pm 8.6$  mL/min. Vancomycin clearance based on the reported population equations was determined to be  $91.2 \pm 6.5$  mL/min. The correlation between vancomycin clearance ( $CL_{\text{vanco}}$ ) and creatinine clearance ( $CL_{\text{cr}}$ ) was assessed in these patients. The relationship can be described in terms of the regression equation ( $CL_{\text{vanco}} = 76.5 + 0.875 CL_{\text{cr}}$ ) ( $r=0.364$ ,  $p<0.0001$ ).

### Conclusions

Accurate clinical pharmacokinetic parameters of vancomycin in Saudi population were determined. The effect of concomitant medications and concurrent diseases on these parameters was also explored. Several equations were developed and validated for the prediction of the expected vancomycin trough levels in critically-ill patients that could be useful in improving vancomycin treatment to potentially avoid the increased risk of nephrotoxicity.





*“IMAGINATION is the Highest Form of Research “*

*— Albert Einstein*



# SCIENTIFIC PROGRAM

APRIL 14-2016

(GIRLS SECTION)





# GIRLS

Time	Topic	Speaker and Group
8:00-9:00	Registration	
9:00-9:20	Success in Research	Dr. Dana M. Bakheet, PhD Scientist and Chairman of Training and Education at Research Center of KFSH&&RC Vice Dean and Associate Professor at College of Medicine at Alfaisal University
9:20	Welcome Address	Dr.Maha M. AlRasheed, PhD Committee Chairperson (2 <sup>nd</sup> Pharm.D. Internship Research Day)
9:25	Opening Remarks	Dr.Nadia Al-Ghreimil, PhD Dean of Science and Medical Studies
9:30		Dr. Nouf AL-Rasheed, PhD Associate Professor, Vice Dean , College of Pharmacy Pharmacology Department
Session I , Chair		
	Dr. Nourah AlZoman , PhD	Dr.Fadilah AlEanizy , PhD
	Pharmaceutical Chemistry Department	Pharmaceutics Department
9:35-9:45	Mutation Identification in DOLK Gene in Saudi Family with Dilated Cardiomyopathy	Rana Almohaimeed and Asma AlFarhan
9:45-9:55	Metformin as an Adjuvant Therapy to Gonadotropins Among Patients with Polycystic Ovary Syndrome PCOS Undergoing in-Vitro Fertilization	Reem AlGasem and Lama AlMutairi
9:55-10:05	Assessment of Dietary Folic Acid Intake Burden of Oral Therapy and Adherence among Saudi Patients on Maintenance Hemodialysis: A Single Center Study	Marwah Saeed, Nourah Aldeaiji , Rawan Idris and Feriel Salha
10:05-10:15	The Effect of Depression on Medication Adherence in Systemic Lupus Erythematosus	Meshael Al.Rasheed and Nada AlSowaida
10:15-10:30	Coffee Break	
Session II , Chair		



**Dr.Ghada Bawazeer, MSc , Pharm.D.**

***Clinical Pharmacy Department***

- 10:30-10:40** Chemotherapy Utilization in Intensive Care Units and Its Association with Mortality among Patients with Leukemia
- 10:40-10:50** Clinical Pharmacokinetics of Tacrolimus in Saudi Patients: The Influence of Clinical Markers & Concomitant Medications
- 10:50-11:00** A Study of the Role of PAX8 Gene Polymorphism in The Manifestation and Drug Therapy of Differentiated Thyroid Cancer
- 11:00-11:10** The Difference Between Creatinine Clearance Calculated by Cockcroft & Gault Equation and 24-Hour Urine Collection, A Retrospective Study in Saudi Population.
- 11:10-11:20** Measuring The Pharmacy Student Confidence on The Knowledge They Acquired Pre-Graduation and After the Internship
- 11:20-11:30** The Association Between Vitamin D Deficiency and Prostate Cancer: Case Control Pilot Study in KFMC, Riyadh, Saudi Arabia
- 11:30-11:40** Clinical and Molecular Characterization of Patients with Long QT Syndrome(LQTS) in Saudi Patients
- 11:40-11:50** Effect of Ranolazine on Glycemic Markers: A Systematic Review and Meta-Analysis.
- 11:50-12:00** Assessment of Primary Care Pharmacists' Knowledge about Diabetes Management During Ramadan
- 12:00-12:10** Prevalence, Risk Factors and Protective Measures for Helicobacter Pylori Infection in Saudi Population, Case Control Study

**Dr. Haya AlMalag , PhD**

***Clinical Pharmacy Department***

- Shahd AlNasser , Samaher AlAtmi and Faten AlDajani
- Amal AlNowaiser, Mona AlHarbi , Noha AlJomah , Nourah AlAndas and Wafa AlShehre
- Hadeel AlHarbi , Burouj Alsaad , Sena AlNajrani and Rawan AlMadhi
- Rawan Alzaidi , Sarah Kadasah , Wesal AlAlayet and Sarah Alzahrani
- Reem AlHaider , Saja AlGwafli Hanin AlJohani , and Kholud AlNekhlan
- Eman AlGarni , Nujud Hajj , Fawzia Al-Woghaid and Dalal Aldahmashi
- Nouf AlBishi , Wafa AlSelmi and Ghadah AlRshidi
- Hadeel Jaber , Dana Allan and Mouqina Eltahir
- Alaa Mushtahi , Duaa Afdar and Mona AlGhadbani
- Afnan AlShehri , Alaa AlDuraihm , Najd AlOtaibi and AlJawhara bin Shahbal

**12:10-1:10**

***Prayer and Lunch Break***

**1:10-1:30 Research Ethics and the Role of IRB**

**Dr.Hadeel Alkofide, PhD**  
Assistant Professor of Clinical Pharmacy

**1:30-1:45 Awards and Closing Remarks**

**Dr.Nadia Al-Ghreimil, PhD**  
Dean of Science and Medical Studies  
& **Dr.Maha M. AlRasheed, PhD**  
Committee Chairperson (2<sup>nd</sup> Pharm.D. Internship Research Day )



# ABSTRACTS

(GIRLS SECTION)





# Mutation Identification in *DOLK* Gene in Saudi Family with Dilated Cardiomyopathy

**Student(s) Names:** Asma AlFarhan, Rana Almohaimeed.

**Supervisor(s) Names:** Maha AlRasheed, MSc. PhD, Zuhair Alhassnan, M.D.

## ABSTRACT:

### Background

Familial dilated cardiomyopathy (DCM) is genetically heterogeneous, characterized by left ventricular enlargement, systolic dysfunction and a reduction in myocardial contraction. Mutations in more than 30 genes have been linked to DCM, which mostly inherited in an autosomal dominant pattern. This study aims to identify the responsible mutations of DCM in Saudi population.

### Methods

In a consanguineous family, blood samples were obtained from the affected patient, his parents, and 2 of his normal siblings. DNA was extracted using an automated AutoGenFlexSTAR. Whole genome sequencing was run using next generation sequencing which revealed a mutation in the *DOLK* gene. Which warranted further consideration and confirmation by Sanger sequencing. Intronic primers were designed to flank (50–100 bp) of the coding exons (as defined by Ensembl Genome Browser). Polymerase chain reaction (PCR) performed through Veriti™ 96-Thermal Cycler and checked on 1.5% agarose gel. Applied biosystems 3730xl DNA analyzer was used to screen for mutations. Data was analyzed by DNASTAR's Lasergene Sequence Analysis Software. Biochemical data were extracted from patients' files.

### Results

A missense homozygous c.1222C>G mutation in *DOLK* was identified, resulting in the substitution of histidine to aspartic acid at position 408 (p.H408D) which is a highly conserved amino acid. Parents were heterozygous carriers; one of the normal siblings was carrier whereas the second was homozygous for the normal allele.

### Conclusions

Our data demonstrate that *DOLK* is the causative gene for recessive DCM in our Saudi population.



# Metformin as an adjuvant therapy to gonadotropins among patients with polycystic ovary syndrome PCOS undergoing in-vitro fertilization

**Student(s) Names:** Reem Walid Al-Gasem, Lama Turki Al-Mutairi

**Supervisor(s) Names:** Dr. Yazed Al- Ruthia, Dr. Wael Mansy Assistant Professors, College of Pharmacy, King Saud University

## ABSTRACT:

### Background

Polycystic ovary syndrome (PCOS) is a common endocrine disorder in women all over the world at reproductive age. Many women with PCOS receive a short-term metformin treatment alongside gonadotropins during the in vitro fertilization (IVF) to increase their chance of pregnancy. The aim of this study was to evaluate the efficacy of metformin in improving the rates of successful pregnancy among women with PCOS undergoing IVF.

### Methods

This was a retrospective cohort study of women with PCOS aged 18-45 years undergoing IVF during the period of 2006-2012 at a university hospital in Riyadh, Saudi Arabia. Baseline data of patient menstrual frequency, biochemical parameters such as fasting serum insulin concentration (FSIC), comorbidities, as well as the rates of ovulation and pregnancy was collected. The rates of pregnancy were also compared among different subgroups based on patient body mass index (BMI).

### Results

A total of 210 women with PCOS were included in the final analysis in which 109 of them received metformin in addition to gonadotropins. Patients who received metformin were 16% less likely to get pregnant in comparison to their counterparts who did not receive metformin (OR=0.840; 95% CI 0.710-0.993;  $P=0.0415$ ) controlling for their baseline prolactin level, testosterone level, lipid panel, FSIC, fasting plasma glucose concentration (FPGC), comorbidities, duration of infertility, metformin daily dosage, and the use of clomiphene and/or leuprolide.

### Conclusions

Metformin co-treatment during IVF may have a negative impact on pregnancy rates. Well-designed, double-blinded, placebo-controlled, randomized clinical trials are needed to confirm the findings of this study.



# Assessment of Dietary Folic Acid Intake, Burden of Oral Therapy and Adherence among Saudi Patients on Maintenance Hemodialysis: a Single Center Study.

**Student(s) Names:** Feriel Ben Salha, Noura AlDuaiji, Marwah Saeed, Rawan Idris.

**Supervisor(s) Names:** Ahmed Tarakji, Assistant Professor, Department of Medicine, KSU. Ghada Bawazeer, Assistant Professor. Mohammed Al-Jawadi, Assistant Professor. Ibrahim Sales, Assistant Professor, Department of Pharmacy, KSU.

## ABSTRACT:

### Background

Hemodialysis possesses potential challenges for patients with CKD. Nutritional deficiencies, complex medication regimens, and the potential of non-adherence are among the most concerning issues for patients and healthcare professionals. Folate is among the vitamins lost through dialysis, so folate supplementation is a common practice. The aim of this study was to assess the adequacy of dietary folate intake, the burden of oral therapy, and the rate of medication adherence among Saudi patients on maintenance hemodialysis (MHD).

### Methods

A cross sectional study of both gender, age  $\geq 18$  years, and on MHD ( $> 3$  months) attending dialysis unit in KSUMC. We applied 3 survey instruments: 1) Folate rich food survey, 2) Perceived burden of oral therapy survey, and 3) Morisky-4 medication adherence scale (MMAS-4).

### Results

Fifty four patients met eligibility criteria with mean age of 57 years  $\pm 15.5$ , female (63%), diabetes (43 %) and hypertension (76 %) were the most prevalent comorbidities. Average number of medications/patient was  $13 \pm 3.6$ . Majority of patients (68.5%) were receiving folate supplementation. The average dietary folate intake was 823 mcg/day  $\pm 530$ . MMAS-4 showed small proportion of high (20%) and low (17%) adherence rates while most of patients were moderately adherent (63%). Pill burden was mainly bothersome due to taking too many medications (57%), while taking medications at work place was the least (17%) bothersome burden.

### Conclusions

Folate supplementation in Saudi patients on MHD may not be necessary in light of their adequate dietary Folate intake, their high pill burden, and suboptimal medication adherence.



# The Effect of Depression on Medication Adherence in Systemic Lupus Erythematosus

**Student(s) Names:** Meshael Alrasheed, Nada Alsowaida.

**Supervisor(s) Names:** Ahmed Mayet, PharmD. BCPS, College of Pharmacy. Abdulkareem Alsowaida, MD, KCUH. Mohammed Omair, MD, KCUH.

## ABSTRACT:

### Background

Depression which is the most common neuropsychiatric disorder associated with SLE is one of the strongest predictor found in literature that may lead to patients non-adherence to treatment regimens. We set to assess the prevalence of both depression and medication non-adherence among Saudi SLE patients and to examine the relationship between these two factors as well as all other predictors that may lead to them.

### Methods

A prospective cross-sectional study of SLE patients conducted at King Khalid University Hospital clinics. Patients were assessed using Beck's Depression Inventory (BDI) for the presence of depression, Morisky Medication Adherence Scale (MMAS-4) for adherence to treatments and SLE Disease Activity Index (SLE-DI) for disease activity status. Logistic regression analysis was used to evaluate all the predictors for the study measures.

### Results

A total of 140 patients with SLE were included in our study with a mean age of ( $\pm$ SD) 35.6 ( $\pm$ 11.3) years and a mean disease duration of ( $\pm$ SD) 8.8 ( $\pm$ 6.7) years. Forty-nine (35%) fulfilled the criteria of depression and medication non-adherence was reported in 87 (62.1 %). Severity of depressive symptoms was strongly associated with medication non-adherence (OR 2.62; 95%CI 1.02-6.71;  $p=0.04$ ) after accounting for all other predictors. Disease activity was associated with depression as a strong predictor (OR 1.12 for every one unit increase in the score; 95%CI 1.04-1.21;  $p=0.004$ ). Medication adherence was not significantly related to disease activity.

### Conclusions

Medication non-adherence and depression are highly presented among Saudi patients with SLE. Patients with depressive symptoms are more likely to report medication non-adherence. Early detection and interventions aimed at alleviating depressive symptoms, which are quite common, could result in significant improvements in patient adherence to treatment regimens.



# Chemotherapy Utilization in Intensive Care Units and its association with Mortality among Patients with Leukemia

**Student(s) Names:** Samaher Al.Atmi, Shahd Al.Nasser, Faten Al.Dajani.

**Supervisor(s) Names:** Dr.Mohammed Al.Jawadi ( PharmD, MS, PhD, Assistant Professor) and Dr.Khalid AlSaleh (Head of Hematology& Oncology Division, KKHU).

## ABSTRACT:

### Background

Few studies have explored chemotherapy utilization in intensive care units (ICU) among leukemic patients. The association between ICU mortality and chemotherapy receipt is not often explored. Therefore, this study aims to determine chemotherapy prevalence among leukemic patients admitted to the ICU, describe the characteristics of these patients and determine the impact of chemotherapy utilization on ICU mortality.

### Methods

Retrospective, observational study, Philips eICU Research Institute participating ICUs between January 1, 2008, and June 30, 2014, representing 1,905,419 intensive care unit patients. 1529 patients with leukemia who met the study criteria within the ICU stay were included.

### Results

Over the study period, we identified 1529 adult patients with Leukemia, Mean (SD) age was 66 (15.4) years and Mean (SD) APACHE IV score was 75 (28.02). Chemotherapy prevalence during ICU stay was 17.2%, the most common comorbidities in those patients were pulmonary infection (33%), diabetes mellitus (26%), and neutropenia (20%). The ICU-mortality among patients who received chemotherapy compared to those who did not were (20.15% vs. 23.06%,  $P=0.303$ ) respectively. Logistic regression analysis showed insignificant association between chemotherapy use during ICU with ICU-mortality (odds ratio, 1.08; 95% confidence interval, 0.74-1.60). Two variables were associated with ICU-mortality: APACHI IV score (odds ratio, 1.04; 95% confidence interval, 1.03-1.04) and acute renal failure (odds ratio, 3.14; 95% confidence interval, 2.34-4.23).

### Conclusions

Receiving chemotherapy has no significant effect on ICU-mortality. However, The ICU mortality was mainly dependent on APACHI IV score and acute renal failure.



# Clinical Pharmacokinetics of Tacrolimus in Saudi Patients: the Influence of Clinical markers & Concomitant Medications

**Student(s) Names:** Amal Al-Nowaiser , Muna Al-Harbi , Nuha Al-Jumah , Nourah Al-Andas and Wafa Al-Shehre.

**Supervisor(s) Names:** Prof . Hisham Abou-Auda, Professor of clinical pharmacy, KSU; Dr. Manal Abou-Elkheir, Clinical pharmacist, KSUMC, and Dr. Ahmed Mayet, Associate professor of clinical pharmacy, KSU.

## ABSTRACT:

### Background:

Tacrolimus (TAC) is one of the most commonly used immunosuppressant agent. The narrow therapeutic window and the wide inter-patients variability in TAC pharmacokinetics post a great challenge. Early optimization of TAC dosing is important to ensure efficacy with minimum adverse effects.

### Objective:

To determine TAC pharmacokinetics in Saudi patients, develop a predictive equation to individualize TAC dosing, and to identify factors affecting TAC pharmacokinetics.

### Methods:

Data were retrieved through chart review of 144 patients on TAC at KSUMC from Jun.2014 to Feb.2016. Trough TAC concentrations were measured in blood and plasma. Data on clinical markers (such as Hemoglobin, hematocrit, albumin,...etc) and concomitant medications were collected to identify factors that may affect TAC pharmacokinetics.

### Results:

TAC trough concentrations from blood and plasma averaged  $5.96 \pm 0.19$  mcg/L and  $1.03 \pm 0.03$  mcg/L, respectively. Blood concentration/Dose (C/D) ratio averaged  $2.75 \pm 0.15$ . The plasma clearance of TAC was 5.9 times the blood clearance ( $137.8 \pm 13.7$  L/hr vs.  $27.95 \pm 5.84$  L/hr). The maximum binding concentration ( $B_{max}$ ) to erythrocytes was estimated to be 26.32 mcg/L with an equilibrium dissociation constant ( $K_D$ ) of 0.73 mcg/L. The TAC volume of distribution ( $V_d$ ) averaged  $64.27 \pm 3.64$  L. The patient's hematocrit level was identified as one of the most significant factor that affect TAC level ( $r=0.416$ ,  $p<0.0001$ ), the resulted individualized predictive equation is  $[Plasma=0.69+0.065 \times Blood-0.002 \times Hematocrit\%]$ . Patients on concomitant amlodipine, bisoprolol, insulin or ranitidine have significantly ( $p<0.05$ ) higher TAC blood levels and C/D ratio, and lower plasma clearance.

### Conclusions:

A population model of TAC in Saudi patients was developed and validated. The developed predictive equations can be useful to optimize TAC dosing in routine clinical practice.



# A Study of the Role of PAX8 Gene Polymorphism in the Manifestation and Drug Therapy of Differentiated Thyroid Cancer

**Student(s) Names:** Bouroj AlQahtani , Hadeel AlHarbi, Rawan AlMadi , Sena AlNajrany

**Supervisor(s) Names:** Maha AlRasheed. MSc.PhD. Nduna Dzimiri .PhD.

## ABSTRACT:

### Background

The paired box gene 8 (*PAX8*), is a critical regulator of differentiation of thyroid follicular cells. Differentiated thyroid cancer (DTC) patients are managed by total thyroidectomy and radioiodine ablation, requiring L-Thyroxine (LT4) therapy. There is a wide variation in the L-T4 dose requirement, possibly due to an underlying genetic cause. In addition, *PAX8* gene has been recently investigated as a useful marker of thyroid epithelial neoplasms, but the data available in this regard is limited. Therefore, our study aims to evaluate the association of *PAX8* gene polymorphism with the L-T4 dose requirements and with the risk of developing DTC in the Saudi population.

### Methods

Four *PAX8* SNPs, rs2019137, rs144041400, rs1077855 and rs3188996 were selected from an initial study involved *PAX8* sequencing in 200 individuals using the MegaBACE DNA analysis system. Association studies for the four SNPs were accomplished in 403 cases versus 446 controls by rtPCR using Taqman chemistry with the ABI Prism 7900HT sequence detection system.

### Results

The association study was performed on four *PAX8* variants showing that the G allele [OR (95%CI) =0.49(0.16-1.49); p=0.002] of the rs3188996A>G is significantly associated with DTC risk, independent of age and sex, [OR (95%CI) = 0.43(0.25-0.75); p=0.003]. Also, the same variant rs3188996\_G (p=0.03) was significantly associated with higher thyroxine requirement, while rs144041400\_T (p=0.06) showed borderline association in the near suppressed TSH patients group (TSH<0.1).

### Conclusions

We identified one *PAX8* variant as a risk for DTC. The results also demonstrated an association of the same variant with the variation in the requirement for T4 dose in our population.



# The Difference Between Creatinine Clearance Calculated by Cockcroft & Gault Equation and 24-Hour Urine Collection, A Retrospective Study in Saudi Population.

**Student(s) Names:** Rawan Alzaidi, Wesal Alalayet, Sarah Alzahrani, and Sarah Kadasah.

**Supervisor(s) Names:** Nora kalagi, Msc. Haya Alsallum, Msc.

## ABSTRACT:

### Background

Cockcroft & Gault equation is the most widely used equation for estimation of creatinine clearance. However, the validation of this equation has not been studied sufficiently in our Saudi population. We aim in this study to evaluate the validity of Cockcroft & Gault equation through comparing it to the standard measurement of creatinine clearance by 24-hour urine collection. Secondary objectives include the evaluation of the equation based on gender and body mass index (BMI) .

### Methods

In this study, a cross sectional retrospective quantitative analysis was conducted, involving a random sample of patients underwent a 24-hour urine collection at KCUH. Wilcoxon signed ranks test and Pearson's correlation were used to compare the results, which were expressed as means and standard deviations using SPSS version 21. P-value of < 0.05 was considered significant.

### Results

The study included 222 (61%) females and 141 males (39%) with a mean age of  $40.6 \pm 11.9$  years and a mean weight of  $79 \pm 22.5$  kg. The mean serum creatinine was  $124 \pm 126.6$   $\mu\text{mol/L}$ . The mean creatinine clearance measured by 24-hour urine collection was  $75.3 \pm 43.7$  ml/min compared to  $70.5 \pm 32.6$  ml/min estimated by Cockcroft & Gault equation. The correlation coefficient between Cockcroft & Gault equation and 24-hour urine collection was ( $r = 0.53$ ,  $P < 0.0001$ ).

### Conclusions

There is a moderate positive correlation between Cockcroft & Gault equation and the standard 24-hour urine collection in our Saudi population. The 24-hour urine collection method should still be used when an accurate evaluation of creatinine clearance is warranted.



# Measuring The Pharmacy Student Confidence On The Knowledge They Acquired Pre-Graduation And After The Internship

**Student(s) Names:** Hanin AlJohani, Kholud AlNekhlan, Reem AlHaider, Saja AlGwafli

**Supervisor(s) Names:** Dr. Lobna AlJuffali.

## ABSTRACT:

### Background

Self-confidence, is the belief in oneself and abilities, for pharmacy students is a critical factor for its academic and practice outcome. The aim of this study was to identify the percentage of students who have confidence in the knowledge they acquired from studying in the university, examine the impact of the training on the student's confidence and understand the factors that affect student's confidence.

### Methods

It is a cross-sectional study; the data collected by online questionnaires from undergraduate pharmacy students in King Saud University and the students who have completed internship.

### Results

The response rate was 89.5 %. Twenty-five males (32.4 %) and 52 females (67.5 %) of total 77 students. Overall, 45 (58.4 %) of students were confident in the knowledge they acquired from studying in the university. Twenty-eight (71.8 %) and 17 (44.7 %) of the pre-graduate and post-graduate students were highly confident, respectively.

Knowledge base and pharmaceutical care subscale showed high significant on the students' confidence. Thirty-seven (48.1 %) of the total students were significantly highly confident ( $P=0.016$ ). Twenty-five (64.1 %) and 12 (31.6 %) of the pre-graduate and post-graduate students, respectively. Only one demographic variable was found as significant predictor of students' level of confidence which is mother's level of education for knowledge base and pharmaceutical care subscale.

### Conclusions

The study showed pre-graduate students are more confident than post-graduate according to the knowledge they acquired from studying in the university. This emphasizes the importance of developing methods to enhance student confidence with knowledge/skills prior to entering practice.



# The Association between Vitamin D Deficiency and Prostate Cancer Risk: Case-Control Pilot Study in KFMC, Riyadh, Saudi Arabia

**Student(s) Names:** Fawzia D. Al-Woghaid, Eman A. Al-Garni, Dalal B. Al-Enizi, & Nujud K. Al-Hejaij.

**Supervisor(s) Names:** Dr.Wael H. Mansy, Dr.Eyad F. Al-Saeed, Dr.Ohoud M. Al-Arfaj, & Dr.Hibah J. Salamah.

## ABSTRACT:

### Background

Vitamin D deficiency is highly prevalent in Saudi Arabia. Some evidence suggests a correlation between vitamin D deficiency and prostate cancer incidence, progression, and associated complications as well. Our study is aimed to measure the association between vitamin D deficiency and prostate cancer risk in Saudi population.

### Methods

A total of 12 ambulatory prostate cancer cases were enrolled and matched for sex and season of serum sample with a 12 non-cancer controls chosen randomly from internal medicine and anticoagulant clinics. Data were collected prospectively from King Fahad Medical City. All patients with 25-OH vitamin D assays were included and patients on vitamin D supplements were excluded from the study. Factors influencing vitamin D status such as age and BMI were evaluated using univariate and multivariate analysis.

### Results

The mean 25-OH vitamin D level was 53.75 nmol/L in those with prostate cancer and 47.9 nmol/L in controls. The frequency of vitamin D deficiency ( $< 50$  nmol/L) was 67% in cases while it was 83% in controls. Age ( $p = 0.269$ ) and BMI ( $p = 0.444$ ) were not associated with vitamin D deficiency in both groups. There was no association between low 25-OH vitamin D levels and prostate cancer risk (OR = 0.4,  $p = 0.984$ ).

### Conclusions

Our pilot study shows no association between vitamin D deficiency and prostate cancer risk. Hence, maybe there is no role of vitamin D therapy in the prevention of prostate cancer in Saudi males. Further studies are needed to support our results.



# Clinical and Molecular Characterization of Patients with Long QT Syndrome in Saudi Patients

**Student(s) Names:** Ghadah H. Al-Rashdi, Nouf A. Al-Bishi, Wafa A. Al-Selmi.

**Supervisor(s) Names:** Dr. Maha M. Al-Rasheed . MSc. PhD. Assistant Professor of Pharmacogenetics KSU & Dr. Zuhair N. Al-Hassnan,MD. Professor of Genetics, College of Medicine, Alfaisal University, KFSHRC.

## ABSTRACT:

### Background

Long QT syndrome (LQTS) is an inherited cardiac disorder characterized by prolongation of Q-T interval, ventricular arrhythmias and syncope which may lead to sudden cardiac death. Romano-Ward (RWS) and Jervell and Lange-Nielsen Syndromes (JLNs) are two different forms of congenital LQTS. RWS is an autosomal dominant, while, JLNs is an autosomal recessive. This study aims to identify the responsible mutations in RWS & JLNS in Saudi population.

### Methods

Twelve participants from three unrelated Saudi Families were screened for genetic mutations. DNA was extracted from whole blood. Primers were designed to include exon and intron boundaries for *KCNE1*, *KCNQ1*, *SCN5A*, *KCNE2* and *KCNH2* genes. Polymerase chain reaction performed through Veriti Thermal Cycler and checked on 2% agarose gel. BiomekNXp DNA analyzer was used to screen for mutations, and data were analyzed by Seqman software.

### Results

Two different mutations were identified in *KCNQ1* gene in two families. In one family, a homozygous mutation c.1663C>T (p.R555C) was found in 3 years old girl presented with syncope and deafness characterizing JLNS. In the other family, different homozygous mutation in intron-1 of *KCNQ1* (c.387- 5 T>A) was found in 2 years old affected girl who died and heterozygously in two affected siblings with prolonged QTc of 520 ms which characterizing RWS.

### Conclusions

Two mutations have been identified to be causative of LQTS in our study. In many cases, the first clinical manifestation of LQTS is sudden death at a young age in the mutation carriers. So, screening of mutations to identify the risk population in this region could be considered.



# Effect of Ranolazine on Glycemic Markers: A Systematic Review & Meta-analysis

**Student(s) Names:** Dana Allan, Hadeel Jaber, Mougina Eltahir

**Supervisor(s) Names:** Ghada Bawazeer, Hadeel ALkofaidi, Ibrahim Sales, Mohammed Aljawadi.

## ABSTRACT:

### Background

Ranolazine (RAN) is an anti-anginal medication that has been shown in previous randomized clinical trials to improve glycemic markers in patients with and without diabetes.

### Purpose

To assess in a meta-analysis the effect of RAN on glycemic markers including HbA1c, fasting blood glucose and postprandial blood glucose and the occurrence of hypoglycemia in patients with and without diabetes.

**Date sources:** MEDLINE, EMBASE and Clinical Trials Registry from the initial marketing approval of RAN through February 2016, in addition to hand-searching of the included studies.

**Study selection:** Randomized, quasi-randomized trials or their post-hoc analyses in patients with or without diabetes that reported the effect of RAN versus placebo or active control, with a follow-up of at least 12 weeks.

**Data extraction and synthesis:** Three reviewers extracted data on the study population, interventions, outcome measures, and adverse events. We used the Cochrane risk of bias assessment tool for study quality assessment.

### Results

Eight studies were eligible for meta-analyses with a total study population of 5680 subjects. Compared to control, RAN decreased HbA1c by -0.41 (-0.62, -0.21), p value = 0.0001. Patients achieving HbA1c <7% was higher in the RAN group OR = 1.65 (1.40, 1.93), p value 0.00001. There was no statistically significant difference between RAN and control on hypoglycemia events OR = 1.27 (0.84, 1.91), p value= 0.26. Effects of RAN on FBG and PPG will be reported later.

### Conclusions

Ranolazine improves glycemic markers with no additional risk of hypoglycemia.



# Assessment of Primary Care Pharmacists' Knowledge about Diabetes Management in Ramadan in Riyadh, Saudi Arabia

**Student(s) Names:** Alaa Mushtaha , Duaa Afdar and Mona Alghadbani

**Supervisor(s) Names:** Dr. Jawza Fahd Al-Sabhan.

## ABSTRACT:

### Background:

Diabetic Muslims who intend to fast Ramadan can face many problems if they weren't educated properly about their medication adjustment. Our study aims to assess primary care pharmacists' knowledge regarding diabetes management during Ramadan in Riyadh and predict their willingness to attend a workshop about that.

### Methods

A descriptive cross-sectional study targeting pharmacists working at primary care centers in Riyadh was performed. A previously validated questionnaire consisting of 4 domains (subject demographics; experiences with diabetic patients; knowledge of appropriate patient care during Ramadan fasting; and attitudes towards potential pharmacist responsibilities) was distributed by hand and via e-mail. The analysis was done by SPSS software.

### Results

The data was collected before the month of Ramadan of 2016 from 61 primary care pharmacists. About 65% of pharmacists reported at least once weekly interaction with diabetics during Ramadan. Only 12% of participated pharmacists were aware of and had read the American Diabetes Association Ramadan consensus document. Of the 5 questions related to medications, only two were answered correctly by more than 50% of participants. The main barriers they face are lack of private area, and workload. However; the majority of pharmacists have the desire to provide patients with more advises and are willing to attend a workshop in this regard.

### Conclusions

Riyadh primary care pharmacists' face many barriers in their practice, but are motivated and willing to improve their knowledge and roles in diabetes management in Ramadan.



# Prevalence, Risk Factors and Protective Measures for Helicobacter Pylori Infection in Saudi Population, A Case-Control Study

**Student(s) Names:** Afnan Alshehri , Alaa Aldrihem , Aljawhara Shahbal , Najd Alotibi.

**Supervisor(s) Names:** Prof. Hisham Abou-Auda – Professor of Clinical Pharmacy, Dr. Manal Abou-Elkheir - Clinical Pharmacist and Dr. Ahmed Mayet Assistant Professor at clinical pharmacy.

## ABSTRACT:

### Background

Approximately two-thirds of the world's population is infected with *H. Pylori* (HP). It is one of the most common causes of gastritis, peptic ulcer and it is a risk factor for gastric cancer.

### Objective

To investigate the prevalence, risk factors, and possible protective measures of HP infection in Saudi population.

### Methods

Charts for 575 gastritis patients who underwent endoscopy at KSUMC over the period Jan.2014-Dec.2015 were reviewed. The prevalence of HP were calculated. A phone interviews were conducted with them using a structured questionnaire to assess their risk factors for HP. An additional 186 normal healthy age-matched individuals were interviewed in order to identify some protective measures.

### Results

The prevalence of HP infection was 46.2%, the mean age $\pm$ SD was 43.4 $\pm$ 15.5 years; 58.8% were females. Obesity was more prevalent among HP group (59.8%) compared to control group (48.5%), mean BMI was 37.6 $\pm$ 6.8 in HP group. Factors that were significantly associated with increased risk of HP include: consumption of raw milk, pickled food and poor oral hygiene, (OR:8.26, 95%CI:1.94-35.07; OR:2.4, 95%CI:1.25-4.67 & OR:7.32, 95%CI:1.73-31.04, respectively). Furthermore, frequent eating at restaurants and smoking was also associated with increased risk of HP (OR:2.14, 95%CI:0.95-4.86 & OR:2.59, 95%CI:0.80-8.36, respectively). On the other hand, good oral hygiene ( $p < 0.0005$ ), frequent consumption of pasteurized milk ( $p < 0.0005$ ), onion ( $p = 0.007$ ) and citrus fruits ( $p = 0.02$ ) were associated with a protective effect against HP infection.

### Conclusions

Prevalence of HP infection was high among Saudi population and was associated with several risk factors. Larger studies are needed to confirm those risk factors.



# Clinical Pharmacy

The Department of Clinical Pharmacy offers courses that aim to grant pharmacy students with practical information which qualifies them to provide better clinical services for patients, thereby contributing to raising the level of health care in general and the proper use of medication, in particular.

The Clinical Pharmacy in a broader terms includes the key role contributions of pharmacists within the health care team. These roles include, the patient interview, follow-up for drug therapy, provides advice and guidance to the patients with respect to the right way to use the medications, and to make sure that there are no drug interactions. In addition, the pharmacist provides advice the doctor, the patient, and the health care and nursing staff with information that will help them provide better patient care.

The College of Pharmacy at King Saud University is considered a pioneer in this area in the Middle East, the college has taken the initiative to develop this area by offerings study plan for two tracks in pharmacy.



### Notes:

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