



THE ATHENS INSTITUTE FOR EDUCATION AND RESEARCH

# Abstract Book

5<sup>th</sup> Annual International Conference on  
**Pharmaceutical Sciences**  
7-10 May 2018, Athens, Greece

Edited by  
Gregory T. Papanikos

2018



Abstracts  
5<sup>th</sup> Annual International  
Conference on  
Pharmaceutical Sciences  
7-10 May 2018  
Athens, Greece

Edited by Gregory T. Papanikos

First published in Athens, Greece by the Athens Institute for Education and Research.

ISBN: 978-960-598-178-5

All rights reserved. No part of this publication may be reproduced, stored, retrieved system, or transmitted, in any form or by any means, without the written permission of the publisher, nor be otherwise circulated in any form of binding or cover.

8 Valaoritou Street  
Kolonaki, 10671 Athens, Greece  
[www.atiner.gr](http://www.atiner.gr)

©Copyright 2018 by the Athens Institute for Education and Research. The individual essays remain the intellectual properties of the contributors.

# TABLE OF CONTENTS

(In Alphabetical Order by Author's Family name)

<b>Preface</b>		9
<b>Organizing Committee</b>		10
<b>Conference Program</b>		11
<b>1.</b>	<b>Synthesis and Anticonvulsant Evaluation of New Compounds Derived from Diazaspiroalkanediones</b> <i>Mona Aboutabl, Mohamed Nabil Aboul-Enein, Aida El-Azzouny, Kamilia Amin &amp; Mai Aboelmagd</i>	15
<b>2.</b>	<b>Knowledge, Awareness and Practices of Health Sciences Faculty Students in Respect to Cervical Cancer, HPV and HPV Vaccination</b> <i>Ebru Aydin, Zeynep Sađlam &amp; Zeliha Koç</i>	16
<b>3.</b>	<b>Potential Anti-Hyperglycemic and Insulinomimetic Effect of the Nutraceutical Theobromine</b> <i>Fatima Regina Mena Barreto-Silva, Postal Barbara Graziela, Camila Pires Mendes, Allisson Jhonatan Gomes Castro, Paola Miranda Sulis, Marisa Jádna Silva Frederico, Carlos Henrique Blum da Silva &amp; Flávio Reginatto</i>	18
<b>4.</b>	<b>Prevalence and Associated Factors of COPD among Aboriginal Peoples in Canada: A Cross-Sectional Study</b> <i>Yelena Bird</i>	20
<b>5.</b>	<b>The Implementation of Pharmacy Preceptor Orientation Programs at Hospitals and their Impacts</b> <i>Hanin Bogari</i>	21
<b>6.</b>	<b>Factors Affecting Self-Confidence Levels in Nursing Students</b> <i>Tugba Cinarli</i>	22
<b>7.</b>	<b>HIV and Cardiovascular Disease</b> <i>Bruno Cotter</i>	23
<b>8.</b>	<b>Factors Affecting Clinical Decision Making Skills of the Nursing Students</b> <i>Esra Danaci, Asuman Şener, Sevil Masat, Tuğba Kavalali Erdoğan &amp; Zeliha Koç</i>	25
<b>9.</b>	<b>Trends in Plasma Toll Fractionation for Medicinal Products Self-Sufficiency in Italy</b> <i>Vincenzo De Angelis &amp; Antonio Breda</i>	27
<b>10.</b>	<b>Walking the Talk by Bridging Theory to Practice: Utilizing the Culture-Centered Approach (CCA) to Address Gaps in Community Based Participatory Research (CBPR) Processes</b> <i>Sydney Dillard, Rati Kumar, Agaptus Anaele &amp; Raihan Jamil</i>	28
<b>11.</b>	<b>Antibacterial Soaps with Essential Oils Content</b> <i>Enkelejda Goci, Entela Haloci &amp; Jona Berberi</i>	29
<b>12.</b>	<b>Ancient Oil Pulling Therapy in Patient Management with Oral and Dental Symptoms of Diabetes Mellitus</b> <i>Siddharth Gupta</i>	30

13.	<b>Prevalence and Origin of Urinary Tract Infections of Children in Bejaia, Algeria</b> <i>Samia Hamma-Faradji</i>	31
14.	<b>Serum Levels of Cooper, Zinc and Selenium in Patients with Cardiovascular Disease</b> <i>Engjellushe Hasani, Rezarta Shkreli, Klodiola Dhamo &amp; Afrim Tabaku</i>	32
15.	<b>Evaluation of <i>in vitro</i> Antitumor Activities of some Pyrrolo[2,3-<i>d</i>] Pyrimidine Derivatives against Human Lung and Prostat Cancer Cell Lines</b> <i>Zuhal Kilic-Kurt, Filiz Bakar-Ates, Yeliz Ozmay &amp; Ozgur Kutuk</i>	3
16.	<b>Chronic Disulfiram Treatment Increases Analgesia and Reduces Tolerance Induced by Morphine but with Increased Toxic Effects</b> <i>Patrycja Kleczkowska, Martyna Pekala, Karolina Pawlik, Dorota Sulejczak, Agnieszka Kowalczyk, Grazyna Sygitowicz, Malgorzata Frankowska, Marek Konop, Malgorzata Filip, Lidia Rudnikcka &amp; Magdalena Bujalska-Zadrozny</i>	36
17.	<b>Role of TRPV1 Channel in Bronchial Hypersensitivity Associated with Airway Inflammatory Diseases</b> <i>Lu-Yuan Lee</i>	38
18.	<b>Divergent Cannabinoid System Activity in High (HA) and Low (LA) Opioid Sensitivity Mouse Lines - Evidence for a Common Pathway</b> <i>Anna Lesniak, Mariusz Sacharczuk, Diana Wojciechowska, Poznanski Piotr, Juszczak Grzegorz &amp; Magdalena Bujalska-Zadrozny</i>	39
19.	<b>At the Heart of the Problem: A Transformative Learning Approach in a Group of Early Career Graduates in Interventional Cardiology, before, during and after a Large Meeting</b> <i>Jean Marco, Martin Lestra, Monique Martinez, Cédric Aït-Ali &amp; Bruno Péran</i>	40
20.	<b>Development of a Virtual Learning Object to Nursing Students</b> <i>Teresa Martins &amp; Maria José Lumini</i>	42
21.	<b>Factors Associated with Self-Reported Sexually Transmitted Infections among Postsecondary Students in Canada</b> <i>Jean Moraros</i>	43
22.	<b>Nursing Students' Leadership Orientations and the Affecting Factors</b> <i>Cansu Atmaca Palazoglu, Zeynep Saglam, Tugba Kavalali Erdogan, Sevil Masat &amp; Zeliha Koc</i>	44
23.	<b>Xylan-5-ASA Prodrug for Colon Targeting</b> <i>Heni Rachmawati, Benita Rachel, Neng Fisheri Kurniati &amp; Catur Riani</i>	46
24.	<b>An Evaluation of Maternal and Child Health (MCH) Leadership Education at Tulane University</b> <i>Shokufeh Ramirez, Amelia Brandt, Bert Cramer &amp; Carolyn Johnson</i>	47
25.	<b>How Useful is the Empowerment Approach for Helping Patients to Control their Diabetes?</b> <i>Maria Rui Sousa, Filipe Pereira &amp; Teresa Martins</i>	49

26.	<b>Bringing Informal Caregivers and Recipients to the Digital Age Project</b> <i>Sirpa Salin &amp; Hannele Laaksonen</i>	50
27.	<b>Synthesis, Docking Studies and Anticancer Activity of Novel Tetrazolyl - and (triazolyl) Thiazole Glycosides and Acyclic Analogs</b> <i>Wael El-Sayed Shendy, Asmaa F. Kassem, Eman M. H. Abbas, Dina S. El-Kady &amp; Hanem M. Awad</i>	51
28.	<b>Knowledge, Attitude and Practice of Pharmacists Towards Pharmacovigilance and Reporting of Adverse Drug Reaction</b> <i>Rezarta Shkreli, Klodiola Dhama &amp; Afrim Tabaku</i>	53
29.	<b>Effect and Mechanism of Action of Sulfonylthiourea Derivative on Glycaemia Homeostasis</b> <i>Paola Miranda Sulis, Marisa Frederico, Alessandra Mascarello, Ricardo José Nunes, Rosendo Augusto Yunes &amp; Fatima Regina Mena Barreto Silva</i>	54
30.	<b>Thyroid Nodule Ultrasound Image Analysis and Feature Extraction</b> <i>Theodore Trafalis &amp; Xiaomeng Dong</i>	55
31.	<b>Trauma to the Oral Mucosa from 3<sup>rd</sup> Molar Tooth as Contributory Factor towards Development of Oral Cancer</b> <i>Richik Tripathi</i>	56
32.	<b>Stressed Out? How to Improve Health and Increase Productivity: The Science of Work Breaks</b> <i>John Trougakos</i>	57
33.	<b>Radiostability of the Imipenem and Cilastatin in the Solid State</b> <i>Przemyslaw Zalewski, Karolina Kilinska, Judyta Cielecka-Piontek, Robert Skibiński, Daria Szymanowska, Andrzej Miklaszewski &amp; Waldemar Bednarski</i>	58





## Preface

This book includes the abstracts of all the papers presented at the 5<sup>th</sup> *Annual International Conference on Pharmaceutical Sciences (7-10 May 2018)*, organized by the Athens Institute for Education and Research (ATINER).

In total 33 papers were submitted by 40 presenters, coming from 16 different countries (Albania, Algeria, Brazil, Canada, Egypt, France, India, Indonesia, Italy, Poland, Portugal, Saudi Arabia, Turkey, UAE & USA). The conference was organized into 11 sessions that included a variety of topic areas such as pharmaceutical chemistry, pharmacy practice, educational issues and more. A full conference program can be found before the relevant abstracts. In accordance with ATINER's Publication Policy, the papers presented during this conference will be considered for inclusion in one of ATINER's many publications.

The purpose of this abstract book is to provide members of ATINER and other academics around the world with a resource through which to discover colleagues and additional research relevant to their own work. This purpose is in congruence with the overall mission of the association. ATINER was established in 1995 as an independent academic organization with the mission to become a forum where academics and researchers from all over the world could meet to exchange ideas on their research and consider the future developments of their fields of study.

It is our hope that through ATINER's conferences and publications, Athens will become a place where academics and researchers from all over the world regularly meet to discuss the developments of their discipline and present their work. Since 1995, ATINER has organized more than 400 international conferences and has published nearly 200 books. Academically, the institute is organized into seven research divisions and 37 research units. Each research unit organizes at least one annual conference and undertakes various small and large research projects.

For each of these events, the involvement of multiple parties is crucial. I would like to thank all the participants, the members of the organizing and academic committees, and most importantly the administration staff of ATINER for putting this conference and its subsequent publications together. Specific individuals are listed on the following page.

**Gregory T. Papanikos**  
**President**

**5<sup>th</sup> Annual International Conference on Pharmaceutical Sciences,  
7-10 May 2018, Athens, Greece  
Organizing and Academic Committee**

ATINER's conferences are small events which serve the mission of the association under the guidance of its Academic Committee which sets the policies. In addition, each conference has its own academic committee. Members of the committee include all those who have evaluated the abstract-paper submissions and have chaired the sessions of the conference. The members of the **academic committee** of the 5<sup>th</sup> Annual International Conference on Pharmaceutical Sciences were the following:

1. Gregory T. Papanikos, President, ATINER.
2. Nicholas Pappas, Vice President of Academic Membership, ATINER & Professor of History, Sam Houston University, USA.
3. Vickie Hughes, Director, Health & Medical Sciences Division, ATINER & Assistant Professor, Johns Hopkins University, USA.
4. Ketan Ruparelia, Head, Pharmaceutical Unit, ATINER & Research Fellow and Part-time Lecturer, De Montfort University, U.K.
5. Jean Marco, Professor, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France.
6. John Moraros, Associate Professor, University of Saskatchewan, Canada.
7. Yelena Bird, Associate Professor, University of Saskatchewan, Canada.
8. Bruno Cotter, Associate Professor, University of California, San Diego (UCSD), USA.
9. Lorna Guse, Associate Professor, University of Manitoba, Canada.
10. Heni Rachmawati, Associate Professor, Bandung Institute of Technology, Indonesia.
11. Afrim Tabaku, Lecturer and Researcher, Center for Pharmacotherapeutics Research, Faculty of Medical Sciences, Aldent University, Albania.
12. Siddharth Gupta, University of Delhi, India.

The **organizing committee** of the conference included the following:

1. Fani Balaska, Research Assistant, ATINER.
2. Olga Gkounta, Researcher, ATINER.
3. Hannah Howard, Research Assistant, ATINER.
4. Despoina Katzoli, Researcher, ATINER.
5. Eirini Lentzou, Administrative Assistant, ATINER.
6. Konstantinos Manolidis, Administrator, ATINER.
7. Vassilis Skianis, Research Fellow, ATINER.
8. Kostas Spyropoulos, Administrator, ATINER.

**FINAL CONFERENCE PROGRAM**  
**5<sup>th</sup> Annual International Conference on Pharmaceutical Sciences,**  
**7-10 May 2018, Athens, Greece**

**PROGRAM**

Conference Venue: Titania Hotel, 52 Panepistimiou Street, 10678 Athens, Greece

**Monday 7 May 2018**

**08:00-09:00 Registration and Refreshments**

**09:00-09:30 (Room A-Mezzanine Floor): Welcome & Opening Address**

**Gregory T. Papanikos, President, ATINER.**

**Nicholas Pappas, Vice President of Academic Membership, ATINER & Professor of History, Sam Houston University, USA.**

**09:30-11:00 Session I (Room E-10<sup>th</sup> Floor): Recent Trends in Pharmaceutical Chemistry and Drug Discovery**

**Chair:** Ketan Ruparelia, Head, Pharmaceutical Unit, ATINER & Research Fellow and Part-time Lecturer, De Montfort University, U.K.

1. Wael El-Sayed Shendy, Professor, National Research Centre, Egypt, Asmaa F. Kassem, National Research Centre, Egypt, Eman M. H. Abbas, National Research Centre, Egypt, Dina S. El-Kady, National Research Centre, Egypt & Hanem M. Awad, National Research Centre, Egypt. Synthesis, Docking Studies and Anticancer Activity of Novel Tetrazolyl - and (triazolyl) Thiazole Glycosides and Acyclic Analogs.
2. Heni Rachmawati, Associate Professor, Bandung Institute of Technology, Indonesia, Benita Rachel, MSc Student, Bandung Institute of Technology, Indonesia, Neng Fisheri Kurniati, Assistant Professor, Bandung Institute of Technology, Indonesia & Catur Riani, Assistant Professor, Bandung Institute of Technology, Indonesia. Xylan-5-ASA Prodrug for Colon Targeting.
3. Przemyslaw Zalewski, Associate Professor, Poznan University of Medical Sciences, Poland, Karolina Kilinska, PhD Student, Poznan University of Medical Sciences, Poland, Judyta Cielecka-Piontek, Associate Professor, Poznan University of Medical Sciences, Poland, Robert Skibiński, Associate Professor, Medical University of Lublin, Poland, Daria Szymanowska, Associate Professor, Poznan University of Life Sciences, Poland, Andrzej Miklaszewski, Poznan University of Technology, Poland & Waldemar Bednarski, Associate Professor, Polish Academy of Sciences, Poland. Radiostability of the Imipenem and Cilastatin in the Solid State.
4. Mona Aboutabl, Associate Professor, National Research Centre, Egypt, Mohamed Nabil Aboul-Enein, Professor, National Research Centre, Egypt, Aida El-Azzouny, Professor, National Research Centre, Egypt, Kamilia Amin, Professor, Cairo University, Egypt & Mai Aboelmagd, Professor, National Research Centre, Egypt. Synthesis and Anticonvulsant Evaluation of New Compounds Derived from Diazaspiroalkanediones.

**11:00-12:30 Session II (Room E-10<sup>th</sup> Floor): Infection and Transmitted Diseases\***

**Chair:** Siddharth Gupta, University of Delhi, India.

1. Lu-Yuan Lee, Fred Zechman Professor, University of Kentucky, USA. Role of TRPV1 Channel in Bronchial Hypersensitivity Associated with Airway Inflammatory Diseases.
2. John Moraros, Associate Professor, University of Saskatchewan, Canada. Factors Associated with Self-Reported Sexually Transmitted Infections among Postsecondary Students in Canada.
3. Yelena Bird, Associate Professor, University of Saskatchewan, Canada. Prevalence and Associated Factors of COPD among Aboriginal Peoples in Canada: A Cross-Sectional Study.
4. Samia Hamma-Faradji, Lecturer, University of Bejaia, Algeria. Prevalence and Origin of Urinary Tract Infections of Bejaia Children (Algeria).

*\*This session is jointly offered with the Medicine Unit*

**12:30-14:00 Session III (Room E-10<sup>th</sup> Floor): Emerging Trends in Public Health and Pharmacy Practice I**

**Chair:** John Moraros, Associate Professor, University of Saskatchewan, Canada.

1. Vincenzo De Angelis, Director of Transfusion Medicine Department, Udine University Hospital, Italy & Antonio Breda, Director of Regional Blood Transfusion Coordinating Centre of Veneto,

- Italy. Trends in Plasma Toll Fractionation for Medicinal Products Self-Sufficiency in Italy.
2. Patrycja Kleczkowska, Adjunct Lecturer, Medical University of Warsaw, Poland, Martyna Pekala, Medical University of Warsaw, Poland, Karolina Pawlik, Medical University of Warsaw, Poland, Dorota Sulejczak, Polish Academy of Sciences, Poland, Agnieszka Kowalczyk, Medical University of Warsaw, Poland, Grazyna Sygitowicz, Medical University of Warsaw, Poland, Malgorzata Frankowska, Institute of Pharmacology, Poland, Marek Konop, Medical University of Warsaw, Poland, Malgorzata Filip, Professor, Institute of Pharmacology, Poland, Lidia Rudnikcka, Professor, Medical University of Warsaw, Poland & Magdalena Bujalska-Zadrozny, Medical University of Warsaw, Poland. Chronic Disulfiram Treatment Increases Analgesia and Reduces Tolerance Induced by Morphine but with Increased Toxic Effects.
  3. Anna Lesniak, Researcher, Medical University of Warsaw, Poland, Mariusz Sacharczuk, Researcher, Medical University of Warsaw, Poland, Diana Wojciechowska, Pharmacy Student, Medical University of Warsaw, Poland, Poznanski Piotr, PhD Student, Polish Academy of Sciences, Poland, Juszcak Grzegorz, Researcher, Polish Academy of Sciences, Poland & Magdalena Bujalska-Zadrozny, Department Head, Medical University of Warsaw, Poland. Divergent Cannabinoid System Activity in High (HA) and Low (LA) Opioid Sensitivity Mouse Lines – Evidence for a Common Pathway.

**14:00-15:00 Lunch**

**15:00-16:30 Session IV (Room D-10<sup>th</sup> Floor): Emerging Trends in Public Health and Pharmacy Practice II**

**Chair:** Heni Rachmawati, Associate Professor, Bandung Institute of Technology, Indonesia.

1. Rezarta Shkreli, Head of Pharmacy Department, Aldent University, Albania, Klodiola Dhamo, Lecturer, Aldent University, Albania & Afrim Tabaku, Researcher and Lecturer, Aldent University, Albania. Knowledge, Attitude and Practice of Pharmacists towards Pharmacovigilance and Reporting of Adverse Drug Reaction.
2. Hanin Bogari, Assistant Professor, King Abdulaziz University, Saudi Arabia. Implementation of Pharmacy Preceptor Orientation Program at Hospitals and Impacts.
3. Enkelejda Goci, Head of Pharmacotherapeutic Research Center, Aldent University, Albania, Entela Haloci, Associate Professor, University of Medicine, Albania & Jona Berberi, Pharmacist, Community Pharmacy, Albania. Antibacterial Soaps with Essential Oils Content.

**16:30-18:00 Session V (Room D-10<sup>th</sup> Floor): Building Partnerships and Better Teamwork in the Global Health Community\***

**Chair:** Yelena Bird, Associate Professor, University of Saskatchewan, Canada.

1. Sydney Dillard, Assistant Professor, DePaul University, USA, Rati Kumar, Assistant Professor, Central Connecticut State University, USA, Agaptus Anaele, Assistant Professor, Emerson College, USA & Raihan Jamil, Assistant Professor, Zayed University, UAE. Walking the Talk by Bridging Theory to Practice: Utilizing the Culture-Centered Approach (CCA) to Address Gaps in Community Based Participatory Research (CBPR) Processes. (Monday afternoon)
2. Shokufeh Ramirez, Assistant Director, Tulane Center of Excellence in Maternal and Child Health, Tulane University, USA, Amelia Brandt, PhD Student, Tulane University, USA, Bert Cramer, Independent Researcher, Tulane University, USA & Carolyn Johnson, Professor, Tulane University, USA. An Evaluation of Maternal and Child Health (MCH) Leadership Education at Tulane University.
3. John Trougakos, Associate Professor, University of Toronto, Canada. Stressed Out? How to Improve Health and Increase Productivity: The Science of Work Breaks.
4. Sirpa Salin, Principal Lecturer, Tampere University of Applied Sciences, Finland & Hannele Laaksonen, Principal Lecturer, Tampere University of Applied Sciences, Finland. Bringing Informal Caregivers and Recipients to the Digital Age Project.

*\*This session is jointly offered with the Medicine and Nursing Units*

**18:00-20:00 Session VI (Room A-Mezzanine Floor): A Symposium Discussion on Global Health**

**Chair:** Vickie Hughes, Director, Health & Medical Sciences Division, ATINER & Assistant Professor, Johns Hopkins University, USA.

1. Elizabeth Mary Chiarella, Professor, The University of Sydney, Australia. "Australian Primary Health Care: A Curate's Egg?"

2. John Moraros, Associate Professor, University of Saskatchewan, Canada. "Obesity - A Global and Canadian Perspective".
3. Stefano Neri, Associate Professor, University of Milan, Italy. "Governing Southern European NHSs in the era of the economic crisis. The case of Italy".
4. Neil Kelly, Senior Lecturer, Coventry University, UK. "Changes in mental health service provision".
5. Adel Zeglam, Professor, Tripoli University, Libya. "Health and Medical Challenges in Libya".
6. Ali AlHaqwi, Consultant / Professor, King Saud Ben Abdul-Aziz University / King Abdul-Aziz Medical City, Saudi Arabia. "Hajj and Mass Gatherings: Considerations for Global Health".
7. John Trougakos, Associate Professor, University of Toronto, Canada. "Is Work Making us Sick? The Social, Economic, and Personal Costs of Workplace Stress and Burnout".

**21:00-23:00 Greek Night and Dinner**

**Tuesday 8 May 2018**

**07:45-11:00 Session VII: An Educational Urban Walk in Modern and Ancient Athens**

**Chair:** Gregory Katsas, Head, Sociology Research Unit, ATINER & Associate Professor, The American College of Greece-Deree College, Greece.

Group Discussion on Ancient and Modern Athens.

Visit to the Most Important Historical and Cultural Monuments of the City (be prepared to walk and talk as in the ancient peripatetic school of Aristotle)

(Note: The simple registration fee of the conference does not cover the cost of this session. More details during registration).

**11:15-13:00 Session VIII (Room D-10<sup>th</sup> Floor): Cancer\***

**Chair:** Bruno Cotter, Associate Professor, University of California, San Diego (UCSD), USA.

1. Richik Tripathi, Assistant Professor, Banaras Hindu University, India. Trauma to the Oral Mucosa from 3rd Molar Tooth as Contributory Factor towards Development of Oral Cancer.
2. Ebru Aydin, Nurse, Ondokuz Mayıs University, Turkey, Zeynep Sağlam, Lecturer, Ondokuz Mayıs University, Turkey & Zeliha Koç, Associate Professor, Ondokuz Mayıs University, Turkey. Knowledge, Awareness and Practices of Health Sciences Faculty Students in Respect to Cervical Cancer, HPV and HPV Vaccination.
3. Zuhal Kilic-Kurt, Postdoctoral Research Assistant, Ankara University, Turkey, Filiz Bakar-Ates, Assistant Professor, Ankara University, Turkey, Yeliz Ozmay, Researcher, Baskent University, Turkey & Ozgur Kutuk, Assistant Professor, Baskent University, Turkey. Evaluation of in vitro Antitumor Activities of some Pyrrolo[2,3-d] Pyrimidine Derivatives against Human Lung and Prostat Cancer Cell Lines.

*\*This session is jointly offered with the Medicine & Nursing Units*

**13:00-14:00 Lunch**

**14:00-15:30 Session IX (Room D-10<sup>th</sup> Floor): Diabetes\***

**Chair:** Jean Marco, Professor, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France.

1. Fatima Regina Mena Barreto Silva, Professor, Universidade Federal de Santa Catarina (UFSC), Brazil, Postal Barbara Graziela, Professor, Universidade Federal de Santa Catarina (UFSC), Brazil, Camila Pires Mendes, Universidade Federal de Santa Catarina (UFSC), Brazil, Allisson Jhonatan Gomes Castro, Universidade Federal de Santa Catarina (UFSC), Brazil, Paola Miranda Sulis, Universidade Federal de Santa Catarina (UFSC), Brazil, Marisa Jádna Silva Frederico, Universidade Federal de Santa Catarina (UFSC), Brazil, Carlos Henrique Blum da Silva, Universidade Federal de Santa Catarina (UFSC), Brazil & Flávio Reginatto, Universidade Federal de Santa Catarina (UFSC), Brazil. Potential Anti-Hyperglycemic and Insulinomimetic Effect of the Nutraceutical Theobromine.
2. Maria Rui Sousa, Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal, Filipe Pereira, Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal & Teresa Martins, Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal. How Useful is Empowerment Approach to Help Patients to Control their Diabetes.
3. Paola Miranda Sulis, PhD Student, Universidade Federal de Santa Catarina, Brazil, Marisa Frederico, Universidade Federal de Santa Catarina, Brazil, Alessandra Mascarello, Universidade Federal de Santa Catarina, Brazil, Ricardo José Nunes, Universidade Federal de Santa Catarina, Brazil, Rosendo Augusto

Yunes, Universidade Federal de Santa Catarina, Brazil & Fatima Regina Mena Barreto Silva, Universidade Federal de Santa Catarina, Brazil. Effect and Mechanism of Action of Sulfonylthiourea Derivative on Glycaemia Homeostasis.

4. Siddharth Gupta, MBA - Health Care Administration, University of Delhi, India. Ancient oil Pulling Therapy in Patient Management with Oral and Dental Symptoms of Diabetes Mellitus.

*\*This session is jointly offered with the Medicine & Nursing Units*

**15:30-17:00 Session X (Room D-10<sup>th</sup> Floor): Cardiovascular Disease & Educational Issues**

**Chair:** Afrim Tabaku, Lecturer and Researcher, Center for Pharmacotherapeutics Research, Faculty of Medical Sciences, Aldent University, Albania.

1. Bruno Cotter, Associate Professor, University of California, San Diego (UCSD), USA. HIV and Cardiovascular Disease. (Tuesday)
2. Jean Marco, Professor, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France, Martin Lestra, Postdoctoral Fellow, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France, Monique Martinez, Professor, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France, Cédric Ait-Ali, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France & Bruno Péran, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France. At the Heart of the Problem: A Transformative Learning Approach in a Group of Early Career Graduates in Interventional Cardiology, before, during and after a Large Meeting.
3. Engjellushe Hasani, Cardiologist, Health Center 3 Tirana, Albania, Rezarta Shkreli, Head of Pharmacy Department, Aldent University, Albania, Klodiola Dhamo, Lecturer, Aldent University, Albania & Afrim Tabaku, Researcher and Lecturer, Aldent University, Albania. Serum Levels of Cooper, Zinc and Selenium in Patients with Cardiovascular Disease.

*\*This session is jointly offered with the Medicine Unit*

**17:00-18:30 Session XI (Room C-10<sup>th</sup> Floor): Education, Health Informatics and Other Issues\***

**Chair:** Lorna Guse, Associate Professor, University of Manitoba, Canada.

1. Theodore Trafalis, Professor, University of Oklahoma, USA & Xiaomeng Dong, Student, University of Oklahoma, USA. Thyroid Nodule Ultrasound Image Analysis and Feature Extraction.
2. Teresa Martins, Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal & Maria José Lumini, Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal. Development of a Virtual Learning Object to Nursing Students.
3. Tugba Cinarli, Lecturer, Ondokuz Mayıs University, Turkey. Factors Affecting Self-Confidence Levels in Nursing Students.
4. Cansu Atmaca Palazoglu, Lecturer, Gümüşhane University, Turkey, Zeynep Saglam, Lecturer, Ondokuz Mayıs University, Turkey, Tugba Kavalali Erdogan, Research Assistant, Ondokuz Mayıs University, Turkey, Sevil Masat, Research Assistant, Ondokuz Mayıs University, Turkey & Zeliha Koc, Associate Professor, Ondokuz Mayıs University, Turkey. Nursing Students' Leadership Orientations and the Affecting Factors.
5. Esra Danaci, Lecturer, Bülent Ecevit University, Turkey, Asuman Şener, Lecturer, Ondokuz Mayıs University, Turkey, Sevil Masat, Research Assistant, Ondokuz Mayıs University, Turkey, Tuğba Kavalali Erdoğan, Research Assistant, Ondokuz Mayıs University, Turkey & Zeliha Koç, Associate Professor, Ondokuz Mayıs University, Turkey. Factors Affecting Clinical Decision Making Skills of the Nursing Students.

*\*This session is jointly offered with the Medicine and Nursing Units*

**18:30-18:40 (Room C-10<sup>th</sup> Floor): Closing Remarks**

Dr. Vickie Hughes, Director, Health & Medical Sciences Division, ATINER & Assistant Professor, School of Nursing, Johns Hopkins University, USA.

**20:00- 21:30 Dinner**

**Wednesday 9 May 2018**  
**Mycenae and Island of Poros Visit (Details during registration)**  
**Educational Island Tour**

**Thursday 10 May 2018**  
**Delphi Visit**

**Friday 11 May 2018**  
**Ancient Corinth and Cape Sounion**

**Mona Aboutabl**

Associate Professor, National Research Centre, Egypt

**Mohamed Nabil Aboul-Enein**

Professor, National Research Centre, Egypt

**Aida El-Azzouny**

Professor, National Research Centre, Egypt

**Kamilia Amin**

Professor, Cairo University, Egypt

&

**Mai Aboelmagd**

Professor, National Research Centre, Egypt

## **Synthesis and Anticonvulsant Evaluation of New Compounds Derived from Diazaspiroalkanediones**

The search for anticonvulsant compounds with enhanced activity and less toxicity continues to be an area of intensive research in medicinal chemistry. Thus, in this work, we investigated the anticonvulsant potential of novel structures of: 1-[(2-hydroxyethyl)(aryl)amino]-N substituted cycloalkanecarboxamides (**IXa-l**) and 2-[(1-substituted carbamoyl) cycloalkyl](aryl)amino] ethyl acetates (**Xa-l**) derived from the penultimate synthons diazaspiroalkanediones. All the newly synthesized compounds displayed 100% anticonvulsant activity in the scPTZ screen at a dose range from 0.0057-0.283 mmol/kg. The most potent compounds in the scPTZ screen were **Xh** (ED<sub>50</sub>= 0.0012 mmol/kg), **Xd** (ED<sub>50</sub>= 0.002 mmol/kg), **Xf** (ED<sub>50</sub>= 0.004mmol/kg), **IXj** (ED<sub>50</sub>= 0.0047 mmol/kg), **Xl** (ED<sub>50</sub>= 0.0076 mmol/kg) and **Xi** (ED<sub>50</sub>=0.008 mmol/kg). It is noteworthy to mention that compound **Xf** was active as a new anticonvulsant agent in both scPTZ and MES screens. It showed ED<sub>50</sub> of 0.016 mmol/kg in MES screens. None of the test compounds showed any minimal motor impairment at the maximum administered dose in the neurotoxicity screen. These compounds could be regarded as promising candidates as antiepileptic drugs.

**Ebru Aydin**

Nurse, Ondokuz Mayıs University, Turkey

**Zeynep Sağlam**

Lecturer, Ondokuz Mayıs University, Turkey

&

**Zeliha Koç**

Associate Professor, Ondokuz Mayıs University, Turkey

## **Knowledge, Awareness and Practices of Health Sciences Faculty Students in Respect to Cervical Cancer, HPV and HPV Vaccination**

**Aim:** This study was conducted aiming to determine the knowledge, awareness and practices of the Health Sciences Faculty students with respect to cervical cancer, HPV and HPV vaccination.

**Material and Method:** The research was carried out between 21.09.2017 and 08.10.2017 with the participation of 647 nurses who were studying in the nursing and midwifery department of Ondokuz Mayıs University Health Sciences Faculty. In this study, the data were collected using a questionnaire form which was developed by the researchers, which is composed of 49 questions and 45 statements including 14 false and 31 correct statements and which aimed to determine the knowledge, practices of the students in respect to cervical cancer, HPV and HPV vaccination. Descriptive statistics and One Way ANOVA, Tukey test and t-test were used for the analysis of the data.

**Findings:** Of the participating students, 54.9% were nursing students, 45.1% midwifery students, 84.5% were female and 15.5% were male students. The mothers of 53.6% and fathers of 38.2% of the students were primary school graduates. The families of 46.2% of the students were determined to live downtown. Their mean age was  $20.3 \pm 2.2$  years. Of the students, 98.8% considered the early diagnosis of cancer important. The cervical cancer risk factors were listed as early marriage and early sexual intercourse by 45% of the students, polygamous sexual partner by 42.5% of the students, having more than one sexual partner by 42.2% of the students. Only 51% of them did not know the methods used for early diagnosis, 40% of them reported that they did not have any idea about the benefit of the Pap smear test, 99.1% never had a pap smear test, % 52.6 of them never had heard of HPV before, 68.6% of them had never heard of HPV vaccine and never got HPV vaccine. As the reasons for not getting HPV vaccine, 75.9% of them stated that they did not have adequate information about the vaccine and 35.9% of them stated that they were sexually inactive. Only 15.8% of them were determined to want to get HPV vaccine. The mean knowledge score of the midwifery students on cervical cancer, HPV and HPV vaccine was  $34.0 \pm 1.3$  while that of the nursing students was found to be  $26.3 \pm 1.1$ . However, the knowledge level of the



fourth-grade students of nursing and midwifery was observed to be higher than the other grades.

**Conclusion:** In this study, the knowledge level of the nursing and midwifery students on HPV infection and HPV vaccine was determined to be quite low and the majority of the students were determined not to want to get HPV vaccine.

**Fatima Regina Mena Barreto-Silva**

Professor, Universidade Federal de Santa Catarina (UFSC), Brazil

**Postal Barbara Graziela**

Professor, Universidade Federal de Santa Catarina (UFSC), Brazil

**Camila Pires Mendes**

Universidade Federal de Santa Catarina (UFSC), Brazil

**Allisson Jhonatan Gomes Castro**

Universidade Federal de Santa Catarina (UFSC), Brazil

**Paola Miranda Sulis**

Universidade Federal de Santa Catarina (UFSC), Brazil

**Marisa Jádna Silva Frederico**

Universidade Federal de Santa Catarina (UFSC), Brazil

**Carlos Henrique Blum da Silva**

Universidade Federal de Santa Catarina (UFSC), Brazil

&

**Flávio Reginatto**

Universidade Federal de Santa Catarina (UFSC), Brazil

## **Potential Anti-Hyperglycemic and Insulinomimetic Effect of the Nutraceutical Theobromine**

**Introduction:** Theobromine is a potential nutraceutical that affect lipids and glucose homeostasis. However, its mechanism of action is unknown.

**Objectives:** To study the effect of acute treatment of theobromine on glucose tolerance and on glucose uptake in rat soleus muscle, as well as its action on insulin-resistant rats.

**Methods:** Wistar fasted rats were induced to hyperglycemic by overloading with glucose (4g/kg) (CEUA PP00398 and 749). Serum glucose, hepatic and muscle glycogen and serum LDH activity were measured from rats treated with/without theobromine. Rat soleus muscles were isolated and treated with theobromine (50  $\mu$ M) with/without specific insulin signaling inhibitors. <sup>14</sup>C-Deoxy-glucose uptake by skeletal muscle was measured and the mechanism of action of theobromine studied. Western Blot and real time PCR evaluated the GLUT4 expression. To study insulin sensitivity, dexamethasone (0.1 mg/Kg) and theobromine (50 mg/Kg) were administered daily, subcutaneous, for 5 days, whereas controls received saline.

**Results:** Theobromine presented an anti-hyperglycemic effect by improving glucose tolerance, increase glycogen content and stimulates glucose uptake in soleum muscle. The effect of theobromine on glucose uptake was completely inhibited by pretreatment with wortmannin, colchicine, [N-Ethylmaleimide](#), PD98059, SB239063 and cycloheximide, but not by actinomycin D. These data point that theobromine is involved in the classical insulin signaling, which is dependent of *de novo* synthesis of GLUT4 and its translocation to plasma membrane. Furthermore, theobromine effectively improves the insulin sensitivity

and ameliorates the lipid profile in insulin resistant rats. Additionally, serum LDH activity did not change within the treatment.

**Conclusion:** These data support the role of theobromine on glucose tolerance, its action on peripheral insulin sensitivity and lipid profile in insulin resistant rats and exhibits evidence for the insulin-mimetic effect for the glucose balance.

**Financial support:** CNPq, CAPES, PPG-Farmácia - UFSC.

**Yelena Bird**

Associate Professor, University of Saskatchewan, Canada

## **Prevalence and Associated Factors of COPD among Aboriginal Peoples in Canada: A Cross-Sectional Study**

**Background:** COPD among Aboriginal peoples in Canada is a major public health concern. This study was conducted in order to determine the prevalence and association between certain risk factors and COPD among the 35-year-old or older Aboriginal peoples in Canada.

**Methods:** This is a cross-sectional study. It uses data from Statistics Canada's Aboriginal Peoples Survey (APS), 2012. It consists of 8,117 self-identified Aboriginal peoples, aged 35 years old or older from all Canadian provinces and territories. The study outcomes centered on evaluating the prevalence and associated factors of COPD.

**Results:** This study found that 6.80% of the participants self-reported having COPD. Results of the logistic regression analysis show that COPD was significantly higher among daily smokers (odds ratio [OR], 2.28; 95% confidence interval [95% CI], 1.65-3.14), aged 55 years or older (OR, 3.04; 95% CI, 2.14-4.30), who earned \$5,000-\$9,999 per annum (OR, 4.21; 95% CI, 2.39-7.41) and needed health care over the past 12 months and did not receive it (OR, 1.83; 95% CI, 1.27-2.65).

**Conclusion:** The findings of our study show that COPD is strongly associated with Aboriginal peoples, who are older, smoke, have a low socioeconomic status (SES) and do not have access to health care when needed. Clinicians, health care professionals, medical/public health organizations, researchers and patients will greatly benefit from additional research in this common, serious and often overlooked disease among Aboriginal peoples in Canada.

**Hanin Bogari**

Assistant Professor, King Abdulaziz University, Saudi Arabia

## **The Implementation of Pharmacy Preceptor Orientation Programs at Hospitals and their Impacts**

**Purpose:** Improving training programs to achieve optimum goals, consistent input, and improve satisfaction and involvement of preceptors in different training programs.

**Methods:** A Preceptor orientation program was developed by the Faculty of Pharmacy approaching pharmacy preceptors at the hospitals which included two full day workshop and a monthly two hour workshop (total of 28 hours training) to discuss a variety of topics integral to preceptors development. The orientation program was divided into three main modules: professional precepting, rubrics for evaluation, and dealing with challenges. We collected Surveys from preceptors and students before establishing this program and a year after to measure effectiveness. Outcome measures include: student satisfaction, preceptor satisfaction, average scores of students, and number/ type of complaints raised to the Faculty of Pharmacy by students or preceptors.

**Results:** 40 preceptors were involved in this program from five different hospitals. 200 total number of pharmacy students, interns, and residents were included from a governmental Faculty of Pharmacy. Student satisfaction was 60 % in the pre-program survey and 85 % post program survey. Preceptor satisfaction was 65% pre and 95% post. Average scores of students was 83% pre-program and 89% post program, with reduction in the score inflation between preceptors by 20%. The number of complaints by students was 20% pre-program and 5% post program. Preceptors complaints were 10% pre-program and 1% post program.

**Conclusion:** Pharmacy preceptors orientation program implementation is effective to maintain training of pharmacy students, interns, and residents consistent with better utilization of training manual. We suggest such program to preceptors yearly to ensure quality of training and hospital preceptor better involvement.

**Tugba Cinarli**

Lecturer, Ondokuz Mayıs University, Turkey

## **Factors Affecting Self-Confidence Levels in Nursing Students**

**Aim:** This study was planned as descriptive in order to determine the factors that affect self-confidence levels of the nursing students.

**Material and Method:** The research was realized with the participation of 316 students who were currently studying in the nursing department of the Faculty of Health Sciences of a university and agreed to participate in the study between 17 April and 28 April 2017. Data were collected by the researchers via a 20-question questionnaire form that determines socio-demographic characteristics of students based on the relevant literature and by using the Self-Confidence Scale. The Self-Confidence Scale is a 5-point Likert-type scale consisting of 33 items developed by Akin in order to measure the self-confidence of the individuals. The highest score that can be taken from this scale is 165 and the lowest score is 33. A high score from this scale indicates a high level of self-confidence since the scale has no negative items. Data were analyzed by percentile calculation, One Way ANOVA, Tukey test, t-test, Mann Whitney U test, and Kruskal Wallis Test.

**Findings:** Of the students, it was detected that 75.6% were female, 24.4% were male, mothers of 54.1% and fathers of 35.8% were primary school graduates, mothers of 42.1% lived in the provincial center, 76.6% had a nuclear family, 94.3% had social security, 67.7% had balanced income-expenditure, 60.8% had a protective family structure, 47.5% defined status of inter-family communications and 55.1% defined status of social relations as "good," 48.4% loved the nursing profession, 65.5% preferred nursing due to their love in the profession, 57.6% preferred this profession due to the employment opportunities, and 42.4% were happy with the education they received. In this study, the median score of the Self-Confidence Scale was 125.5 (74–165). A statistically significant relationship was found between the score of the Self-Confidence Scale and sociodemographic and occupational characteristics of students ( $p < 0.05$ ).

**Conclusion:** The study revealed that 67.1% of the students had high self-confidence while 31.3% had medium and 1.6% had low self-confidence. In accordance with the study findings, it was seen that the students, whose mothers were graduated from a high school and who had a democratic family structure, defined their inter-family and social communication as "good," and were happy with the education they received had higher levels of self-confidence.

**Bruno Cotter**

Associate Professor, University of California, San Diego (UCSD), USA

## **HIV and Cardiovascular Disease**

The association between HIV infection, antiretroviral therapy and coronary heart disease (CHD) has been well recognized for many years. Due to the remarkable success of combination antiretroviral therapy (cART), HIV-infected patients today live longer and HIV infection has become a chronic disease. In regions with wide access to cART, there is a concurrent rise in the incidence of non-communicable diseases, particularly of CHD. The increased prevalence of CHD in the HIV-infected population is related to increased life expectancy, resulting from better access to cART, and high levels of traditional cardiovascular disease (CVD) risk factors, particularly in the HIV population. Globally, rates of HIV infection are highest in sub-Saharan Africa; Eastern Europe and Southeast Asia are now faced with an emerging epidemic due in part to the lack of preventive initiatives; however, in developed countries, with easy access to cART, HIV-infected patients live longer and diseases of older age (cancer, CHD) are now the prominent cause of death in this population.

Despite the evidence that HIV infection carries a higher risk of developing coronary artery disease (CAD), the mechanisms responsible for the heightened risk are not well understood. The etiopathogenesis of HIV and atherosclerosis results from complex interactions between traditional risk factors, direct effects of HIV infection and the harmful side effects of some antiretroviral therapy regimens. It is well recognized that there is an increased prevalence of traditional risk factors in HIV-infected individuals. In addition, the effects of certain cART regimens lead to dyslipidemia, insulin resistance and endothelial dysfunction, which are known to be associated with atherosclerosis. The immune system has a critical role in the development and progression of atherosclerosis in HIV-positive patients. Higher levels of inflammatory markers, such as C-reactive protein, interleukin-6, and tumor necrosis (TNF) have been found in HIV-positive patients compared with HIV-negative patients. The risk for myocardial infarction (MI) is increased more than 4-fold in patients with HIV infection and elevated C-reactive protein levels. Higher levels of interleukin-6, soluble TNF receptor I and soluble TNF II, kynurenine to tryptophan ratio and D-dimer at 1-year post cART therapy have been associated with the occurrence of myocardial infarction (MI) and stroke. Large observational studies in the United States and Europe have investigated the epidemiology of CHD in HIV-infected population. These and other studies suggest that HIV infection increases the overall risk for CHD by 1.5 to 2.0-fold. Interestingly, an analysis of cohorts over different timeframes suggests that the prevalence rates of CHD are falling, presumably due to early recognition of risk factors and the use of newer antiretroviral agents.

Recent research focus has shifted to the detection of subclinical atherosclerosis as a surrogate for clinical events. The typical plaque in HIV-

infected patients is a non-calcified atherosclerotic plaque. Noninvasive imaging studies, such as carotid intima-media thickness (cIMT) and coronary computed tomography angiography (CCTA), indicate an increased prevalence of subclinical atherosclerosis in HIV-positive patients compare with HIV-negative patients. A meta-analysis of 13 observational studies suggests a trend toward more increased cIMT in HIV-infected patients compare with HIV-negative patients. As early as childhood, HIV-infected children receiving cART have an increased cIMT, suggesting that CHD may already be heightened in HIV-infected patients at a younger age. A recent meta-analysis of 1,229 asymptomatic HIV-infected patients on cART demonstrated a 3-fold higher prevalence of non-calcified coronary artery plaques (vulnerable plaques) on CCTA, compared with HIV-negative control subjects. In addition, patients with low CD4+ cell counts had evidence of more vulnerable plaques, further supporting the finding that disease severity may contribute to increased CVD risk. Two studies in the United States have compared CCTA findings in HIV-positive and HIV-negative persons; one study conducted by Post et al. in the Multicenter AIDS Cohort Study (MACS) showed a higher prevalence of any coronary plaques and of non-calcified plaques in HIV-positive compare with HIV negative US men; while the other study, conducted by Lai et al, CCTA findings were similar between HIV-positive and HIV-negative African Americans with high levels of cocaine use.

New modern cART regimens have substantially altered the face of CVD among HIV-infected patients. Both HIV and CVD are global health issues. As the HIV population ages, the increase in CVD will pose future challenges to clinicians and health authorities. Available data suggest the presence of an accelerated process of CVD in HIV-infected population due to multiple risk factors, which include conventional risk factors, emerging new risk factors (i.e. effects of infection/inflammation) and the role of modern antiretroviral therapy.

Results of recent studies may somewhat attenuate the concerns about accelerated subclinical atherosclerosis in HIV-positive persons and support the notion that easy access to medical care with modern cART regimen and the well-established recommendation for early initiation for antiretroviral therapy in conjunction with aggressive primary and secondary preventive measures for CVD may have a significant impact in reducing CHD in HIV-infected population.



**Esra Danaci**

Lecturer, Bülent Ecevit University, Turkey

**Asuman Şener**

Lecturer, Ondokuz Mayıs University, Turkey

**Sevil Masat**

Research Assistant, Ondokuz Mayıs University, Turkey

**Tuğba Kavalali Erdoğan**

Research Assistant, Ondokuz Mayıs University, Turkey

&

**Zeliha Koç**

Associate Professor, Ondokuz Mayıs University, Turkey

## **Factors Affecting Clinical Decision Making Skills of the Nursing Students**

**Aim:** This study was planned as descriptive with the aim of determining the factors that affect clinical decision making skills of the nursing students.

**Material and Method:** The research was realized with the participation of 301 students who were currently studying in the nursing department of the Faculty of Health Sciences of a university and agreed to participate in the study between 04 March and 19 March 2017. Data were collected by the researchers via a 20-question questionnaire form that determines socio-demographic and clinical decision making characteristics of students and was prepared based on the relevant literature and by using the Clinical Decision Making in Nursing Scale. The Clinical Decision Making in Nursing Scale, is a scale developed by Jenkins and adapted into Turkish by Durmaz and Dicle consisting 4 subscales with 40 items. While the total of score that could be taken from the scale is 40 to 200 points, a high score corresponds to a high perception of decision-making and vice versa. Data were analyzed by percentile calculation, One Way ANOVA, Tukey test, t-test, Mann Whitney U test, and Kruskal Wallis Test.

**Findings:** Of the students, mothers of 51.2% and fathers of 34.2% were primary school graduates, 45.2% solved their problems by alone, and 51.2% reviewed options when s/he does not reach his/her goal during problem-solving. In the study, the median score of the Clinical Decision Making in Nursing Scale and the median subscale scores of Search for Alternatives or Options, Canvassing of Objectives and Values, Evaluation and Reevaluation of Consequences, Search for Information, and Unbiased Assimilation of New Information were 142 (105–182), 37 (23–50), 34 (25–46), 37 (23–49) and 34 (26–44), respectively. A statistically significant relationship was found between the score of the Clinical Decision-Making Scale and sociodemographic and occupational characteristics of students ( $p < 0.05$ ).

**Conclusion:** It was detected that the clinical decision-making perception of students was high. Students, who were in their 1<sup>st</sup> year of nursing education, in the 17-19 age group, female and had a protective family structure, defined familial and

social relations as “very good,” loved the nursing profession, preferred nursing due to their love in the profession, and were happy with the education they received, had higher perception of clinical decision making.

**Vincenzo De Angelis**

Director of Transfusion Medicine Department, Udine University Hospital,  
Italy

&

**Antonio Breda**

Director of Regional Blood Transfusion Coordinating Centre of Veneto, Italy

## **Trends in Plasma Toll Fractionation for Medicinal Products Self-Sufficiency in Italy**

**Introduction:** Until 2014, in Italy domestic plasma toll fractionation, done only by one company, have been limited in accessing different technologies and products and in cost competition; now four companies have been identified as competitive fractionators: CSL Behring, Kedrion, Grifols, Octapharma and Shire.

**Results:** In 2017, four companies acted as competitive toll fractionators of a total of 821.437 Kg of plasma collected in four partnerships of Italian regions. The higher yield granted by fractionators increased IgG production (from 11 % up to 41 %) significantly contributing to decrease market dependence, although the continuous rise in demand will still require market compensation. The decrease of albumin use (-2,6 % 2015 vs. 2014) is probably due to a better control on an impressively high (and inappropriate) demand (35,4 tons and 582 g/1000 population in 2015, highest in the world) but more must be done in this direction through clinical audits. Plasma derived Factor VIII demand is still higher than potential production (137.994.500 IU vs 1.061.496 IU) but, since all therapeutic options must be guaranteed to patients, domestic plasma cannot serve as the unique source of FVIII. The new tenders also allowed the enlargement of the basket of products; at present, the amount of domestic plasma collection is in large excess than that required for the national self-sufficiency of Factor IX, Prothrombin complex concentrates, Antithrombin, Fibrinogen and a-1-antithrypsin.

**Conclusions:** Competition resulted in better yields of Albumin and Ig, decreasing level of market dependence, an increase in the basket of plasma derived products, and a decrease in cost for fractionation (20 to 30 %), thus significantly contributing to national self-sufficiency.

**Sydney Dillard**

Assistant Professor, DePaul University, USA

**Rati Kumar**

Assistant Professor, Central Connecticut State University, USA

**Agaptus Anaele**

Assistant Professor, Emerson College, USA

&

**Raihan Jamil**

Assistant Professor, Zayed University, UAE

## **Walking the Talk by Bridging Theory to Practice: Utilizing the Culture-Centered Approach (CCA) to Address Gaps in Community Based Participatory Research (CBPR) Processes**

Many health communication scholars work closely with disenfranchised communities to address health inequity's that contribute to global health problems such as the Ebola virus outbreak in 2014, the spread of H1N1 influenza in 2009, and the SARs epidemic in 2003, among others. Such health concerns continue to lead to large and small scale community-based health campaigns provided through governmental and non-profit funding agencies. Of these projects, community based participatory research (CBPR) has developed as a commonly used theoretical approach to investigate and alleviate stark health disparities among underserved populations, yet often times the effect sizes of many campaigns are less than significant. This paper provides alternatives to bridging the "theoretical" with the "practical" in developing community-based participatory research (CBPR) health communication projects. As illustrated through a review of campaign approaches used in CBPR, often times the theoretical orientations of CBPR become secondary to its praxis, as unspoken motives such as grant funding requirements and funding agendas become motivating factors in guiding community based initiatives.

In response, this paper reintroduces the culture-centered approach (CCA) as an additional metatheoretical lens that may be utilized in linking theory to practice. The use of reflexive exercises is recommended to draw out unseen power differentials within health communication partnerships, calling into question the fundamental objectives guiding the decision-making processes within CBPR projects. The study aspires to strengthen CBPR in practice and compel global health professionals implementing CBPR to become more authentic to the orientation's original conceptualization.

**Enkelejda Goci**

Head of Pharmacotherapeutic Research Center, Aldent University, Albania

**Entela Haloci**

Associate Professor, University of Medicine, Albania

&

**Jona Berberi**

Pharmacist, Community Pharmacy, Albania

## **Antibacterial Soaps with Essential Oils Content**

**Introduction:** Soaps used in our day have a history of use about 6000 years ago. Soaps, the products of basic saponification reactions have been used among people since its discovery by the ancient Babylonians as a cleansing substance. Medical soaps are a variation of standard soaps where bioactive synthetic or natural ingredients are added to the soap base to provide a wide variety of biological activities to the final product.

In recent years, natural plant-based products have become an attractive option to enhance the important biological characteristics of medical soaps.

The purpose of this study is the pharmaceutical formulation of liquid and solid soaps with antibacterial activity using the essential oils of some herbal drugs with proven antimicrobial properties.

**Methods:** Several types of antibacterial soaps were prepared by using cold and warm method using essential oils of *Salvia Officinalis*, *Saturea Montana* and Rosemary herbs in the amount of 3%. Soaps were also prepared using some types of fatty acids such as olive oil, palm oil and coconut oil. The soap obtained was poured into moulds and allowed to solidify for 12 hours, then the solid soaps were taken out from the moulds and left to dry for seven days. The difference of solid and liquid soap is that NaOH is used as the base in solid soap preparation, whereas KOH is used in the preparation of liquid soaps. The obtained soaps were determined weight loss and were compared with prepared soap without essential oils.

**Results and Conclusions:** Prepared soaps exhibit good consistency and superiority with control products. Their antibacterial superiority is acknowledged by the previous evaluation of power and antimicrobial spectrum of these essential oils.

**Discussions:** These soaps remain to be tested in the future for seborrhea skin type with acne structure development.

**Siddharth Gupta**

MBA - Health Care Administration, University of Delhi, India

## **Ancient oil Pulling Therapy in Patient Management with Oral and Dental Symptoms of Diabetes Mellitus**

Oil pulling or oil swishing, in an alternative medicine is a procedure that involves swishing of oil in the mouth for oral and systemic health benefits. Oil pulling has been used extensively as a tradition Indian folk remedy for many years to prevent decay, oral malodor, bleeding gums, dryness of throat and cracked lips for strengthening teeth, gums and jaws.

With this background, we intend to do Oil Pulling which is a therapy involving swishing of natural oil (derived from sesame) to achieve pharmaceutical related health benefits.

The present study extensively researched the efficacy of Oil pulling technique using sesame oil in patient management with various signs and symptoms present in controlled and uncontrolled group of diabetes mellitus patients.

Moreover, the study reviewed the efficacy of Oil pulling technique on oral symptoms like burning mouth syndrome, numbness, altered taste, tingling sensation of oral mucosa and xerostomia in patients with diabetes mellitus.

Moreover, the efficacy of Oil pulling technique on stomatopyrosis and its effectiveness in management of oral signs like inflammation of gingiva, periodontal inflammation a clinical sign present in diabetic patients has also been studied.

Descriptive statistics were compiled for the variables 2x2 table used to calculate the sensitivity and specificity and their correlation.

The Pearson Chi square test was used to test significance the association between variables like subjective improvement of symptoms by this technique of oil pulling. All the statistical analysis was done on Statistical Software SPSS version 16.0 and using paired t test.

To conclude, Oral manifestation of diabetes can be managed, abated or at least curtailed by early detection and prompt treatment, comprehended by patient education, motivation and supervised oral care, delivered with the help of competent health team including oral physician. Oil pulling therapy help in minimizing the severity of oral manifestations necessitates regular surveillance and counselling in order to reassure the patient and improve the overall health of the patient.

**Samia Hamma-Faradji**  
Lecturer, University of Bejaia, Algeria

## **Prevalence and Origin of Urinary Tract Infections of Children in Bejaia, Algeria**

**Background and aims:** The study was to study the prevalence and cause of urinary tract infections in children under 12 years in the Bejaia region (Algeria). A study of the resistance of Enterobacteriaceae strains isolated to antibiotics was carried out.

**Methods:** Urine collection is done in mid-stream or "on the fly" after careful washing and removing the first jet of urine. 10 ml of urine is collected in a sterile tube, taking care not to touch the top edge of the tube. Seal the tube and bring the laboratory immediately. 417 urine samples taken from children under 12 years. Two important biological tests to help establish a urinary tract infection diagnosis was made : bacterial counts and counting of leukocytes in urine ( Riegel , 2003). The isolated bacteria were identified through biochemical galleries AP20E. Antibiotic susceptibility of strains identified was determined by the method of standard susceptibility testing by agar diffusion Mueller- Hinton, as recommended by the French Committee of the susceptibility of the French Society for Microbiology ( CFA MFC - 2007).

**Results:** Of the 417 urine samples taken from children under 12 years only 53 (12.70%) cases were positive (presence of a urinary tract infection). 13 cases of bacteriuria without pyuria (LSB), and 33 cases of erythema and control ((P / C) absence of leukocytes with a positive bacterial culture). According to the results, we find that the demand in the ECBU male is high 53% (221cas)) relative to the female (47% / 196 cases). However, the rate of urinary tract infections is higher among females, or 56.60%. Pyuria without bacteriuria is almost the same number in females and males from 6 to 7 cases, respectively. The polymorphic case and control is number 20 in males and 13 in females.

The identification of the isolated strains showed a predominance of *E. coli* with a rate of 83.01% followed by *Proteus mirabilis* with a rate of 7.54% (4cas / 53). The following species *Enterobacter cloacae*, *Enterococcus fecalis*, *Klebsiella pneumoniae*, *Streptococcus agalactia* and *Staphylococcus aureus* are present with a rate of 1.88% for each. The study of the resistance of Enterobacteriaceae strains (isolated from urinary tract infections) antibiotic showed that 20% of them were resistant to  $\beta$ -lactam antibiotics. Indeed,

**Conclusions:** The  $\beta$ -lactams are the main family used in community and hospital-acquired urinary tract infections. Prevention remains the most effective way to fight against urinary infections and therefore limit the emergence of multiresistant strains to antibiotics.

**Engjellushe Hasani**

Cardiologist, Health Center 3 Tirana, Albania

**Rezarta Shkreli**

Head of Pharmacy Department, Aldent University, Albania

**Klodiola Dhamo**

Lecturer, Aldent University, Albania

&

**Afrim Tabaku**

Researcher and Lecturer, Aldent University, Albania

## **Serum Levels of Cooper, Zinc and Selenium in Patients with Cardiovascular Disease**

**Background:** Cardiovascular diseases (CVD) and coronary artery diseases (CAD) are leading cause of morbidity and mortality in developed countries and is emerging as an epidemic in developing countries. Traditional risk factors such as serum cholesterol, blood pressure account for not more than 50% of CAD/CVD mortality. There is strong evidence that oxidative free radicals have a role in the development of degenerative diseases including CAD. Oxidative free radicals increase the peroxidation of low density lipoprotein (LDL thereby increasing its uptake by macrophages with increased foam cell formation and atherosclerosis, though other mechanisms may exist. Studies on the roles of trace elements in health and disease over the past 50 years have led to a good understanding of their mode of action and why they are essential to life. Microelements play an important role in the structure of proteins, enzymes and complex carbohydrates to participate in biochemical reactions.

Trace elements determinations in blood serum have become important to investigate their vital role in human metabolism, as well as to obtain information regarding the health status of individuals. The higher or lower levels may be both a cause and effect of atherosclerosis or the result of another unknown parameter. High serum copper is associated with increase of cardiovascular mortality. Selenium, an essential microelement, is part of the enzyme glutathione peroxidase, which is involved in removal of hydrogen peroxide and lipid peroxides, thereby protecting cell membranes from oxidative damage.

The aim of this survey is to put in evidence possible alterations of copper, zinc and selenium status in patients suffering by oxidative stress caused by cardiovascular disease (CVD).

**Material and methods:** We investigated serum levels of copper, zinc, and selenium in 108 patients with CVDs, and in 70 healthy persons. Serum copper and zinc measurements were carried out using flame atomic absorption spectrometry and serum selenium measurements were carried out using atomic absorption spectrometry hydride method. Statistical processing of the data was carried out using Statistical Package for Social Science (SPSS 20).



**Results and discussion:** The results of this survey have shown that levels of copper were increased in patients, compared to control group ( $961.85 \pm 11.55 \mu\text{g/l}$  vs  $821.55 \pm 16.18 \mu\text{g/l}$ ), while the levels of zinc, and selenium were decreased in patients, compared to control group, respectively from ( $776 \pm 28.21 \mu\text{g/l}$  to  $1004.04 \pm 20.85 \mu\text{g/l}$ ) and  $44.65 \pm 3.82 \mu\text{g/l}$  vs  $69.92 \pm 2.37 \mu\text{g/l}$ ). Significantly differences were found in patients suffering by oxidative stress caused by CVDs compared to the group of healthy persons for serum zinc ( $p < 0.001$ ) and serum selenium ( $p < 0.001$ ), whereas significant difference between the groups included in our survey was also found for serum copper ( $p < 0.01$ ).

**Conclusion:** The results of this survey indicate that there are alterations in serum concentrations of trace elements in cardiovascular patients, suggesting that they may play a role in the pathophysiology of these diseases by virtue of their role in oxidative stress.

**Zuhal Kilic-Kurt**

Postdoctoral Research Assistant, Ankara University, Turkey

**Filiz Bakar-Ates**

Assistant Professor, Ankara University, Turkey

**Yeliz Ozmay**

Researcher, Baskent University, Turkey

&

**Ozgur Kutuk**

Assistant Professor, Baskent University, Turkey

## **Evaluation of *in vitro* Antitumor Activities of some Pyrrolo[2,3-*d*] Pyrimidine Derivatives against Human Lung and Prostat Cancer Cell Lines**

Apoptosis, programmed cell death, plays essential role in the cellular development and differentiation (homeostasis).<sup>1</sup> Dysregulation of apoptosis lead to a variety of human diseases, such as cancer, autoimmune disease and neurodegenerative disorders.<sup>2</sup> Two types apoptotic pathways have been extensively described, including the extrinsic and intrinsic pathway. These two process are highly regulated by Bcl-2 family of proteins which are structurally and functionally classified as either anti-apoptotic (e.g. Bcl-2, Bcl-xL, Bcl-w, Mcl-1) and pro-apoptotic (e.g. Bak, Bax, Bok) or BH-3 only pro-apoptotic Bcl-2 proteins (Bad, Bim, Bmf, Bik, Hrk, Bid, Puma, Noxa).<sup>3</sup> Overexpression of anti-apoptotic proteins or the downregulation of pro-apoptotic proteins is associated with apoptotic resistance to tumor cells and cancer cell survival. Developing small molecules that activate and induce apoptosis is promising strategy for the treatment of cancer.<sup>4</sup> A number of promising new compounds with pyrrolo[2,3-*d*]pyrimidine scaffold have been reported to posses anticancer activity. So, pyrrolo[2,3-*d*]pyrimidine-based compounds have become one of the most extensively studied classes of heterocycles in cancer drug discovery and development compounds.

In this work, we reported that the antitumor evaluation of a series of pyrrolo[2,3-*d*]pyrimidine derivatives against lung (A549) and prostat (PC3) cancer cell lines. Among the tested compounds **6b**, **8a** and **9a** exhibited the remarkably cytotoxic activity against A549 with IC<sub>50</sub> value of 0.35, 1.48 and 1.56  $\mu$ M, respectively. To investigate the cell death mechanism of these compounds, Annexin V-FITC assay were performed. Flow cytometry analysis revealed that A549 cells treated with compounds **6b**, **8a** and **9a** showed significant increase in the percentage of late apoptotic cells by 2.8-, 2.7- and 2.5-folds compared to control, respectively. In addition, western blot analysis regarding the expression levels of apoptotic and proapoptotic markers has also revealed the apoptotic efficiency of the compounds. These results clearly demonstrated that the compounds **6b**, **8a** and **9a** had strong cytotoxic activity against A549 cell line via induction of apoptosis.

This work was supported by grant from The Scientific and Technological Research Council of Turkey (TUBITAK, 214S573).

**Patrycja Kleczkowska**

Adjunct Lecturer, Medical University of Warsaw, Poland

**Martyna Pekala**

Medical University of Warsaw, Poland

**Karolina Pawlik**

Medical University of Warsaw, Poland

**Dorota Sulejczak**

Polish Academy of Sciences, Poland

**Agnieszka Kowalczyk**

Medical University of Warsaw, Poland

**Grazyna Sygitowicz**

Medical University of Warsaw, Poland

**Malgorzata Frankowska**

Institute of Pharmacology, Poland

**Marek Konop**

Medical University of Warsaw, Poland

**Malgorzata Filip**

Professor, Institute of Pharmacology, Poland

**Lidia Rudnikcka**

Professor, Medical University of Warsaw, Poland

&

**Magdalena Bujalska-Zadrozny**

Medical University of Warsaw, Poland

## **Chronic Disulfiram Treatment Increases Analgesia and Reduces Tolerance Induced by Morphine but with Increased Toxic Effects**

Disulfiram (Antabuse, DSF) is a well-known anti-alcohol drug used as a deterrent to drinking. Its activity is due to the ability to irreversibly inhibit the aldehyde dehydrogenase enzyme (ALDH) thus, causing the disulfiram-ethanol reaction, which takes place follow the consumption of Et-OH.

Apart from its usefulness in staying sober and “clean” from alcohol, DSF was recently reported helpful in treating cocaine addicts, both in animal as well as human studies. Indeed, administration of disulfiram (100 mg/kg, i.p) resulted in reduced cocaine withdrawal and abuse. However, opposite effects were noted for DSF follow cannabis smoke.

With regards to above, it might be thought that DSF can also play a significant role in patients abused from opioids, particularly morphine. In order to give a tentative answer to this assumption, herein we provide both negative as well as positive actions of a simultaneous application of morphine and disulfiram drugs in experimental animals.

As observed, DSF dose-dependently altered morphine-mediated analgesia. Furthermore, morphine-induced tolerance occurred to be inhibited by the addition of DSF. Additionally, rats given with DSF and morphine were found to

be less aggressive to each other in comparison either to morphine- or DSF-treated animals. At the biochemical level, we found significant hepatotoxicity following combination of DSF and morphine in comparison to DSF-treated group.

Our findings clearly indicate that DSF should be used with an extreme caution with morphine treatment as several possible side effects induced by its simultaneous application with other psychoactive substances/drugs may take place.

The study was supported by Grant No. NCN-2014/15/D/NZ7/01821 from the National Science Centre, Poland

**Lu-Yuan Lee**

Fred Zechman Professor, University of Kentucky, USA

## **Role of TRPV1 Channel in Bronchial Hypersensitivity Associated with Airway Inflammatory Diseases**

Bronchial hypersensitivity is a common pathophysiological feature in various airway inflammatory diseases. Increasing evidence suggests that activation of the transient receptor potential vanilloid type 1 receptor (TRPV1) plays an important part in the manifestation of various symptoms of bronchial hypersensitivity. TRPV1 is a nonselective cation channel and a polymodal transducer. In the respiratory tract, it is expressed predominantly in non-myelinated (C-fiber) sensory nerves. Stimulation of these TRPV1-expressing sensory endings is known to elicit reflex responses such as cough and reflex bronchoconstriction. Recent studies in our laboratory have shown that allergen sensitization-induced airway inflammation markedly enhanced the expression of TRPV1 and the sensitivity of pulmonary C-fiber afferents in an animal model of asthma. Furthermore, a considerably lower temperature threshold for activating TRPV1 expressed in pulmonary sensory nerves. Increasing temperature to  $\sim 39^{\circ}\text{C}$  significantly elevated the baseline activity and sensitivity of isolated rat vagal pulmonary sensory neurons, and an involvement of TRPV1 was primarily responsible. In addition, in patients with mild and stable asthma a brief isocapnic hyperventilation (at  $\sim 40\%$  of maximum voluntary ventilation) of humidified warm air triggered an immediate increase in airway resistance ( $R_{aw}$ ) and coughs. In sharp contrast, the same challenge failed to evoke any significant change in  $R_{aw}$  or cough in healthy individuals. Pretreatment with ipratropium bromide completely prevented the bronchoconstriction in the asthmatic patients, but did not abolish the cough response, indicating an involvement of airway sensory nerves and cholinergic reflex. Hyperventilation of humidified air at room temperature did not cause bronchoconstriction or cough in the same patients. In conclusion, increasing airway temperature stimulated airway sensory nerves, presumably via an activation of TRPV1, and elicited both cough and cholinergic reflex bronchoconstriction in patients with mild asthma. These results further suggest that the sensitivity of TRPV1-expressing sensory nerves is upregulated in asthmatic airways.

**Anna Lesniak**

Researcher, Medical University of Warsaw, Poland

**Mariusz Sacharczuk**

Researcher, Medical University of Warsaw, Poland

**Diana Wojciechowska**

Pharmacy Student, Medical University of Warsaw, Poland

**Poznanski Piotr**

PhD Student, Polish Academy of Sciences, Poland

**Juszczak Grzegorz**

Researcher, Polish Academy of Sciences, Poland

&

**Magdalena Bujalska-Zadrożny**

Department Head, Medical University of Warsaw, Poland

## **Divergent Cannabinoid System Activity in High (HA) and Low (LA) Opioid Sensitivity Mouse Lines - Evidence for a Common Pathway**

Mice bidirectionally selected for high (HA) and low (LA) swim stress-induced analgesia (SSIA) differ substantially in opioid system activity. The direct cause underlying this phenomenon has not yet been identified despite extensive research. Numerous reports support the existence of functional interactions between the opioid and cannabinoid systems on pharmacological and molecular levels. Thus, we aimed to investigate whether opioid and cannabinoid sensitivity shares a common pathway that differentiates pain sensitivity in HA and LA mice. For this purpose, mice were treated with a non-selective cannabinoid agonist, (+)-WIN 55212-2 and their behavior was evaluated according to the tetrad paradigm. Moreover, the involvement of CB<sub>1</sub> receptors in SSIA was tested in a 3 - min., cold water swim challenge. The study showed that intraperitoneal (+)-WIN 55212-2 was more potent in producing analgesia and catalepsy in HA mice than in LA mice. The analgesic effect involved CB<sub>1</sub> - dependent signaling as pretreatment with rimonabant abolished the response to (+)-WIN 55212-2. Surprisingly, LA mice were more sensitive to the hypothermic effect of (+)-WIN 55212-2. Moreover, only a high dose (10 mg/kg) of (+)-WIN 55212-2 partly reversed SSIA in LA mice, but was without effect in the HA line. In conclusion, selective breeding of HA and LA mice for opioid sensitivity affected baseline and SSIA-induced cannabinoid system activation. Thus, both receptor systems possibly share molecular mechanisms involved in nociceptive processing in this model.

**Jean Marco**

Professor, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France

**Martin Lestra**

Postdoctoral Fellow, LLA-CRÉATIS, University of Toulouse-Jean Jaurès,  
France

**Monique Martinez**

Professor, LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France

**Cédric Aït-Ali**

LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France

&

**Bruno Péran**

LLA-CRÉATIS, University of Toulouse-Jean Jaurès, France

## **At the Heart of the Problem: A Transformative Learning Approach in a Group of Early Career Graduates in Interventional Cardiology, before, during and after a Large Meeting**

**Background:** The educative content of post graduate courses (PGC) in medicine is usually built by Course Directors and Faculty. To the authors' knowledge, there is scant reported experience on the alternative educative methods of transformative learning (TL) in the framework of large PGC in Interventional Cardiology (IC).

**Main Objective:** Encourage early career medical doctors (MD) graduated in IC to design a learning trajectory tailored to their needs and to share findings based on their own critical reflection on information.

**Methods:** With 18 early career MDs in IC, we followed a three-step approach at EuroPCR 2016:

1. EuroPCR: three rounds of individual exchanges between one facilitator and participants aiming to:
  - a. share participants' questioning,
  - b. enroll participants across four IC topics
  - c. submit participants' self-evaluated specific needs
2. During EuroPCR: physical meeting with facilitators aiming to self-develop among each group a collective learning content by applying a common method of critical analysis to the extant literature and EuroPCR sessions
3. At the end of EuroPCR: participants delivered a presentation of their findings to an audience

We evaluated participants' satisfaction throughout the learning trajectory with logbooks and participant observation. Additionally, the TL impact on professional performance is being assessed with a follow-up questionnaire 20 months after the educational intervention.



**Results:** 17/18 participants expressed the collective learning content as clear and satisfying their needs. 1/18 participant considered that topics selected were remote from his learning needs. All participants reported being able to share their critical viewpoints effectively. 12/18 participants recognized acquiring new knowledge or updating their knowledge through TL; while 4/18 participants considered that TL provided answers to improve their daily performance. These findings are discussed in light of an evaluation of TL's impact on participants' knowledge and performance conducted 20 months after the educational intervention.

**Conclusion:** Experimenting TL suggests that self-development of educational content answers participants' needs and consolidates participants' knowledge and competences. Future research should examine if and how "transformative learning" initiates 'communities of learners' beyond educational interventions.

**Teresa Martins**

Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal

&

**Maria José Lumini**

Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal

## **Development of a Virtual Learning Object to Nursing Students**

Nowadays the profile of nursing students is much more selective and demanding than few years ago. Students select the material to support their learning process by prioritizing the one, which uses image, and audio that allows them to maximize the profitability of their time spent studying.

ESEP as a Portuguese school of excellence in nursing education seeks to create learning teaching methodologies to ensure greater success with the minimum of effort. The creation of a virtual learning object was developed to help students perform nursing procedures.

The nursing procedures integrate a set of activities that concretizes an action. Much of the work of nurses is based on nursing procedures that guarantee the quality and standardization of care. The traditional method involved the provision of paper-based procedures that students used for consultation and study after attending demonstration classes.

This material, written with technical language, was (sometimes) unattractive and difficult to perceive.

Through an action research study we developed an electronic platform making available some of the nursing procedures. The new format of the nursing procedures contained more than text, pictures and small demonstration videos. Students accepted the new platform and evaluated it as an asset in their learning process.

The study involved the development of a set of steps from the auscultation of the difficulties to the revision and standardization of the language used in each procedure, through the creation of a group of experts who evaluated the new procedures.

**Jean Moraros**

Associate Professor, University of Saskatchewan, Canada

## **Factors Associated with Self-Reported Sexually Transmitted Infections among Postsecondary Students in Canada**

**Introduction:** Despite major public health efforts in addressing the burden of disease caused by Sexually Transmitted Infections (STIs) the rates among young adults continue to rise in Canada.

**Objectives:** To examine the prevalence and factors associated with acquiring STIs among postsecondary students in Canada.

**Methods:** A secondary analysis of the American College Health Association-National College Health Assessment II-C Spring 2016 survey data (N=43,780) was conducted. Sexually active participants (N=28,831) were examined for their demographics, sexual behaviour, alcohol and marijuana use, testing for HIV and HPV vaccination history. These factors were analyzed to help identify their possible association with acquiring an STI using logistic regression and multivariate modeling.

**Results:** We found that 3.88% of the study participants had an STI, with the highest rates observed among females and individuals aged 21-24 years old. Multivariate logistic analysis showed that participants who engaged in anal intercourse within the past 30 days (OR=1.634; 95% CI, 1.343 to 1.988), had four or more sexual partners in the last 12 months (OR=4.223; 95% CI, 3.595 to 4.962), used marijuana within the past 30 days (OR=1.641; 95% CI, 1.387 to 1.941), and had ever been tested for HIV (OR=3.008; 95% CI, 2.607 to 3.471) had greater odds of acquiring an STI.

**Conclusions:** The findings of this study emphasize that certain high-risk behaviours are strongly associated with acquiring an STI among postsecondary students. Thus, efforts to design and deliver relevant educational programming and health promotion initiatives for this particular population are of utmost importance.

**Cansu Atmaca Palazoglu**

Lecturer, Gümüşhane University, Turkey

**Zeynep Saglam**

Lecturer, Ondokuz Mayıs University, Turkey

**Tugba Kavalali Erdogan**

Research Assistant, Ondokuz Mayıs University, Turkey

**Sevil Masat**

Research Assistant, Ondokuz Mayıs University, Turkey

&

**Zeliha Koc**

Associate Professor, Ondokuz Mayıs University, Turkey

## **Nursing Students' Leadership Orientations and the Affecting Factors**

**Aim:** This descriptive study was aimed at determining the leadership orientations of the nursing students and the relevant affecting factors.

**Material and Method:** The research was realized with the participation of 294 students who were currently studying in the nursing department of the Faculty of Health Sciences of a university and agreed to participate in the study between 03 May and 12 May 2017. Data were collected by the researchers via a 20-question questionnaire form that determines socio-demographic characteristics of students based on the relevant literature and by using the Leadership Orientations Instrument (self). Leadership Orientations Instrument is a 5-point Likert-type scale which was developed by Bolman and Deal and whose reliability and validity for Turkey was performed by Dereli. The scale, with a total of 32 expressions, consists of four subdimensions of Human Resource Leadership, Structural Leadership, Political Leadership, and Symbolic Leadership. A high score taken from a dimension indicates that the person exhibits leadership characteristics in that dimension while a low score indicating that the person does not exhibit any leadership at all. For data assessment, percentile method, One Way ANOVA, Tukey test, and t test were used.

**Findings:** It was determined that of the students 75.5% were female, 24.5% were male, 59.2% defined their family structure as protective, and 49.3% defined status of inter-family communication and 58.2% defined status of their communication with the social environment as "good." Mean scores of students in subdimensions of Human Resource Leadership, Structural Leadership, Political Leadership, and Symbolic Leadership were  $3.9\pm 0.6$ ,  $3.7\pm 0.6$ ,  $3.4\pm 0.7$ , and  $3.5\pm 0.7$  respectively. The highest score among the items of Leadership Orientations Instrument was obtained from the following expressions in the Human Resource Leadership subdimension: "I show high sensitivity and concern for others' needs and feelings ( $4.0\pm 0.9$ )" and "I give personal recognition for work well done ( $4.0\pm 0.9$ ).". In this study, a statistically significant relationship was

found between students' Leadership Orientations Instrument score and their sociodemographic characteristics ( $p < 0.05$ ).

**Conclusion:** It was detected that students had high scores regarding Human Resource Leadership behaviors and low scores regarding Political Leadership behaviors. Human Resource Leadership behaviors were seen higher in the students, who were in their 1<sup>st</sup> year of nursing education, defined.

**Heni Rachmawati**

Associate Professor, Bandung Institute of Technology, Indonesia

**Benita Rachel**

MSc Student, Bandung Institute of Technology, Indonesia

**Neng Fisher Kurniati**

Assistant Professor, Bandung Institute of Technology, Indonesia

&

**Catur Riani**

Assistant Professor, Bandung Institute of Technology, Indonesia

## **Xylan-5-ASA Prodrug for Colon Targeting**

Utilization of xylan from pineapple stem waste as pharmaceutical excipient can be as a solution to minimize environmental problems caused by organic waste. Xylan, is promising as a material for colon targeting of drug due to good properties such as water-insoluble, acidic resistant, and degraded only by xylanase enzyme present in colon. 5-aminosalicylic acid (5-ASA), a golden standard drug for inflammatory bowel diseases (IBD) therapy, is rapidly absorbed from the proximal part of gastrointestinal tract (GIT) when given orally leading to failure in IBD therapy. To prevent proximal part of GIT absorption, 5-ASA was conjugated with xylan to form inactive form (prodrug). The prodrug formation consisted of 2 steps: 5-formylaminosalicylic acid formation and xylan 5-ASA conjugation using 1,1'-carbonyldiimidazole in dimethylsulfoxide and triethylamine as catalyst. Prodrug was characterized by infrared and UV-Vis spectrophotometer. The *in vivo* profil of 5-ASA from the prodrug and the free forms was studied in Wistar rat after oral administration. Further, the activity study of xylan-5-ASA prodrug was done in colitis rat model induced by TNBS through rectal route.

Five groups were applied in the activity study: negative control, positive control, 5-ASA (180 mg/kg bw/day), xylan (192.96 mg/kg bw/day), and xylan-5-ASA ester conjugates (372.96 mg/kg bw/day). Observation was conducted for 14 days and disease activity index (DAI) was evaluated during that period. After 14 consecutive days, rats were sacrificed and rat's colon was taken for analysis including colon length, weight, histology, macroscopic injury, and inflammatory mediator observation using PCR. Based on FTIR and UV/Vis characterizations, xylan-5-ASA prodrug was successfully synthesized. Based on DAI, only group treated with xylan-5-ASA prodrug showed significant reduction compared to control group ( $p < 0,05$ ).

This result was confirmed by histology, colon macroscopic and inflammatory mediators observation result. The successful colon targeting of the prodrug was confirmed by *in vivo* data after oral administration of both free 5-ASA and xylan-5-ASA prodrug. Xylan-5-ASA shows low systemic absorption as compared to free 5-ASA hence really promising form of 5-ASA for colon targeting, for chronic colon inflammation.

**Shokufeh Ramirez**

Assistant Director, Tulane Center of Excellence in Maternal and Child Health,  
Tulane University, USA

**Amelia Brandt**

PhD Student, Tulane University, USA

**Bert Cramer**

Independent Researcher, Tulane University, USA

&

**Carolyn Johnson**

Professor, Tulane University, USA

## **An Evaluation of Maternal and Child Health (MCH) Leadership Education at Tulane University**

The health of women, children, and families in the United States relies on a well-trained and competent MCH workforce. As part of its investment in the health and wellbeing of these populations, the US government provides funding for MCH workforce training. This study is an evaluation of the MCH leadership education program of the Tulane University Center of Excellence in Maternal and Child Health (CEMCH), with a particular focus on newly added components.

The CEMCH provides complementary MCH leadership skills-building opportunities for MPH students who opt to receive extracurricular training, including leadership coursework, shadowing rotations and volunteering with community organizations, presentations, mentoring meetings, and additional assignments. This evaluation was undertaken to assess the impact and acceptability of CEMCH activities for these Scholars and community partners, and to examine the value of this training for future MCH leaders. Using a mixed-methods approach, information was collected from stakeholders via semi-structured interviews and quantitative surveys. Using a grounded theory approach, investigators identified thematic categories within and across groups.

**Current** Scholars identified CEMCH activities as beneficial to their studies and future career, with close cohort cohesion, responsive mentorship, and practical MCH professional exposure providing a sense of confidence in their ability to serve as MCH leaders. **Former** scholars reported that program leadership, strong cohort identity, and MCH skills-building and professional development contributed to their professional growth and ability to serve in the field. Suggestions for program improvements included: more structure and support for extracurricular activities, additional mentors with varied expertise, and opening the program to all MCH students.

This evaluation provides essential feedback that can strengthen the Tulane CEMCH and provide a model curriculum for other MCH programs. A competent MCH workforce is essential to protecting and improving the health

of the MCH population, and education and training provides the foundation of that workforce.



**Maria Rui Sousa**

Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal

**Filipe Pereira**

Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal

&

**Teresa Martins**

Professor, ESEP - Escola Superior de Enfermagem do Porto, Portugal

**How useful is the Empowerment Approach for Helping Patients  
to Control their Diabetes?**

There are several educational programs designed to help people to manage their chronic illness and they are mostly prescriptive and based on the transmission of information about the disease, symptoms, treatment and consequences. Anderson and Funnel's model of behavioral change is more focused on empowerment and places the patient at the center of care; while the health professional's role is to help the patient to identify his concerns, feelings and beliefs about the disease; to reflect on his objectives; to plan strategies to achieve them; and to evaluate the efficacy of this plan. According to this model, it has been created a comparative longitudinal study using quantitative and qualitative methodologies, where a group of nurses delineated and implemented a program called "Living in Harmony with Diabetes" in 85 patients with type 2 diabetes mellitus. The main goal of this study is to analyze the efficacy of the program in contributing to improve the patient's ability to manage his diabetes. In the end, the data obtained through questionnaires showed an improvement in the psychosocial variables (knowledge, beliefs and perception of self-efficacy), self-care behaviors and clinical parameters (Glycated Hemoglobin, Blood Pressure, Weight, Abdominal Perimeter). We also interviewed 21 of these patients. They reported having a greater awareness of diabetes, a greater perception of self-efficacy and more control over the disease. They also reported that they learned to find strategies appropriate to their situation and that they felt more prepared to deal with the disease.

We concluded that the program not only had a positive impact on the control of diabetes, but also promoted patient involvement and autonomy in health management, in the search for and implementation of adaptive strategies, decision making and problem solving.

**Sirpa Salin**

Principal Lecturer, Tampere University of Applied Sciences, Finland  
&

**Hannele Laaksonen**

Principal Lecturer, Tampere University of Applied Sciences, Finland

**Bringing Informal Caregivers and Recipients to the Digital Age  
Project**

Advancing informal caregivers' health and functional capacity and enabling living at home are significant objectives in Finnish society. Caring for the wellbeing of informal caregivers contributes to making the social and health service system more cost-effective and productive, as their work allows patients to live at home rather than in expensive nursing homes or sheltered housing. The purpose of this project is to create a model for supporting the welfare services of informal caregivers, based on digital methods.

The goal is to develop digital services to meet the needs of informal caregivers and recipients. The services will allow informal caregivers to connect easily with public social and health care service providers.

Three digital communication and leisure services for informal caregivers (N=20) and recipients (N=20) will be tested in the project, followed by an assessment of the suitability of the services for improving their quality of life. Two of the services are designed to enable communication with healthcare professionals and loved ones and to allow participation in activities such as group singing. A memory game that aims to entertain and activate the recipient will also be tested. The game can be used to maintain and advance the recipient's cognitive functions, avoid a feeling of alienation and give experiences of success. The pilot phase will take place from January 1 through July 31, 2018.

The initial interviews with the participants were conducted at their homes before the pilot phase in late 2017. The informal caregivers and patients filled the 15D quality of life measurement with added questions from the World Health Organization's quality of life measurement. The interviews were also used to map their wishes and expectations for the project. The data are currently being analyzed and will be presented at the conference.

**Wael El-Sayed Shendy**  
Professor, National Research Centre, Egypt

**Asmaa F. Kassem**  
National Research Centre, Egypt

**Eman M. H. Abbas**  
National Research Centre, Egypt

**Dina S. El-Kady**  
National Research Centre, Egypt

&  
**Hanem M. Awad**  
National Research Centre, Egypt

## **Synthesis, Docking Studies and Anticancer Activity of Novel Tetrazolyl - and (triazolyl) Thiazole Glycosides and Acyclic Analog**

Breast cancer represents one of the main causes of cancer related deaths and diseases in the world being the leading cause of cancer mortality in women in spite of having available comparatively good prognosis, surgery, chemo and radiotherapy. Targeted therapeutics are utilized in cancer chemotherapy, where specific inhibitors could selectively recognize targeting sites and are not related with the earnest toxicities like conventional cytotoxic drugs. Heterocycles represent a main essence of several pharmacophores, groups of which are benzothiazoles and triazoles which are used for the treatment of types of cancers. Tetrazoles and carbohydrate coupled with tetrazole or triazole moiety may occupy a vital position in medicinal chemistry. In addition to their broad spectrum of pharmacological activities a number of tetrazoles have been reported as promising candidates for anticancer activity. *Losartan* possessing tetrazolyl moiety is being investigated for use in the treatment of breast cancer tumors positive for AGTR1. The tetrazolyl moiety represents a non-classical isostere of carboxylic acids and lipophilic spacers in pharmaceuticals and thus has been a good substitution in drug design. In the present study, novel glycosides of benzothiazol-tetrazole and benzothiazole-tetrazole conjugates as well as their acyclic analog were synthesized. The target tetrazole glycosides were synthesized by construction of ring system by cycloaddition process of benzothiazole-linked nitrile group and sodium azide followed by glycosylation reaction and deprotection. The triazole glycosides were resulted by applying click approach involving dipolar cycloaddition of benzothiazole possessing alkyne functionality and different glycosyl azides. The products incorporating acyclic analogs of sugar moieties were synthesized through alkylation using acyclic oxygenated halides. The anticancer activity was studied against human breast adenocarcinoma cells (MCF-7) and human normal Retina pigmented epithelium cells (RPE-1). Promising activities were revealed by three compounds with IC<sub>50</sub> values 11.9-16.5  $\mu$ M compared to doxorubicin (18.6  $\mu$ M) in addition to other four derivatives

with good inhibition activities. Enzyme docking studies were carried out into cyclin-dependent kinase 2 (CDK2); a potential target for anti-cancer medication. SAR results were correlated and compounds with highest anticancer activity exhibited good fitting inside the binding site of the protein molecular surface and have minimum binding energy.

**Rezarta Shkreli**

Head of Pharmacy Department, Aldent University, Albania

**Klodiola Dhamo**

Lecturer, Aldent University, Albania

&

**Afrim Tabaku**

Researcher and Lecturer, Aldent University, Albania

## **Knowledge, Attitude and Practice of Pharmacists Towards Pharmacovigilance and Reporting of Adverse Drug Reaction**

**Introduction:** Spontaneous adverse drug reaction (ADR) reporting is the cornerstone of pharmacovigilance. Spontaneous reporting system has remained the most significant method for safeguarding patients' lives. ADRs are always underreported. Underreporting of adverse drug reactions by healthcare professionals is a major problem in many countries especially in developing countries, where sistem of pharmacovigilance is not consolidated.

**Methods:** A cross-sectional survey is conducted on community pharmacists in Tirana from December 2016 to June 2017 aimed to estimating the knowledge, attitude and practice of pharmacovigilance and reporting adverse drug reaction. A questionnaire which was suitable for assessing the basic Knowledge, Attitude and the Practice (KAP) of pharmacovigilance was designed and distributed among the pharmacists and filled up forms collected back and analyzed by using software SPSS 20.

**Results:** 200 forms were received back out of 250 distributed forms, reflecting a response rate of 80%. Results of this survey have shown that 63% of interviewed didn't know about the term of pharmacovigilance and 48% didn't know the aim of pharmacovigilance. 31 % of interviewed were not aware of the existence of National Pharmacovigilance Center. The declaration of adverse drug reaction were made to the medical representatives and to the physicians issued the prescription in 98% of cases and only 2% to the National Pharmacovigilance Centre. Seventy nine percent of the respondents considered the reporting of ADRs to be an integral part of their professional duties and all respondents acknowledged the importance of reporting. Several barriers identified, that prevent pharmacists from reporting ADR include, reporting form not available 50%, do not know how to report 13% and uncertainty concerning filling the reporting form 25%

**Conclusion:** Pharmacovigilance is a public health problem in Albania, with due to lack of good knowledge and practice of pharmacists and other medical staff. There was a great need to create awareness among pharmacists and other medical staff to improve the knowledge about pharmacovigilance and the reporting of ADRs through continuous education.

**Paola Miranda Sulis**

PhD Student, Universidade Federal de Santa Catarina, Brazil

**Marisa Frederico**

Universidade Federal de Santa Catarina, Brazil

**Alessandra Mascarello**

Universidade Federal de Santa Catarina, Brazil

**Ricardo José Nunes**

Universidade Federal de Santa Catarina, Brazil

**Rosendo Augusto Yunes**

Universidade Federal de Santa Catarina, Brazil

&

**Fatima Regina Mena Barreto Silva**

Universidade Federal de Santa Catarina, Brazil

## **Effect and Mechanism of Action of Sulfonylthiourea Derivative on Glycaemia Homeostasis**

**Introduction:** Sulfonylureas are used worldwide as insulin secretagogues in the treatment of diabetes. In this sense, glibenclamide, a 2<sup>nd</sup> generation sulfonylurea, was chemically modified with the purpose to investigate its effect on glucose homeostasis. Aim: To assess the glycaemia, insulin and GLP-1 levels of a glibenclamide derivative sulfonylthiourea 7 (Sulp7) in the glucose tolerance test (TTG). Next, the calcium influx and the mechanism of action of Sulp7 on static insulin secretion were investigated in pancreatic islets. Also, the role of Sulp7 on intestinal disaccharidases and incretin secretion was studied.

**Methods:** Male *Wistar* rats (50 days old) were divided into three experimental groups: Group I, Hyperglycemic rats (4g/kg glucose, via oral (v.o)), Group II, Hyperglycemic rats plus Glibenclamide (10 mg/kg, v.o., 30 min before glucose overload), and Group III, Hyperglycemic rats plus Sulp7 (10 mg/kg, v.o., 30 min before glucose overload). Sitagliptin (10 mg/kg, v.o., 1 h before glucose overload) was administered to analyze GLP-1 levels. Blood samples were collected prior to glucose overload (time 0); and 15, 30, 60 and 180 min after, to quantify glucose, insulin and GLP-1 levels. At 180 min the animals were euthanized and gut samples were taken to analyze the activity of the disaccharidases. Pancreatic islets were isolated to study calcium influx and to quantify insulin. Results expressed as Mean  $\pm$  Standard Error Mean and level of significance of 95% ( $p < 0.05$ ), (CEUA/UFSC: PP00749).

**Results:** Sulp7 reduced blood glucose and increased static insulin by a mechanism triggered by calcium. Furthermore, Sulp7 increased significantly serum GLP-1. Sulp7 decreased the activities of intestinal disaccharidases.

**Conclusions:** Sulp7 regulates glucose homeostasis by a mechanism involving insulin and incretin secretion and also points the intestine as an alternative target since reduced the activities of disaccharidases.

**Theodore Trafalis**

Professor, University of Oklahoma, USA

&

**Xiaomeng Dong**

Student, University of Oklahoma, USA

## **Thyroid Nodule Ultrasound Image Analysis and Feature Extraction**

This talk discusses how deep learning and machine learning can be used in biomedical imaging to help radiologists improve cancer diagnosis. It proposes a new framework for extracting useful information for thyroid ultrasound images. The methodology combines deep learning, computer vision and feature engineering together to extract medical image features. Next, multiple machine learning classifiers are used to build effective thyroid tumor diagnosis model. Experimental results show that the final model outperforms human experts on the test set and can effectively reduce the number of unnecessary biopsy and the number of missing malignancy.

**Richik Tripathi**

Assistant Professor, Banaras Hindu University, India

### **Trauma to the Oral Mucosa from 3<sup>rd</sup> Molar Tooth as Contributory Factor towards Development of Oral Cancer**

Impacted 3<sup>rd</sup> molar or malposed 3<sup>rd</sup> molar is seen frequently in general population. As people continue to take refined and processed food, the incidence of 3<sup>rd</sup> molar impaction or malposition is getting higher. A number of studies have been done in the past which were focused on histopathological changes occurring in dental follicle of 3<sup>rd</sup> molar tooth. However the effect of malposed 3<sup>rd</sup> molar tooth or impacted tooth on buccal mucosa is missing from such studies. Studies have pointed out that, chronic trauma to oral mucosa from sharp tooth cusps or from ill-fitting denture can cause oral cancer in predisposed individuals. It has been observed that in 60 to 70% of patients who complain of frequent cheek bite/tongue bite or ulcers on buccal mucosa, malposed 3<sup>rd</sup> molar or impacted tooth is always present which is source of continuous trauma to retromolar oral mucosa. In this study 140 patients were selected randomly who had impacted or malposed 3<sup>rd</sup> molar and having chief complaint of frequent cheek bite or ulceration of retromolar mucosa. Extraction of impacted and malposed 3<sup>rd</sup> molar was performed and part of retromolar mucosa was excised and sent for histopathological study. The results were classified into 3 categories these were; Anaplasia, Metaplasia and Dysplasia.



**John Trougakos**

Associate Professor, University of Toronto, Canada

## **Stressed Out? How to Improve Health and Increase Productivity: The Science of Work Breaks**

Overworked. Stressed out. Burnt out. Modern workers are at a breaking point. Statistics suggest that work is interfering more and more with people's personal time, and that stress and burnout are at near-epidemic levels. The cost to organizations and governments is in the billions, and the cost to workers comes not only in the form of lower job effectiveness, but also in their mental and physical well-being. Job demands, technology, and organizational norms and culture tie people to their work in a manner that is unprecedented in modern times, but the question is: Are we really working as smart as we can? In spite of recent advances in some countries, the answer seems to be no. In this presentation, I review current and ongoing research examining ways in which people can work smarter, be more productive, and live a healthier life, while actually working less.

**Przemyslaw Zalewski**

Associate Professor, Poznan University of Medical Sciences, Poland

**Karolina Kilinska**

PhD Student, Poznan University of Medical Sciences, Poland

**Judyta Cielecka-Piontek**

Associate Professor, Poznan University of Medical Sciences, Poland

**Robert Skibiński**

Associate Professor, Medical University of Lublin, Poland

**Daria Szymanowska**

Associate Professor, Poznan University of Life Sciences, Poland

Andrzej Miklaszewski, Poznan University of Technology, Poland

&

**Waldemar Bednarski**

Associate Professor, Polish Academy of Sciences, Poland

## **Radiostability of the Imipenem and Cilastatin in the Solid State**

Imipenem is a  $\beta$ -lactam antibiotic administered with cilastatin – an inhibitor of dehydropeptidase-I. This combination is indicated for the treatment of complicated intra-abdominal infections, severe pneumonia, intra- and post-partum infections, complicated urinary tract infections or complicated skin and soft tissue infections. Imipenem with cilastatin is parenterally administered only so its formulations require specific procedure of preparation in order to obtain aseptic forms. Radiation sterilization is one of the methods recommended by pharmacopoeia, especially for obtaining of sterile forms of thermolabile drugs. The significant thermal instability of imipenem has been reported therefore radiation sterilization may prove valuable as a procedure of obtaining its sterile forms, which was the aim of these studies.

The impact of ionizing radiation generated by a beam of electrons at 25 kGy dose rate on the stability of imipenem/cilastatin combination (500 mg + 500 mg) with the presence of excipient (sodium hydrogen carbonate, 37.5 mg sodium per vial) was studied.

Based on EPR spectroscopy results, it was established that unstable free radicals were presented in samples after irradiation and their mean lifetime was  $142 \pm 64$  h. Radiation-induced structural changes were analyzed by FT-IR and XRPD methods in regards to presence of hydrogen bonds and crystalline properties. A chromatographic method (HPLC-MS/MS) was applied to assess changes in the contents of the imipenem and cilastatin. Decrease of assay was around 5%. Analysis of HPLC-MS/MS chromatograms showed formation of one degradation product originated from imipenem degradation. It was structural isomer of imipenem with the same measured mass and fragmentation ions. Apart from physicochemical changes of irradiated samples of imipenem and cilastatin, their microbiological activity studies were conducted. The changes of bactericidal activity of irradiated samples of imipenem was observed for 4 (*Klebsiella*

*pneumonia* and *Escherichia coli* -both clinical isolates and reference strains) from 22 analyzed stains.

Results of the conducted studies permit to draw conclusion that imipenem and cilastatin in solid state are not resistant to ionizing radiation (in a standard sterilization dose - 25 kGy) and this method cannot be safely used for sterilization and decontamination of this antibiotic formulation.

Acknowledgements: This study was supported by a grant from the National Science Centre, Poland (Miniatura, 2017/01/X/NZ7/00141).