



General Sir John Kotelawala Defence University  
Sri Lanka



# ABSTRACTS

Multi Professional Collaboration for Excellence in Health Care

## 11<sup>TH</sup> INTERNATIONAL RESEARCH CONFERENCE

Securing Professional Excellence through Collaboration

13<sup>th</sup> - 14<sup>th</sup> SEPTEMBER 2018



This book contains the abstracts of papers presented at the 11<sup>th</sup> International Research Conference of General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka held on 13<sup>th</sup> - 14<sup>th</sup> September 2018. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form, without prior permission of **General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka**

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## MESSAGE FROM THE SECRETARY TO THE MINISTRY OF DEFENCE



It is with great pleasure that I am issuing this message to the International Research Conference 2018 of the General Sir John Kotelawala Defence University (KDU) as the Secretary to the Ministry of Defence and the ex-officio Chairman of the Board of Management, KDU.

I wish to place on record my sincere appreciation to KDU for playing a leading role in molding the future of the military as well as civilian youth who are in pursuit of high quality tertiary education in Sri Lanka. Today, KDU has gained recognition as an excellent seat of learning and disseminating knowledge that empowers attitudes and develops skills of the young graduates. It also contributes immensely to the much needed research and innovation.

KDU IRC is an annual event in its calendar eagerly anticipated by many due to the significance it holds in providing a platform for both local and

international intelligentsia to congregate, confer and disseminate knowledge. I am sure that, under this year's theme, securing professional excellence through collaboration, the conference will encompass a wide range of topics that are of utmost benefit for potential scientific and socio economic advancement in Sri Lanka.

While expecting to see great minds from all over the world meet and share their thoughts and knowledge at this event, once again I express my sincere appreciation to the Vice Chancellor and KDU staff for the enthusiasm and commitment shown towards making this scholarly experience a memorable one for its participants.

I wish that this international research conference would be highly productive for all participants – a conference that enriches the much needed research culture to ensure the nation's growth enabling to face its future challenges.

**Kapila Waidyaratne**  
President's Counsel  
Secretary

## MESSAGE FROM THE VICE CHANCELLOR



I am delighted that we have been able to organize the 11th International Research Conference of General Sir John Kotelawala Defence University (KDU IRC – 2018) conducted on the overarching theme, “Securing Professional Excellence through Collaboration” and convened over two days, 13th and 14th September 2018 at the university premises. Hence, it is with great pride that I pen down my thoughts on this Abstract Book of KDU IRC-2018.

KDU IRC-2018 is a world class forum that brings professionals and researchers of various disciplines to a common platform to disseminate their valuable research findings. They are able to present, discuss and deliberate their research findings with peers and experts, both local and international, as well as engage in lively discussions on contemporary matters. The resource personnel of the conference are eminent Sri Lankan and foreign researchers, academics and professionals with international recognition including those of our own staff at KDU.

We are proud to have internationally eminent, Sri Lankan born scientists, such as, Prof. Mohan Munasinghe and Dr. Sarath D. Gunapala, as guest speakers at the inauguration of the conference. They have made our motherland proud in the international arena as renowned experts and intellectuals in their respective fields. Further, this conference is enriched with the participation of many local and foreign academics in varied disciplines; along with personnel from the

tri-services and the police, thus making our conference the only research conference in Sri Lanka that brings together civilian professionals and their counterparts in security forces.

What is special about this conference is that the research papers are automatically uploaded to Google Scholar with H-Index Citations. The best papers are published in journals and others as proceedings. In addition, provision is given for live telecast of oral presentations through YouTube, and presentations on Skype, for international authors. The plenary sessions, pre/post-conference workshops and oral and poster presentations, would no doubt generate productive discussion and constructive criticism which would in return instigate thoughts for development in future.

I wish to record our gratitude to the Ministry of Science, Technology and Research and the National Science Foundation, not forgetting the Ministry of Defence, for their consistent support in co-organizing our conference, and my sincere appreciation of the academic and administrative staff of KDU together with our well-wishers for their invaluable contribution towards the success of this mammoth event.

Finally, I wish you, the presenters, good luck with your scholarly presentations at KDU IRC-2018 and the participants a memorable and thought provoking experience.

**JJ Ranasinghe VSV, USP, psc, MSc (DS) Mgt**  
Rear Admiral  
Vice Chancellor

## MESSAGE FROM THE CONFERENCE CHAIR



On behalf of the Executive Committee, I am honoured and delighted to welcome you to the 11<sup>th</sup> International Research Conference of General Sir John Kotelawala Defence University (KDU IRC-2018); bearing the theme, Securing Professional Excellence through Collaboration. Over the past 11 years, KDU IRC has grown to be a major international research conference, continuing with its tradition of high-quality and broad international participation in all areas of research. Hence, it is a pride and honour to preside over this prestigious research conference in Sri Lanka.

I am very pleased to welcome you to KDU IRC-2018 which is based on fundamental concerns to all scientists and non-scientists alike. This conference also enables the exchange and dissemination of useful information on multilateral initiatives. Therefore in bringing us together, KDU IRC -2018 allows to seek out and forge new partnerships, and to engage relevant sectors in advancing the social and economic well-being of mankind.

KDU is gratified to have a line-up of highly renowned keynote and plenary speakers

consisting of experts who would shed light on research and issues. In addition, this is an opportunity for undergraduates, researchers and practitioners to share their research and contribution towards the success of the respective professions, through oral and poster presentations.

The successful organization of KDU IRC -2018 required the talents, dedication and invaluable time of many academic and administrative staff of KDU, volunteers and strong support from our sponsors; the Ministry of Science, Technology and Research, and the Ministry of Telecommunication, Digital Infrastructure & Foreign Employment. Special gratitude and appreciation goes to the Presidents, Coordinators and the members of the numerous committees of the faculties. Without their wise advices and suggestions; outstanding organization, planning and performance, we would not have had such an excellent conference.

I hope KDU IRC-2018 would offer the participants a platform to exchange ideas, discover novel opportunities, reacquaint with colleagues, meet new friends and broaden their knowledge.

**Dr Upali Rajapaksha**  
Conference Chair  
11<sup>th</sup> International Research Conference

## MESSAGE FROM THE PRESIDENT OF THE SESSION



It is with great pride and pleasure that I write this message to the 11th International Research Conference of the General Sir John Kotelawala Defence University. The Conference theme of this year “Multi Professional Collaboration for Excellence in Health Care” will provide an excellent forum to refresh your knowledge base and explore the innovations in medicine and research.

KDU IRC Conference has attracted specialist in diverse fields across the globe enriching and encouraging its multi-disciplinary space in the field of research and knowledge dissemination. The Conference will strive to offer plenty of networking opportunities, providing you with the

opportunity to meet and interact with the leading scientists, researchers, friends and colleagues. The conference itself starts with the plenary session where International and Sri Lankan eminent speakers will give their distinguished expert speeches. Second day of the conference is allocated for authors to present their Oral & Poster preparations. The best Paper award and the best poster award will be awarded at the closing ceremony.

I would like to express my gratitude to all authors for their outstanding contribution and express my appreciation to the organizing committee of the conference.

**Prof MH Jayantha Ariyaratne (MS, FRCS)**  
President  
Medicine Session

Plenary  
Session



## PUBLIC HEALTH BURDEN CAUSED BY ZIKA VIRUS: NEED FOR A MULTI-PROFESSIONAL APPROACH

Kouichi Morita

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Zika virus (ZIKV) belongs to the genus *Flavivirus* of the family *Flaviviridae*, and is transmitted to humans by the bite of infected *Aedes* mosquitoes. The virus was first isolated from a monkey in Uganda in 1947 while the first human case of virus infection was reported in Nigeria in 1947. Later, sporadic human cases have been reported in Asia. In 2007, an unprecedented ZIKV outbreak occurred in Yap Island, Micronesia. Subsequently, big epidemics were confirmed between 2013 and 2015 in French Polynesia, New Caledonia, Cook Island, Easter Island, America, and Brazil. It is still fresh to our mind that the PHEIC (Public Health Emergency of International Concern) was declared by WHO on 1 Feb 2016 during the period of unprecedented epidemic in Brazil and other countries in South and Central Americas.

The clinical symptoms of ZIKV infection such as fever, rash, headache, arthralgia, myalgia, conjunctivitis, and edema resemble those of dengue and chikungunya, however, approximately 80% of infected persons are asymptomatic. Although the disease is self-limiting, it poses a public health concern because ZIKV infection in early phase of pregnancy can cause congenital deformities, particularly microcephaly. Hence, ZIKV outbreak could be a serious public health concern.

In Asia, public health burden caused by ZIKV infection is not well elucidated though ZIKV is endemic and the principal vectors are widespread. Thus, determination of the extent of ZIKV outbreak is of particular importance in the region.

As researchers, we have been conducting cross-sectional virological and serological analysis to determine possible ZIKV outbreaks and their geographical spread in Vietnam and Myanmar in collaboration with WHO, DMR in Myanmar and NIHE in Vietnam. As of 2017, 232 Zika cases had been identified in Vietnam and in 2014; a case of microcephaly-associated ZIKV infection was identified. In Myanmar, 462 samples collected from 2004 to 2017 were subjected to screening and ZIKV infection was found in 4.9% of patients with dengue-like clinical symptoms. Our results confirmed the occurrence of ZIKV infection in two geographically distinct sites in Myanmar since at least 2006 and it suggests a need for continuous ZIKV disease monitoring and a better understanding on the ZIKV disease spectrum in the region.

Most recently, another ZIKV-related microcephaly case was confirmed in Thailand. It should be noted that the case was caused by the Asian Lineage ZIKV which is supposed to already spread to a wide area in Asia. Therefore, ZIKV infection will continue to be one of the public health problems and will pose a burden to the society. To approach the problem which has now become a global health issue, this needs a cooperation among the different sectors of the society in which people of different professions such as virologists, entomologists, physicians, nurses, medical technologists, policy makers, health economists, epidemiologists, have to work together to address the ZIKV disease in terms of detection, prevention, care and support and research.

## TRANSLATIONAL RESEARCH FROM AN AUSTRALASIAN PERSPECTIVE

George Jayantha Dias

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Research performed in tertiary educational institutions has historically concentrated on the improvement of knowledge. This has been gradually changing over recent years where there is a movement for “translational research”. Lately the research-funding environment has also been encouraging the enhancement of entrepreneurship with strong connections with the commercial sector. Universities have been setting up mechanisms to enable this change to become enterprising. This has led to the establishment of commercialisation and technology transfer offices that assist in protecting intellectual property arising from research and finding industry partners to commercialise this knowledge. Another function of these offices is to educate the academics as to the needs of the industry, identify and establish relationships with relevant industry partners, assist in securing traditional and non-traditional research funding, and finally support the pathway to commercialisation. In commercialisation, research discoveries are converted into products and services, generally via licensing or start-up ventures.

The Research and Enterprise Office at the University of Otago supports and assists researchers in the identification of funding opportunities, partnering with business, grant applications, and the establishment of research contracts. Otago Innovation established in 2002, is a University of Otago company responsible for developing and commercialising the University's intellectual property. They offer advice and provide a platform from which researchers can get their research or invention investor ready.

Other Australasian examples include UNSW Innovations at University of New South Wales (Sydney, Australia) which is involved with technology transfer and an innovation office that collaborates with business, research organisations and the community to achieve positive outcomes from research. Innovation ANU at the Australian National University (Canberra, Australia) connects ideas, research, government and business to create value for the community. They support Innovation and entrepreneurship through a range of education, licensing, consultancies, advice and funding opportunities for startups.

The author will speak about his own personal experiences in translational research and commercialisation for a variety of biomaterial types in relation to the above organisations. The following examples will be used as case studies from the author's own experience in translational research:

1. Keratin-based bone substitutes (International patent: Orthopaedic materials derived from keratin WO 2003103737 A1 [application PCT/NZ2003/000116]; US patent: Orthopaedic materials derived from keratin US7,297,342)
2. Bovine bone Xenograft (International patent: A medical preparation WO 2008069686 A1 [application PCT/NZ2007/000354])
3. Keratin derived protein (US provisional patent Application No. 62/330,376; PCT application number PCT/NZ2017/050052)

## MALARIA ELIMINATION IN SRI LANKA : A SUCCESSFUL MULTI-SECTOR, MULTI-PROFESSIONAL COLLABORATION

AR Wickremasinghe

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The last case of indigenous malaria was reported Sri Lanka in October 2012 and the country was certified as “malaria-free” by the World Health Organization in September 2016. This is truly a great achievement for a tropical country which had just overcome a major conflict within the country in areas that were previously endemic for malaria. Sri Lanka almost eliminated malaria in 1963 but the disease resurged in the late 1960s due to many reasons including technical issues. Today, it is almost 6 years since a case of indigenous malaria was reported implying that we have the capacity to prevent its re-introduction and re-establishment in favourable conditions.

Eliminating malaria was no easy task. It required political will, dedicated staff, committed administrators, inter-sectoral and multi-professional collaboration and sustained financial support. The main challenge was in the last stages to keep the momentum for elimination in the radar. A diminishing case load made clinicians

“forget” the disease; maintaining the technical skills of Public Health Laboratory Technicians was a challenge.

Mopping up of the last cases and eliminating two foci is a classic example of good public health practice. The Sri Lanka army immensely contributed to this elimination effort in collaborating with the Anti Malaria Campaign. Post 2009, many army personnel were diagnosed with vivax malaria. Some of these episodes were relapses. The Sri Lanka Army ensured that all soldiers were provided with radical cure for vivax malaria which included a 14-day course of primaquine. This was instrumental in the success of the malaria elimination programme.

Even today, the armed forces collaborate with the Anti Malaria Campaign to prevent the re-introduction of malaria to Sri Lanka. This collaboration will need to continue for many years to come until eradication of malaria.



## ACADEMIC AND INDUSTRY COLLABORATION TO SPARK INNOVATION FOR REAL WORLD IMPACT

Dee N Dao

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There are major challenges in life sciences and healthcare that only a multi-disciplinary team with combined technical skills, knowledge and resources can address. A team comprised of faculty from academic institutions working with industry gives faculty members and their students an

opportunity to see their research/know-how develop and a potential to have real-world impact. Such collaborations have the potential to produce breakthrough discoveries and innovation. A case study will be presented to illustrate best practices.

## COLLABORATIVE BIOMEDICAL DEVICE DEVELOPMENT: OPPORTUNITIES AND CHALLENGES FOR SRI LANKA

Pujitha Silva

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Biomedical Device Development is a rapidly growing multi-billion dollar industry worldwide. Asia Pacific region in particular shows great prospects as an emerging market for consumer medical technology. Sri Lanka, as a developing economy has many positive attributes that can be harnessed to be a hub for biomedical device development in the region. In order to help Sri Lanka move from being primary consumers and importers of healthcare solutions to be a developer of technology and commercial biomedical devices, the Centre for Biomedical Innovation (CEBI) was established at the University of Moratuwa in 2017. CEBI is a multidisciplinary research centre of the

University of Moratuwa that aims to work toward biomedical device development by fostering collaborations between engineering, medical, corporate and state sectors. In this talk, the opportunities, challenges and other experiences gained in the one year since the inception of the centre will be reviewed, and the potential for biomedical device development and research within Sri Lanka will be discussed. The talk further aims to inform and invite the readership to be part of the ecosystem for promoting innovation, creativity and the necessary framework within medicine, engineering and the sciences to develop the biomedical device industry within Sri Lanka.

# Technical Sessions



SESSION I

## THE ANTIBIOTIC SUSCEPTIBILITY PATTERN OF BACTERIA ISOLATED FROM URINE OF CANCER PATIENTS

MFF Rayana<sup>1</sup>, RVMR Ranasundara<sup>2</sup>,  
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Antibiotic resistance is a major concern among cancer patients. This study was carried out to assess the microbial spectrum and the antibiotic susceptibility pattern (ABST) of bacteria isolated from urine of cancer patients. The variations in the susceptibility pattern with catheterization and the type of cancer were also evaluated. A prospective study was conducted at Apeksha Hospital, Maharagama from September to November 2017, where 202 cases of positive urine cultures were analysed. The spectrum of isolated organisms consisted mainly of Coliforms (70.3%) followed by *Pseudomonas* spp. (11.4%), *Enterococcus* spp. (9.9%), *Staphylococcus* spp. (4%), *Streptococcus* spp. (2%) and *Acinetobacter* spp. (2%). The analysis of ABST patterns of these isolates revealed alarmingly high rates of resistance to most of the antibiotics tested. Coliforms isolated were highly resistant (Sensitivity < 50%) to all the 1st line antibiotics except Nitrofurantoin (59.3% sensitive). They were susceptible to 2nd

line antibiotics namely Netilmicin, Amikacin, Imipenem and Meropenem. The ABST pattern of *Pseudomonas* spp. isolated also showed remarkably high rates of resistance to all the antibiotics tested. They demonstrated low sensitivity to commonly administered antibiotics like Gentamicin (only 41.2% sensitive) and Ciprofloxacin (only 33.3% sensitive). Among the antibiotics tested for *Enterococcus* spp., Ampicillin (78.9%) showed very high level of resistance while Nitrofurantoin, Vancomycin and Teicoplanin proved to be comparatively effective. Of the *Enterococcus* spp., 20% were resistant to Vancomycin. Catheterization and the type of cancer did not significantly affect the microbial spectrum in this population, yet it influenced the level of resistance.

**Keywords:** Antibiotic susceptibility, Urinary bacterial isolates, Cancer.

## DECLINING RENAL FUNCTIONS AMONG FISHING AND SUGARCANE FARMING COMMUNITIES: IMPLICATIONS ON CHRONIC KIDNEY DISEASE OF UNKNOWN ETIOLOGY (CKDU) IN SRI LANKA

EMDV Ekanayake<sup>1</sup>, WAKG Thakshila<sup>2</sup>, SS Jayasinghe<sup>3</sup>,  
EPS Chandana<sup>4</sup>, CS Jayasumana<sup>5</sup>, SH Siribaddana<sup>6</sup> and  
P Mangala CS De Silva<sup>7</sup>

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Chronic Kidney Disease of unknown etiology (CKDu) also named as Chronic Interstitial Nephritis in Agricultural Communities (CINAC) is a rapidly growing public health concern in Sri Lanka (SL). Heat stress and agrochemical exposure have been considered as the main etiological factors. CINAC is mostly prevalent only among dry zone farmers in SL, however the fishing community in the same dryzone is exposed to similar or higher heat stress. We postulated that if heat stress is an essential risk factor in CINAC prevalence, it should also be present in heat exposed fishing community in the dry zone of Sri Lanka. Therefore, we compared the renal markers of a fishing cohort in Mannar (MFish, n = 149) with sugarcane farming cohort in Buttala (BFarm, n = 168) in rural SL. Elevated SCr in BFarm (8.9%) was higher than MFish (4.5%), however SCr (P = 0.64) and eGFr (P = 0.78) were not significantly

different between the two cohorts. Serum uric acid was higher in MFish (4.7 mg/dl; Median) than BFarm (4.2 mg/dl; Median) indicating higher exposure to heat stress. However, albuminuria (ACR  $\geq$  30 mg/g Cr) was higher in BFarm (9.5%) than MFish (6.4%) confirming higher CINAC prevalence among sugarcane farmers. Moreover, urinary biomarkers KIM 1 was higher in BFarm (841.6 pg/mg Cr) than MFish (667.8 pg/mg Cr) but NGAL levels (1.87 & 1.93 ng/mg Cr) were similar in both cohorts. It can be concluded that declining renal functions were more predominant among the farming community than in the fishing community in spite of higher heat stress in dry zone locations of Sri Lanka, and hence the farming community is more susceptible to CKDu.

**Keywords:** Kidney disease, Sri Lanka, Fishing community, Farmers, Heat stress

## ASSOCIATION BETWEEN HEALTH RELATED QUALITY OF LIFE (HRQOL) AND FIVE HEALTH RELATED PARAMETERS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

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Chronic Obstructive Pulmonary Disease (COPD) is one of the most common chronic respiratory diseases in the world and in Sri Lanka where the prime goal of patient care is to improve the HRQoL. The aim of the study was to find out the association between the HRQoL and five health related parameters in patients with COPD. This descriptive cross-sectional study was conducted among 77 COPD patients in National Hospital for Respiratory Diseases, Welisara, using systematic sampling method. The HRQoL scores and psychological status were evaluated using two questionnaires. Then the participants were physically examined for pulmonary function, peripheral oxygen saturation(SPO<sub>2</sub>), risk of falling and nutritional status using Spirometry values according to Global Initiative for Chronic Respiratory Diseases(GOLD) standards, Oximeter, Timed Up and Go test(TUG), Fat percentage and Body Mass Index(BMI) subsequently. The majority

of the patients (n=, 90.9%) were male and most of them were in GOLD stage 2 presented with normal SpO<sub>2</sub>, psychological levels. The HRQoL had a significant, positive linear relationship with both anxiety (r=0.570, p < 0.001) and depression (r=0.400, p < 0.001) and total psychological score (r=0.575, p < 0.001). According to multiple linear regression, anxiety found to be the significant predictor for the HRQoL (R<sup>2</sup>= 0.396, p< 0.001) of the COPD patients. High anxiety and depression levels, poor lung function status and high fat levels were having significant associations with HRQoL and its components and anxiety was verified as the most significant predictor of HRQoL in COPD patients.

**Keywords:** COPD, HRQoL, Health related parameters

## DETERMINATION OF THE ASSOCIATION OF BMI AND WC WITH HBA1C LEVEL OF PATIENTS DIAGNOSED AS TYPE 2 DM, WHO ATTENDED TO CLINICS AT NDC, SRI LANKA, 2017

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The incidence of DM has dramatically increased within the past few decades. It has become a personal, national and global problem which affected on individuals clinically as well as financially, while having an effect on low productivity of the country. Hence, early detection plays a vital role on the prevention of the condition and its complications. HbA1c is the best worldwide laboratory investigation which is used to diagnose DM. It is an expensive investigation and may not be able to be performed frequently on poor people and people in developing countries. This study was done to determine the association of BMI and WC with HbA1c level because BMI and WC are simple and non-invasive anthropometric measurements that can be used to gain an idea of HbA1c level of an individual. A descriptive cross sectional quantitative study was conducted using a pre tested structural questionnaire, with diagnosed type II DM patients. Patients with type I DM and red blood cells disorders and pregnant mothers were excluded. Patients who were not with normal Hb levels were also excluded from

the sample population. All participants were included to the age limit of "Elders" (18- 80). Among 331 participants, there was a considerable difference of sensitivity between BMI and WC in both genders. 68.3% males and 65.6% females were with high risk of WC and 37.7% males and 37.1% females were with high risk of BMI values. 84.2% participants with middle and high WC values showed excellent HbA1c control, while 23.8% participants with low WC values showed poor HbA1c control. 53.1% participants with normal BMI showed poor HbA1c control while 45% of participants with unhealthy BMI showed excellent HbA1c control. There was no any significant association between gender and HbA1c level ( $p=0.001$ ). This study has concluded that the association between WC and HbA1c is stronger than the association between BMI and HbA1c. Recommendation is that WC is better than BMI to assess the risk of DM.

**Keywords:** BMI, WC, HbA1c

## GROWTH STATUS OF BETA THALASSAEMIA MAJOR PATIENTS

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Beta thalassaemia major is the commonest hereditary haemoglobinopathy which poses a major health burden in Sri-Lanka. Growth failure caused by compound factors such as chronic anaemia, iron overload and toxicity of iron chelators is common among thalassaemia patients. This study evaluates the growth status of beta thalassaemia major patients treated in one of the thalassaemia centres in Sri Lanka and correlate with blood transfusion therapy, iron chelation therapy and iron overload. A total of forty beta thalassaemia major patients aged >2 years were recruited. The patients were interviewed for the socio-demographic variables and their medical histories were obtained. Serum ferritin concentration, height, weight and mid upper arm circumference (MUAC) were measured. The mean z-score for height, sitting height index and BMI of the patients were  $-2.3 \pm 1.06$ ,  $5.0 \pm 2.7$  and  $-1.32 \pm 1.28$  respectively. Prevalence of stunting

(50%) and wasting (35%) were significantly high in the patient group when compared to normal population (13.1% and 26.7%). The majority of the patients (67.5%) were with MUAC less than 5th percentile. Age of the patients, the period under blood transfusion therapy and blood transfusion volume (ml/kg/year) had a significant negative correlation with the z-score for height. Iron overload, iron chelation therapy and mean pre transfusion haemoglobin levels had no significant correlation with growth parameters. Growth failure is common among the studied group of patients and it is associated with the progression of the disease. Close monitoring of the growth status is mandatory for the proper management of the beta thalassaemia major patients.

**Keywords:** Beta Thalassemia, Growth



# Technical Sessions



SESSION II

## PREVALENCE, SEVERITY AND RISK FACTORS OF URO-GYNAECOLOGICAL SYMPTOMS AMONG POST-MENOPAUSAL WOMEN – A COMMUNITY BASED CROSS SECTIONAL SURVEY

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Menopause is one of the most critical stages of life among women. Presences of uro-gynaecological symptoms (UGS) possess a greater influence on wellbeing and activities of day today life of post-menopausal (PM) women. The main objective of the cross sectional survey was to determine the prevalence and risk factors of UGS among PM women in Bope-Poddala MOH area. 265 randomly selected community dwelling PM women, aged between 50 – 65 years were included. A self-administered questionnaire was used to collect data. Binary logistic regression with SPSS 20.0 was applied to detect the risk factors for higher prevalence of menopausal symptoms. At least two UGS were present with all women studied. Among the reported symptoms, commonly reported, mild symptoms were dyspareunia (54.7%) and vaginal itching (53.2%) while stress incontinence (52.5%) and urinary frequency (48.3%) were reported as moderately severe symptoms. Urge incontinence (12.5%) and overflow incontinence (15.5%) were

reported commonly as severe symptoms and very severe symptoms reported by the participants were dyspareunia (9.4%) and stress incontinence (5.7%). Married women ( $p < 0.05$ , OR=5.802), unemployed women ( $p < 0.05$ , OR=9.731), women with a history of dysmenorrhea ( $p < 0.05$ , OR=0.416), age of menopause ( $p < 0.05$ , OR=4.871), vaginal deliveries ( $p < 0.05$ , OR=14.856), caesarian sections ( $p < 0.05$ , OR=0.449), use of hormonal contraceptives ( $p < 0.05$ , OR=0.003), body mass index (BMI) ( $p < 0.05$ , OR=0.224) and breast fed duration ( $p < 0.05$ , OR=0.024) were at a higher risk of getting UGS. This study identifies the high prevalence of UGS and certain risk factors for them. Alternative measures to improve to UGS need to be emphasized among PM women.

**Keywords:** Post-menopausal, Uro-gynaecological Symptoms, Prevalence

## ANTIBIOTIC SUSCEPTIBILITY PATTERN OF CAUSATIVE ORGANISMS OF CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM) IN A DISTRICT GENERAL HOSPITAL IN SRI LANKA

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This study was carried out to determine the aerobic microorganisms involved in chronic suppurative otitis media (CSOM) and their antibiotic susceptibility patterns and to formulate empirical antibiotic guidelines for CSOM patients. Over a period of 1 year, ear swabs from patients with CSOM were submitted to the microbiology laboratory. Patients who had not received antibiotics for the past three days were recruited. All organisms were identified using the standard operating procedures given in the Microbiology Laboratory Manual. Antibiotic sensitivity testing was done using the Stokes disc diffusion method. Ear swabs were taken from 273 patients, of which 257 (94%) yielded positive cultures. *Pseudomonas aeruginosa* (52%) was the most frequent isolate, followed by methicillin sensitive *Staphylococcus*

*aureus* (MSSA) (15.7%) and *Klebsiella* spp (10.6%). *Pseudomonas aeruginosa* showed 95% sensitivity to ceftazidime and 74% to ciprofloxacin and gentamicin. MSSA was 100% susceptible to cloxacillin and 95% and 85% to cotrimoxazole and gentamicin respectively, but ciprofloxacin sensitivity was low (35%). We recommend gentamicin as the topical antibiotic of choice for empirical treatment of CSOM while ciprofloxacin and cloxacillin are for systemic therapy. Performing bacterial culture prior to antibiotics is necessary to decide on specific treatment.

**Keywords:** Chronic suppurative otitis media, *Pseudomonas aeruginosa*, Susceptibility pattern

## A DESCRIPTIVE STUDY ON CONSENT TAKING FOR SURGERIES- AN OPERATING THEATRE EXPERIENCE

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Consent is a vital requirement for surgeries. Surgeries done without consent would be considered to be causing hurt or grievous hurt under local law. A descriptive cross-sectional study was conducted over 3 months in NHSL. All 127 patients were aged above 18 years and legally competent to consent. An interviewer administered questionnaire and clinical notes were used. The mean age was 42.3 years (SD 10.8) and 40.9% (52) were females and 59.1% were males (73). Written consent was not taken from 7 (5.5%). Eighteen patients (13.2%) were not aware of the site of incision. Alternatives were not offered to 115 (90.5%). About 80% (102) were not given information of anaesthetic complications. Information of general surgical complications were not given to 30 (23.7%) and 60 were (47.2%) not informed surgery specific complications. Consent was taken from 30 patients (23.7%) within 6 hours from the surgery and within 6 hours to 24 hours in 73 (57.5%) cases, before 24 hours in 24 (18.9%)

cases. From 56 patients (44.1%) consent was taken by an intern doctor, 10 (7.9%) by a nurse, 38 (30%) by a medical officer and 23 (18.1%) by a post-graduate trainee. A total of 101 patients (79.5%) did not know the identity of the consent taking person. In 98 cases (77.2%) the mother language is used, 23 (22.8%) 2nd language is used. Time was not given for clarifications in 112 cases (88.2%). Elective surgeries are standard procedures with known complications. Authors suggest giving adequate time before the surgery and chance for clarifications. Identity of the health care personnel is important to build trust on credibility of information. Authors suggest implicating a check list, not to neglect components. Awareness of the components and the significance of the consent taking should be emphasized at institutional, local and national level.

**Keywords:** Informed written consent, Surgery

## LESIONS OF NASAL CAVITY, PARANASAL SINUSES AND NASOPHARYNX – AN ANALYSIS OVER 3 YEARS AT A TERTIARY CARE SETTING

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Lesions involving nasal cavity (NC), paranasal sinuses (PNS) and nasopharynx consist of a wide variety of inflammatory, non-neoplastic and neoplastic lesions. Even though they are common in Sri Lanka, proper data are scarce. The study aims to determine various histopathological patterns of NC, PNS and nasopharyngeal lesions and their demography with regard to age and sex. A retrospective analytical study was carried out in all patients who underwent biopsies of the above lesions presented to ENT unit at NHSL from 1.1.2015 to 31.12.2017. From 238 patients, the commonest site was the NC (51.06%) followed by PNS (43.9%). Male to female ratio was 1.38:1. 79.6% were non-neoplastic, from which 88.9% were inflammatory and 7.3% were fungal, where mucomycosis and rhinosporidiosis being the commonest. Out of the neoplastic conditions (20.4%), 54.1% were benign, with inverted papilloma being the commonest

(42.3%), commonly seen in 6th and 7th decades with a male predominance, followed by angiofibroma(15.3%). Squamous cell carcinoma is the commonest malignancy (40.9%), common in 7th and 8th decades with a male predominance, followed by adenocarcinoma (18.18%), adenoid cystic carcinoma (9%) and non- Hodgkin's B cell lymphoma (9%). Internationally, benign and malignant neoplasms are more common in 4-5th decades and 5-6th decades respectively. But in our study both benign and malignant neoplasms were found approximately two decades later in life. This may be either due to late presentation. Hence we recommend a thorough ENT examination at the earliest presentation. Further multicentre studies are needed.

**Keywords:** Nasal cavity, Paranasal sinuses, Histopathology, Neoplastic

# Technical Sessions



SESSION III

## ASSOCIATED FACTORS FOR RE-ADMISSION OF THE PATIENTS WITH PSYCHIATRIC DISORDERS IN NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH), SRI LANKA

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According to WHO's Global Burden of Disease 2010, nearly 450 million people suffer from behavioural or mental disorders in the world. Inpatient mental health treatment facilities are one of the ways of mental health help available to patients with psychiatric disorders. Patients who are discharged to home following an acute care after hospitalization, have a higher probability of being readmitted to hospital. Readmission has a significant impact on the reduction of the quality of life and the increase in the years of lost life due to psychiatric disorders. The objective of the study was to identify and assess the factors related to readmission explained by the relatives of patients with psychiatric disorders in NIMH. Descriptive cross-sectional study was conducted among a purposive sample of randomly selected 200 relatives of patients with psychiatric disorders. Ethical approval was obtained from the ethics review committees of KIU and NIMH. Researchers-administered structured questionnaire was used to collect the data from relatives who visit readmitted patient in wards

five, eight, ten and twelve. Readmission rates were high among Schizophrenia patients (40%) and patients with Bipolar Affective Disorder (36%) and other disease conditions were manic disorder, depression, psychosis, post-partum psychotic, disorders due to drug abuse and intellectual disabilities, etc. Associated factors for readmission were poor drug compliance (79%), poor community support (80.5%), lack of a permanent care giver (84%) and lack of awareness of the relatives about proper patient management (56%), medical comorbidities, unplanned discharge, substance abuse, etc. Among readmissions 84% of patients did not attend to the regular follow up clinics. Most of the readmissions were preventable through proper discharge planning, provision of sufficient health education for the patients and their relatives, and regular follow up programmes.

**Keywords:** Factors, Readmission, Psychiatric disorders

## CHARACTERISTICS OF MALE ILLICIT DRUG USERS IN REHABILITATION CENTRES IN SRI LANKA

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Illicit drug users are people who use psycho-active substances that the production, sale or use is prohibited by law and for long term on regular basis for non-medical purposes. Illicit drug use has become a significant problem in Sri Lanka during recent years. This study was conducted to describe characteristics of male illicit drug users in rehabilitation centres. A cross-sectional study was conducted among 431 male drug users in five selected rehabilitation centres. Data were collected using an interviewer-administered questionnaire and were analysed using SPSS statistical software. The majority of the sample were Sinhala (82.4%), Buddhists (70.5%) and early school dropouts (32.2%) with a mean age (SD) of 32(10.3) years. Nearly 40% were readmissions. The highest percentage of the drug users were from the Western province (75.6%), followed by Kurunegala (5.1%), Pollonnaruwa and Galle (both 3.0%). In 87%, drugs were introduced by friends. The majority (90%) had initiated substance use

with smoking and had started drug use as an experiment (67.5%) or due to peer pressure (25.5%). Nearly 3/4th of drug users were unaware about harmful outcomes of drug use and were able to conceal their behaviour from family for more than one year. A considerable proportion (84.7%) had easy accessibility to illicit drugs and the majority (93.0%) was able to easily purchase drugs. The age of the first drug use was positively correlated with the age of the first alcohol use ( $r= 0.687$ ;  $p<0.01$ ) and first smoking ( $r= 0.732$ ;  $p< 0.01$ ). Level of education, area of residence, experimental usage, peer influence, availability and accessibility and previous use of other substances were identified as the main characteristics of drug users and drug use behaviour. These findings will be useful in designing and targeting interventions for prevention of drug addiction in Sri Lanka.

**Keywords:** Characteristics, Male illicit drug users, Rehabilitation centres



## LEGITIMATE OWNERSHIP AND 'HANDLING' OF DNA BASED DATA IN SRI LANKA

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Deoxyribonucleic acid or DNA contains the genetic information of every human being. Analysis of DNA using modern molecular biology techniques makes it possible for law enforcement agencies to fight crime efficiently by accurately identifying criminals. At present DNA analysis is done in Sri Lanka at the request of law enforcement agencies in several government and private institutions. In addition to these there are two known privately funded organizations that analyse DNA for various purposes. There is no legal frame work in Sri Lanka to empower any of these agencies to analyse and store DNA based data. More importantly there is no law to govern the accessing and use of this data by anybody. This makes it possible for the misuse of DNA

data bases held by these institutions. In view of this, there is an urgent need for the establishment of a legal framework in Sri Lanka to govern the extraction of DNA, retention, and accessing of DNA based data by both governmental and non-governmental organizations. The legal systems in place in UK, USA and India are presented for comparison and a centralized authority to oversee the operational procedures for quality assurance, preservation and ownership of DNA data and maintaining confidentiality is recommended.

**Keywords:** DNA database, Forensic DNA evidence, Criminal DNA investigation, National DNA database, Genetech database, Sri Lankan DNA database

## LOW SELF-ESTEEM IN DELUSIONAL DISORDER (JEALOUS TYPE) PATIENTS

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Self-esteem is an essential component of psychological health. Low self-esteem co-occurs with a range of psychiatric disorders. Delusional disorder (jealous type) is a clinical problem with psychosocial implications. Findings on the nature of the relationship between lowered self-esteem and jealousy however are inconsistent. The objective of the current study was to determine the frequency of lowered self-esteem in a sample of delusional disorder (jealous type) patients. A descriptive cross-sectional study was conducted for three months at four mental health settings with forty six (N=46) psychiatric inpatients and outpatients diagnosed with delusional disorder (jealous type). Self-esteem scores for the sample as measured by Rosenberg Self Esteem Scale was (M=17.33, N=46, SD= 3.553). Self-esteem scores ranged from 9 to 28. Low self-esteem scores (1-

15) were observed in 12 (26.08%) of the patients. Low self-esteem scores were more frequent in male patients. There was no significant difference in scores for males (M=16.83, SD=3.78) and females [M=18.06.17, SD=3.10; t (43) =-1.114, p=.272]. The magnitude of the differences in the means was small (eta squared=.028). The results of the present study demonstrated that low self-esteem co-occurred in more than one fourth of the delusional jealousy patients. There was no significant difference between males and females for self-esteem scores. The prospective effects of low self-esteem and delusional jealousy on each other should be further investigated.

**Keywords:** Self-esteem, Delusional disorder (jealous type), Delusional jealousy

## THE KNOWLEDGE, ATTITUDES AND PRACTICES OF SEARCH AND RESCUE TEAMS OF SRI LANKA ARMY REGARDING SEARCH AND RESCUE AS A RESPONSE TO DISASTERS

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SL Army has established Search and Rescue teams (SAR teams) in all 25 districts. The objective of the study was to describe the knowledge, attitudes and practices of SAR teams of the SL Army involved in search and rescue operations following disasters. A descriptive cross-sectional study was carried out from October to December 2017. Five platoons each were selected randomly from high and medium risk district categories. All 5 platoons were selected from low risk category. The total sample size was 465. A pre-tested self-administered questionnaire was employed. The median age was 28 years. 3.2% were officers and 96.8% were soldiers, 80.4% educated up to G.C.E. O/L, 52.9% of the population had undergone SAR training during past three years in Sri Lanka and none had undergone training outside the country. Overall knowledge regarding search and rescue seem to be good, that is >75 percentage

score, 57.2%. 93.8% has desirable positive attitudes. 73.5% had participated in search and rescue operation as response to disasters. Overall practices seemed to be poor, that is <75 percentage score in 71.3% of the population. A statistically significant association was observed with level of education ( $p=0.001$ ), and designation ( $p=0.004$ ) and knowledge on search and rescue. Level of education, designation and SAR training had no significant association with attitudes on search and rescue. A statistically significant association was observed with designation ( $p=0.021$ ) and practices. Practices regarding search and rescue as response to disasters should be incorporated into the basic training programme for officers and soldiers.

**Keywords:** Disaster, Search, Rescue

# Technical Sessions



SESSION IV

## AN EPIDEMIOLOGICAL STUDY OF INJURIES IN FEMALE TAEKWONDO ATHLETES IN SRI LANKA

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Taekwondo is the self-defence characterized especially by the extensive use of kicks. The objective of this study was to identify the injury profile of female Taekwondo athletes who participated in the Sri Lanka National Sports Festival 2017. Seventy-one female athletes representing all nine provinces of Sri Lanka participated in the tournament. All of them were observed prospectively and their injury related data were recorded using an interviewer administered questionnaire with the help of the official physician of the tournament. The software programme 'SPSS 16.0' was used to analyse the gathered data. Out of 71 athletes 22 (31%) athletes got injured and 25 (35.2%) injuries were documented among themselves. The rate of injury was 198.4 per 1000 Athlete-Exposure (A-Es). The most prevalent injury type was contusions (80%) followed by bleeding (12%). The lower limbs (36%) were determined as the most prevalent anatomical region of the body to sustain an injury during a competition followed by the head and neck region (24%). Regarding

the severity of injuries, most of the injuries were mild (72%) whereas there was no critical injury reported during the match. Most of the injuries were reported at the 2nd and 3rd rounds of the matches. Interestingly, Red beltters (40%) and Black beltters (28%) had more injuries during the championship. The Fin and Light weight class players sustained more injuries when compared to other weight categories. All the injured athletes were right dominant (96%) except one athlete. In conclusion, the rate of injuries in Sri Lankan Taekwondo female athletes is very much higher than the rates reported in the world. Senior players are more prone to injuries in Sri Lankan context. However, the other findings (Nature of injury type, injured anatomical region and injury severity) of Sri Lanka female Taekwondo athletes run parallel with the data from the rest of the world.

**Keywords:** Taekwondo, Female athletes, Injury, Sri Lanka

## KNOWLEDGE AND PROPER PRACTICE OF INFECTION CONTROL METHODS AMONG HEALTHCARE WORKERS AT A MILITARY HOSPITAL

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Inadequate knowledge and practice of infection control methods contributes towards a major proportion of hospital-acquired infections. The objective of the present study was to assess the knowledge and practice of infection control methods among the health care workers at Army Hospital, Narahenpita. This descriptive cross sectional study took place at Army Hospital, Narahenpita. The study population included all health care workers in all clinical departments/ laboratories and included all the senior house officers, house officers and nurses. A total of 180 health care workers participated in the study. Simple random sampling was used to select respondents according to period of service and job designation. Data was collected using a self-administered, pre tested and validated questionnaire. Knowledge on infection prevention methods was assessed through 20-targeted questions. The remaining 20 were allocated to assessment of practice. The questionnaire was

divided into 4 sections, assessing hand hygiene, glove usage, garbage disposal, and cleaning of infected materials. The knowledge and practice on these areas was evaluated. Participants performed better in questions based on practice rather than knowledge. Respondents had significant lack of knowledge in usage of gloves. The knowledge and practice with regard to proper disposal of garbage was satisfactory with 90 scoring adequately. A sizable relationship was found between lack of knowledge and practice. ( $p < 0.05$ ). There was a significant proportion of healthcare workers who performed poorly in both knowledge and practice. Further educational programmes on infection control will be necessary to improve the knowledge and practices of the health care workers at the Army Hospital, Narahenpita.

**Keywords:** Knowledge, Practice, Infection control.

## RADIOGRAPHIC ANALYSIS OF THE ETHMOID ROOF ANATOMY BASED ON KEROS CLASSIFICATION IN A COHORT OF SRI LANKAN POPULATION

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This is a cross sectional study that aims to describe the distribution of heights of lateral lamella of ethmoid bone according to Keros classification. All available CT scans at ENT unit, Teaching Hospital Anuradhapura were reviewed. Heights of the lateral lamellae on both sides were measured, and classified according to Keros classification. Fifty-one CT Scans were analysed. The mean height of right lateral lamella was 5.16mm (SD 1.6) and of left lateral lamella was 5.06mm (SD1.7) (No significant difference ( $P=0.418$ )). Mean height on right side in males was 5.25mm (SD 1.37), and in females was 5.06mm ( $p=1.96$ ) (No significant difference ( $p=0.696$ )). Mean height on left, for

males was 5.01mm (SD 1.43) and for females it was 5.11mm (SD 2.04), (No significant difference. ( $p=0.854$ )). Keros type I was seen in 12 (24%) each on both sides. Keros type II were seen in 31 (62%) on right and 32 (62%) on left. There were 7 (14%) with Keros III on right side and 6 (12%) on left side. Over 60% of Sri Lankans are likely to be in Keros II. Risk of intracranial entry during nasal surgery among Sri Lankans is likely to be similar to that of western population.

**Keywords:** Keros classification, Ethmoid roof anatomy, Sri Lankan population.

## PREDICTION OF LEPTOSPIROSIS SEVERITY IN SRI LANKA: A TIME SERIES APPROACH

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Leptospirosis is a bacterial disease which can be transmitted from animals to people through the urine of infected animals. It is more common in tropical countries such as Sri Lanka. Throughout the year in Sri Lanka Leptospirosis is reported with two peaks in a year, and it is generally observed that it coincides with paddy cultivation. Sri Lanka is having one of the highest incidences of leptospirosis, and it is considered as a leptospirosis high endemic country. The aim of the present study is to predict Leptospirosis incidences in Sri Lanka for two years ahead and

develop guidelines for clinical management. The monthly incidences of Leptospirosis in all the areas with RDHS offices in Sri Lanka were obtained from the web site of Epidemiology Unit of the Ministry of Health. This paper presents Seasonal Autoregressive Integrated Moving Average (SARIMA) forecasting model obtained using time series BoxJenkin's approach to predict Leptospirosis incidences two years ahead in Sri Lanka.

**Keywords:** Leptospirosis, Time Series, SARIMA



Poster  
Sessions



## ANTIOXIDANT AND ANTI-INFLAMMATORY POTENTIAL OF THE AQUEOUS EXTRACT OF THE PEEL OF A SRI LANKAN VARIETY OF NEPHELIUM LAPPACEUM LINN

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Despite the advances in modern medicine, plant based remedies play an important role in healthcare due to low side effects. Free radicals are implicated in many diseases as well as in aging. The peel of *Nephelium lappaceum* Linn. (rambutan) is considered a waste and this study involves the determination of antioxidant capacity and anti-inflammatory activity of the aqueous extract of the peel of a Sri Lankan variety of rambutan; Malwana special. The aqueous extract was prepared according to the method of "kasaya" preparation in Ayurvededic medicine and the freeze-dried product was used for the investigations. The 2,2- diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity, hydroxyl radical scavenging activity, iron reducing power and human red blood cell (HRBC) assay were carried out according to previously published methods with slight modifications. The DPPH radical scavenging activity of the sample

ranged between 3.9%-64.5% for concentrations of 10–500 µg/ml whereas ascorbic acid showed values between 6.5%–96.4%. The hydroxyl radical scavenging activity of the sample was between 10.3%–35.0% for concentrations from 1000–1500 ppm and ascorbic acid gave values between 22.6%–51.1%. The extract showed a good reducing power in the Fe<sup>3+</sup> reducing assay. HRBC assay showed protection of 17.1%–34.8% for concentrations ranging from 35.5–250.0 ppm whereas aspirin protection (%) varied from 32.3%–54.5%. Total phenolic content was 463.5±5.2 mg (PGE)/g and total flavonoid content was 375.0±13.2 mg (QE)/g. (PGE = pyrogallol equivalence, QE = quercetin equivalence). These results show that the peel of Malwana special rambutan has the potential to be used as an antioxidant and for its anti-inflammatory activity.

**Keywords:** *Nephelium lappaceum*, Antioxidant, Anti-inflammatory, HRBC

## A RARE CASE OF MATERNAL IgG TYPE ANTI M INDUCED HYDROPS FETALIS

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MNS system was the second blood group system discovered in 1927. This blood group system is second only to the Rh blood group system in its complexity. Our patient with one live child presented herself to clinic for her 5th pregnancy. Her past obstetric history indicated that she is B Rh negative M negative and her husband is O Rh positive M positive. Due to previous exposure to M antigen during previous pregnancies she developed IgG anti M which is very rare (MNS blood group system usually produces IgM antibodies). Antibody screening was performed and planned to repeat at 28th week of pregnancy. Ultrasound scan to be performed in every two weeks and the middle cerebral artery systolic

velocity was recorded to assess the foetal anaemia. Her condition was discussed in the multidisciplinary team and proposed to initiate intrauterine blood transfusion when and where necessary. Intrauterine death of the foetus was observed at the 24th week of the pregnancy with features of hydrops foetalis. IgG anti M antibody is capable of destroying the red blood cells of the foetus in early life. Therapeutic plasma exchange is the only option to reduce the antibody concentration, but the literature suggested that it is of limited success.

**Keywords:** MNS blood group system, IgG anti M, Middle cerebral artery systolic velocity, Therapeutic plasma exchange

## CYTOTOXIC EFFECT OF PEEL AND PERICARP OF SRI LANKAN POMEGRANATE FRUIT "DELUM" (PUNICA GRANATUM L.) AND COMPARISON OF DIFFERENT EXTRACTION METHODS

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Phytochemicals of fruits and vegetables have anti-oxidant, anti-inflammatory and anti-proliferative properties. In Sri Lanka, parts of the native Pomegranate tree, "Delum" (fruit, barks and leaves) are used in ayurvedic medicine as a treatment for cancers. Nevertheless, the scientific basis of these treatments are not yet explored. Anti-proliferative activity was assessed with MTT assay for Human Rhabdomyosarcoma (RD) after 24 h exposure to the Pomegranate fruit peel and pericarp extracts. The cell morphology was recorded comparative to the positive (Cycloheximide) and negative controls (untreated cells). The aqueous extract of Pomegranate peel exhibited significant cytotoxicity ( $p < 0.05$ ) than pericarp, against RD cells. After 24 h incubation

at a 50% viability of RD cells, the required concentration of peel extract (EC<sub>50</sub>) was exhibited as  $7.2 \pm 1.0$ ,  $9.2 \pm 0.6$ ,  $9.2 \pm 0.3$ ,  $10.6 \pm 0.8$  and  $10.7 \pm 1.1$  for sonication extraction, sonication followed by microwaving, microwave assisted extraction, heating in a 50°C water bath and boiling with electric burner extraction methods respectively. The peel extract obtained by the sonication method exhibited the lowest EC<sub>50</sub> value. In contrast, pericarp extracts revealed a higher EC<sub>50</sub> values than peel extracts. Therefore, we conclude that Sonication as an extraction method exerted a higher anti-proliferative activity comparative to the other extraction methods.

**Keywords:** Anti-proliferative activity, MTT assay, Pomegranate fruit

## CLINICAL PATTERNS OF ACUTE RADIATION DERMATITIS AMONG PATIENTS ATTENDING DERMATOLOGY OUTPATIENT DEPARTMENT AT DISTRICT GOVERNMENT HOSPITAL OF GULBARAG – A STUDY

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Radiation dermatitis (RD) is a commonly encountered adverse effect of definitive radiation therapy. The severity of RD is influenced by multiple patient and treatment-related factors. Radiation depletes the basal cell layer of skin and initiates a complex sequence of events leading to dose-dependent acute or late sequel. The management of RD requires a multidisciplinary approach. The aim is to highlight the pattern and the profile of patients with acute RD attending dermatology outpatient department. Hospital-based cross-sectional study of 47 consecutive adult patients with acute RD attending skin outpatient

department over a period of 12 months. A total of 47 patients of RD attended the skin clinic, of which were 16 males and 31 females. The RD was reported within the first 2 weeks of initiation of therapy in most of the patients. Grade 1 RD was the least common presentation. This study highlights the importance of grading the RD, for the appropriate management of the patients suffering from the same and is also a step toward the prevention of the RD.

**Keywords:** Acute radiation dermatitis, Radiation dermatitis, Radiotherapy

## FACTORS AFFECTING THE PREVALENCE OF DIABETES MELLITUS

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Prevalence of diabetes mellitus has risen faster in low and middle income countries than in high income countries. An estimated 422 million people are suffering from diabetes worldwide. Many environmental factors contributed to development of diabetes. But the majority of the humankind is unaware of the factors of the prevalence for this. This study determines the various socioeconomic and demographic factors underlying the prevalence of diabetes mellitus. A cross sectional study was conducted among 100 participants chosen from a cluster sampling. The data about the socioeconomic status, occupation, body mass index, place of residence and food routine were collected and analysed. Out of 100 participants, 51% were suffering from diabetes mellitus and 61% of them were females. They

were from various occupations, educational levels and socio-economic levels. Among them diabetics, 56.9% had family history of diabetes; and 47.10% were doing sedentary work. There was a significant association between diabetic and BMI  $\chi^2(3) = 31.041$ ,  $p = .000$ . With a decreasing level of physical activity, people are more likely to be diagnosed with diabetes. Socioeconomic and demographic factors influence the commencement and evolution of diabetes mellitus. The majority of diabetic patients were doing sedentary work, had least knowledge of self-monitoring, and had a bad food routine. Therefore, measures must be taken to implement health policies to make the society aware about the diabetes mellitus.

**Keywords:** Diabetes Mellitus, Economic Burden, Risk Factors

## PESTICIDE USE, HANDLING AND AWARENESS AMONG RURAL FARMERS IN SRI LANKA: IMPLICATIONS ON EMERGING CHRONIC KIDNEY DISEASE OF UNCERTAIN ETIOLOGY (CKDU)

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Agrochemical exposure has been considered as the main risk factor of Chronic Interstitial Nephritis in Agricultural Communities (CINAC) in Sri Lanka. Poor awareness and agrochemical handling practices could lead to occupational exposure, and hence an observational study was conducted focusing on lifestyle, farming practices, agrochemical handling and awareness of health effects among farmers (n=3669) in CINAC emerging locations. Smoking (50%), alcohol consumption (50.8%) and chewing betel (45%) were very common among male farmers. A history of drinking water consumption from surface wells near agricultural activities was evident among farmers. More than 60% of the farmers were actively using herbicide formulations such as Glyphosates, Glufosinate, Paraquat, Diuron, Phenoxy and Sulfonylurea. Chlorpyrifos formulations were the most commonly used insecticides. Urea and Triple Super Phosphate fertilizers were mainly used

throughout the cropping cycle. Agrochemical mixing using different pesticide formulations and fertilizers was common among farmers (56%) expecting higher yields. Manual application was preferred to mechanical resulting further imminent exposure. The majority of the farmers (> 68%) were over using agrochemicals by not adhering to the recommended doses. The use of protective cloths and equipment during mixing and applying was ignored; nevertheless 63% of the farmers were well aware of the potential health effects of agrochemicals and their practices. Farmers opted to store the agrochemicals outside their home; however, they dumped used containers within the farming locations. Our study confirms potential occupational exposure to agrochemicals and thus regulation and proper management of agrochemicals is essential for the wellbeing of the farmers.

**Keywords:** Pesticides, Kidney disease, Farmers, Exposure, Sri Lanka

## SERVICE RELATED FACTORS ASSOCIATED WITH ANTENATAL GDM SCREENING AMONG MOTHERS DELIVERED AT SECONDARY CARE HOSPITALS IN MATARA DISTRICT

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Gestational Diabetes Mellitus (GDM), defined as 'any degree of glucose intolerance with onset or first recognition during pregnancy', accounts for certain adverse maternal and perinatal outcomes. Early detection and prompt glycaemic control can minimize such outcomes, thus universal screening for GDM is recommended. It has been incorporated to the maternal care programme since 2014 and carried out twice during antenatal period at field antenatal clinics. This study aimed to assess service related factors associated with effective implementation of antenatal GDM screening programme among mothers in Matara district. In a cross-sectional study, 423 post-partum mothers delivered at three secondary care hospitals in Matara district were recruited using a proportionate sampling technique. Data on access to antenatal GDM screening services and screening process were collected using an interviewer-administered questionnaire, and data on availability of screening facilities were collected using a data record sheet. Chi square test and Fisher's exact test were used to test the association between variables. Response rate was 92.3%. Distance to the nearest lab with blood sugar testing was <30 minutes' reach for 91.7%

participants. Area Public Health Midwife was not available during the time of first and second GDM screening for 5.5% and 13.2% participants respectively and availability of logistics were 22.7% and 11.5%. Coverage and timeliness of first screening were found to be 91.4% and 72.4%, respectively and corresponding figures for second screening were 94.5% and 59.5%. Proper documentation and appropriate referral were done in 76.8% and 47.7% respectively after first screening and in 65.4% and 21.2% after second screening. Screening coverage was negatively associated with a longer distance to nearest laboratory ( $p=0.002$ ) and timeliness with non-availability of logistics ( $p=0.002$ ) in second screening, but not in first screening. Despite higher coverage, GDM screening programme needs improvement in timeliness, proper documentation and appropriate referrals. Availability of logistics at MOH level will improve performance of GDM screening and hence maternal care package.

**Keywords:** GDM screening, Service related factors, Antenatal mothers