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The objective of this Bulletin is to disseminate international news about health and medicine, developments, activities in medical and health research in DMR. The Bulletin is published monthly and delivered to township hospitals.

The Editorial Committee, therefore, invites contributions concerning information about research activities and findings in the field of medicine and health.

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45th Myanmar Health Research Congress

With the aims of attaining the highest quality in health care by promoting research capacity strengthening of healthcare personnel, providing applicable research findings to end-users through presentation of papers by researchers, the 45th Myanmar Health Research Congress, organized by the Ministry of Health & Sports was held from 9th to 13th January, 2017 at Department of Medical Research. H.E. Dr. Myint Htwe, Union Minister, Ministry of Health & Sports, attended and delivered the speech at the opening ceremony.

This year’s congress theme was “Improving the Nutrition Status and Reduction of Stunting in Myanmar Children” as today is the time to focus on nutrition which is urgently required to achieve the Sustainable Development Goal 2 which clearly states “End hunger, achieve food security, improved nutrition and sustainable agriculture”.

A total of 103 research papers were presented and 56 posters were displayed by local and international researchers and scholars who were from United States, Japan, Korea, England, Indonesia, Israel, Netherland, and Australia. Research papers & posters presented at the congress covered various disciplines of research: Malaria, Cancer, TB, Hepatitis, Dengue, Maternal and Child Health, Snakebite, Blood, Traditional Medicine, Reproductive Health, Environmental Health, etc.

Altogether 11 symposia and 1 scientific talk on important health problems in Myanmar were also presented and discussed by prominent researchers and academicians from local and abroad sharing knowledge, view and updated information so as to be healthier and more prosperous Myanmar.

The topics were:

1. Building National Nutrition Agenda- Where Are We and What To Focus?
3. Hospital Waste Management
4. Principles and Practice of Travel Medicine
5. ISO 17025 Accreditation: The Road to International Recognition for Analytical Laboratory in Department of Food and Drug Administration
6. Setting the Future by Grasping the Window of Opportunity
7. Bringing Molecular Diagnostics to Point-of-Care Testing (POCT)
8. Life Style Related Disease
9. Oral Cancer: Scenario and Treatment Strategies
Researchers, authorities of national/ regional/ local levels health and health related non-governmental organizations have attended and actively participated at sessions of the Congress and exchanged their comprehensive views, opinions and valuable experiences. Exhibition booths on medicines, medical and pharmaceutical equipment were displayed to facilitate awareness on supportive materials especially diagnostics for research and new types of medications. During the Congress, Information Sub-committee conducted press release daily and made necessary arrangements to interact between the media and researchers.

The Closing Ceremony and the Best Papers & Poster Awarding Ceremony were held on 13th January, 2017. Dr Kyaw Zin Thant, Vice Chairman, Steering Committee, 45th Myanmar Health Research Congress delivered the closing and awarding ceremony speeches and Prof. San San Nwe, Rector, University of Pharmacy (Yangon) explained about the selection of awards for best papers and posters on behalf of the Best Paper and Poster Selection Sub-committee.

### Best Paper for Basic Research

**First Prize**

- Effect of Omeprazole on Pharmacokinetics of Metformin in Healthy Volunteers
  
  *Ei Ei Aung, Khine Khine Lwin, Nu Nu Aye & Thein May Saw*

**Second Prize**

- Hypoglycemic Effect of *Terminalia chebula* Retz. (Phan-kha-thee) on Diabetic Albino Rat Models
  
  *Ei Pye Phyo Aung, Shin Hnaung Lwin, Nu Nu Aye & Khin Phyuy Phyuu*

**Third Prize**

- Phylogenetic Analysis of Myanmar Human Respiratory Syncytial Virus from under Five Children with Acute Respiratory Infection Admitted to Yangon Children's Hospital
  
  *Kay Thi Aye, Aung Zaw Latt, Theingi Win Myat, Sandar Aung, Wah Wah Aung, Ye Myint Kyaw, Hlaing Myat Thu & Kyaw Zin Thant*

### Best Paper for Applied Research

**First Prize**

- Comparison of Clinical and Virological Characteristics among Infants, Children and Adults with Dengue Infection during 2015 Dengue Outbreak
  
  *Theingi Win Myat, Hlaing Myat Thu, Ye Myint Kyaw, Khin Saw Than, Hlaing Mya Win, Zaw Than Tun, Htin Lin, Win Kay Khine & Kyaw Zin Thant*

**Second Prize**

- Rapid diagnosis of High-Risk Human Papillomavirus (HR-HPV) Genotypes Using New Point of Care (POC) GeneXpert HPV Assay in Cervical Cancer Patients
  
  *Mu Mu Shwe, San San Myint, Yin Yin Soe, Khin Lay Kywe, Sandar Win, Lynn Pa Pa Aye, Htwe Htwe Nyunt, Win Maw Tun & Kyaw Zin Thant*

### Best Paper for Health Systems Research

**First Prize**

- Mindfulness-integrated Reproductive Health Package for Adolescents with Parental HIV Infection: A Group Randomized-controlled Trial
  
  *Myo Myo Mon, Kyaw Min Htut, Htun Nyunt Oo, Wai Wai Myint, Lwin Lwin Ni, Aung Soe Min & Ni Ni Htay Aung*
Effect of Omeprazole on Pharmacokinetics of Metformin in Healthy Volunteers

Metformin is a first line oral hypoglycemic agent to treat type 2 diabetes mellitus. Gastro-esophageal reflux disease (GERD) is common in type 2 diabetes mellitus. Proton-pump inhibitors and metformin co-administration may be prescribed in diabetes mellitus patients with GERD. Metformin is not metabolized and is excreted unchanged from the kidney through organic cation transporter 2. As inhibitors of organic cation transporters, proton-pump inhibitors may affect the plasma levels of metformin. The aim of the study is to explore the effect of omeprazole on pharmacokinetics of metformin in healthy volunteers. The study was carried out in 31 healthy volunteers by cross-over study design. Comparison of the pharmacokinetic parameters was made between metformin alone and metformin with omeprazole. Single oral dose of metformin 500 mg and metformin 500 mg
concomitantly with omeprazole 40 mg were given to each subject with a two-week wash out period. Plasma concentrations of metformin at 0, 0.5, 1, 2, 3, 6 and 10 hrs were determined by high performance liquid chromatography with UV detection. Mean AUC(0-∞) of metformin was increased from 9.07±1.61 µg/ml.hour to 11.67±1.67 µg/ml.hour when metformin was taken together with omeprazole (p<0.001). Mean Cmax of metformin was increased from 1.43±0.22 µg/ml in metformin alone to 1.72±0.22 µg/ml in metformin with omeprazole (p<0.001). There was significant decrease in mean Kd and mean CL of metformin and significant increase in mean T1/2d of metformin when it was co-administered with omeprazole. Omeprazole co-administration increased the plasma concentration of metformin, most probably by decreasing elimination of metformin. Therefore, it should be aware of this drug-drug interaction when co-administration of metformin and omeprazole are prescribed.

Omeprazole co-administration significantly increased Metformin area under curve (AUC) and maximal concentration (Cmax) and decreased CL and T1/2dMetformin. Proton-pump inhibitors are potential inhibitors of organic cation transporter 2 (OCT2) and organic cation transporter 3 (OCT3) that are responsible for metformin transport. We evaluated the inhibitory potential of omeprazole on metformin transport by OCT2 and OCT3 using human isolated jejunal mucosa perfusion model. Metformin AUC and maximal concentration both significantly increased in presence of omeprazole than metformin alone. Therefore, it should be aware of this drug-drug interaction when co-administration of metformin and omeprazole are prescribed.

Comparison of Clinical and Virological Characteristics among Infants, Children and Adults with Dengue Infection During 2015 Dengue Outbreak

Dengue is one of the important causes of serious illness and death in children. Recently, a shift to older age group was reported from many countries and DHF/DSS was also reported to occur in infants. Although dengue in infants and adults account for a small proportion of the overall disease burden, the clinical and laboratory features need to be characterized scientifically which is vital in clinical management. In 2015 dengue season, there was dramatic increase in hospitalization of dengue cases not only children but also adults. As the data on dengue in infants and adults are still limited, this study was conducted with the aim to determine and compare the clinical and virological characteristics of dengue infection in infants, children and adults during 2015 outbreak. A total of 682 blood samples were collected from clinically diagnosed dengue patients admitted to Yangon Children's Hospital and Yangon General Hospital between June and October, 2015. Among them, 25/43 (58%), 317/548 (58%) and 44/91 (48%) were serologically confirmed by ICT in infants, children and adults, respectively. Secondary dengue infection was more common in adults (66%) whereas primary dengue infection accounted up to 88% in infants and the association is statistically significant (p=0.0001). Regarding age distribution, 6-9 months group within infants (76%), 5-9 years group within children (53%) and 13-19 years group within adults (66%) were significantly higher than other age groups. On comparison of clinical presentations, adults presented more frequently with rash (34%), hematemesis (20%) and melena (14%) while abdominal pain was more frequent in children (48%). The signs more commonly detected in infants and children were positive tourniquet test and hepatomegaly. The highest proportion of infant cases was DHF I (88%), whereas that of adults was DHF II (48%) and DSS accounted for 27% in children. Upon serotyping by

Reference: Ei Ei Aung, Khine Khine Lwin & Nu Nu Aye, et al. The 45th Myanmar Health Research Congress Programme & Abstracts: 64. (First Prize for Basic Research)
Mindfulness-integrated Reproductive Health Package for Adolescents with Parental HIV Infection: A Group Randomized-controlled Trial

Sustainable and correct knowledge on reproductive health (RH) is essential for adolescents, particularly in the early stage of adolescence when abrupt physiological and mental changes occur. However, effective interventions are very limited. We assessed the effects of a mindfulness-integrated reproductive health (Mind-RH) intervention on mindfulness situation and RH knowledge among adolescents with parental HIV and determined their associated factors. A group-randomized controlled trial was conducted among adolescents aged 10-16 years with HIV infected parent(s) using Mind-RH intervention package which included group mindfulness practice and participatory discussions on RH. Eligible adolescents from two townships were...

randomly assigned into intervention group and those from another two townships were assigned into control group. The intervention involved monthly group sessions for 3 consecutive months. Knowledge on RH and evaluation of mindfulness practice by mindfulness-based self-efficacy scale-revised (MSES-R) were assessed at baseline, 3 months and 6 months. Univariate analysis and multilevel regression were used to identify influencing factors of adolescents’ RH knowledge. A total of 160 adolescents, 80 adolescents in each group, were included. A significant improvement of mindfulness scores at 3 months was found and sustained at 6 months among adolescents from intervention group in comparing to those of control group (p<0.01). Univariate analysis showed significantly higher knowledge scores in the intervention group than in the control group at 3 and 6 months (p<0.001). After adjusting for family type, age and HIV status of the adolescents, RH knowledge scores increased at 3 and 6 months in both groups, but at a higher rate at 3 months for adolescents in the intervention group. Early adolescents, HIV negative adolescents and those from extended families had lower knowledge scores (p<0.01). Most adolescent (98%) showed positive expressions about the intervention and many of them were willing to attend similar training in the future. The Mind-RH package significantly improved knowledge and mindfulness of adolescents with parental HIV. Longer follow-up is required to evaluate the long-term impact of this intervention.