Poster Presentation Abstracts

Poster 1

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Lemon Grass: Plant Based Medicine

Lemongrass: Also known as CYMBOPOGAN CITRATUS

Family: Gramineae

The prefix “lemon” owes to its typical lemon like odor, which is mainly due to the presence of citral, acyclic monoterpene which is important raw material used in the pharmaceutical, perfumery and cosmetics industries, especially for the synthesis of Vitamin A and ionones. Cymbopogan citratus a fast growing, perennial aromatic grass is native to South India, Sri Lanka and even to Bhutan. Now widely cultivated in the tropical areas of America and Asia. Freshly cut and partially dried leaves are used medically and are the source of essential oil. The plant is extensively used in Ayurvedic medicine. Studies indicate that cymbopogan citratus possess various pharmacological activities such as anti-amoebic, anti-bacterial, anti-diarrheal, anti-filarial,anti-fungal, anti-inflammatory properties. Various other effects like anti-malarial, anti-mutagenicity, anti-mycobacterial, anti-oxidants, hypoglycemic and neurobehavioral have also been studied. Hence, Cymbopogon citratus is a great interest due to its commercially valuable essential oils and widely used in food technology as well as in traditional medicine. People nowadays are more aware on health issue due to the emergence of new diseases. Treatment using plant-based medicine appears to be an alternative approach due to the adverse effects associated with the use of synthetic drugs. Studies indicate that the results are very encouraging which could mean if the plant is studied more extensively we could not only confirm these results but also reveal other potential therapeutic effects.

Poster 2

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Transfusion Medicine and its Present Scenario in Nepal

Transfusion medicine is the branch of medicine that deals with transfusion of blood and blood components. Blood transfusion is the infusion of compatible blood or blood components directly into one's bloodstream. The various components of blood serve a variety of different purposes. RBCs are required for tissue oxygenation. Packed RBCs is whole blood in which plasma has been removed. WBCs and gamma globulin are necessary for providing immunity. Albumin is a protein that maintains blood volume. Platelets, cryoprecipitate, and other clotting factors are necessary for blood clotting. Blood given in a transfusion may be the individual's own blood (autologous transfusion) or it may be from a donor. An exchange transfusion is where individual's entire blood volume is slowly replaced with donor blood. One of the most important aspects of transfusion medicine is the compatibility of the donor and recipient blood. Cross matching involves blood group proteins ABO (A, B, AB, O) and Rhesus (Rh) blood types (Rh negative or positive). If an incompatible blood type is transfused, it results in blood cell destruction (transfusion reaction). In an emergency situation, O Rh-negative blood ("universal donor blood"), may be given to the individual until tested blood becomes available. Similarly AB blood groups are the universal recipients. The amount of blood given depends upon the condition for which it is required (surgery, anemia, liver disease, hemorrhage). In Nepal the supplies of donor blood are limited mostly due to lack of public awareness and voluntary blood donation. The demand of blood supply of the 75 districts is met by 21 District Blood Transfusion Service Centers.

Poster 3

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Related Analysis of Language Ability to Motor Skills in Parkinson's Disease

Objective: The aim of this study was to explore character of language impairment of Parkinson's disease (PD) and the relationship of language with motor symptoms.

Methods: A total of 68 patients with PD were recruited. Patients were divided into two groups: Language dysfunction group with Aphasia quotient（AQ） score<93.8; And non- language dysfunction group with AQ ≥93.8. Assessments of disease severity, language, cognitive function, motor skills were performed on the basis of Heohn-Yahr classification, Western Aphasia Battery (WAB), Montreal Cognitive Assessment (MoCA), Unified Parkinson's disease rating scale (UPDRS), respectively. Spearman correlation coefficient was used to explore the relation of language with cognitive function, motor symptoms.

Results: In 68 cases of Parkinson's disease, 35 cases (51.5%) AQ <93.8, defined as speech disorders group. The remaining 33 cases (48.5%) AQ> 93.8, classified as non-speech disorder groups. The differences of age, duration, MoCA and UPDRS-III score between the two groups were analyzed.There is no distinction of patient age, disease duration, and HY stage, but MoCA score and UPDRS-III scores were statistically different.

Conclusion: Montreal Cognitive Assessment (MoCA) score, Unified Parkinson's disease rating scale,(UPDRS)-III score have statistical meaning between normal and abnormal AQ of PD patients. WAB sub scores appear to be relevant to cognitive function. Spontaneous speech and naming are relevant to the motor functions evaluated by UPDRS. PD patients are dysfunctional in language, and the dysfunction is related to cognitive function and motor skills.

Poster 4

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Association between Osteoporosis and Genes Polymorphisms of Mongolian Postmenopausal Women

In this study, we have investigated the association between osteoporosis and estrogen receptor 1 gene (*ER1*) 397 T>C, and calcitonin receptor gene (*CALCR*) 1340 T>C polymorphisms. All subjects were over 45 year old women and selected from the 4 districts of Ulaanbaatar city, Mongolia. Genomic DNA was obtained from 120 persons (60 osteoporotic and 60 healthy women), extracted from EDTA-preserved peripheral venous blood and analyzed by PCR-RFLP. As a result, there was no statistically significant difference in the genotype and allele frequencies of patients and controls for *ER1* and *CALCR* polymorphisms. *ER1* CC single nucleotide genotypes compared with TT and TC genotypes was found more significantly in women with osteoporosis [p=0.015, OR=2.7; 95% CI (1.2-5.7)]. There was no statistically significant difference in the genotype and allele frequencies of patient and controls for *ER1* combined nucleotides [p=0,729, OR=0.786, 95% CI (0.2–3.081)]. Our study showed, low serum estradiol level is risk factor for osteoporosis and the polymorphic genotypes of ER1 single forms found to be associated with osteoporosis.

Poster 5

Md Mohiuddin

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Pharmacological and Biological Investigation of Ethanolic Extract of Leaves, Barks and Seeds of Three Different Plants from Fabaceae Family in Animal Model

Background: Medicinal plants are widely used in the traditional treatment system of Bangladesh. The present study investigated the analgesic, anti-inflammatory, antipyretic, anti-emetic, thrombolytic, membrane stabilizing activity of ethanolic extract of leaves, barks and seeds of *Atylosiascarabaeoides*, *Crotalaria pallid* and *Crotalaria spectabilis*.

Methods: Analgesic activity was determined by acetic acid-induced writing, formalin induced paw licking, hot plate and tail flick test methods while for anti-inflammatory ,antipyretic and antiemetic activity, *carrageenan*-induced paw edema, yeast-induced pyrexia in mice and chick emesis tests were undertaken respectively. Again clot lysis and hypotonic solution-induced hemolysis method was used for investigating thrombolytic and membrane stabilizing activity respectively.

Results: Ethanolic extracts of *C. pallida* leaves and seeds showed maximal analgesic potential (95.61% inhibition) in acetic acid induced writhing and pain inhibition (82.89%)in Phase I of formalin induced analgesia in mice at 300 mg/kg dose respectively. But both C. pallida and C. *spectabilis* leaves at the dose of 450 mg/kg completely inhibited the thermal pain of mice in phase II of the test. A maximum reduction in paw edema volume of 0.19±0.01mm was observed for *A. scarabaeoides*, *C. pallida* seed extracts (200 mg/kg), after 5h of the carrageenan injection. *C.pallida* leaf extract (450 mg/kg) demonstrated maximal and significant ($P<0.05$) body temperature lowering (30.26±10.81˚C,2h after pyrogen (administration) and also antiemetic (50.27% emesis inhibition) activity. Highest thrombolytic (41.117±17.682%) and RBC hemolysis inhibitory (77.13±6.61%) activity were observed for *C. pallida* barks and *A. scarabaeoides* leaves respectively.

Conclusion: Further studies are suggested to evaluate the active compounds responsible for the pharmacological activities of the plant extracts.

Poster 6

Faiz Muhammad

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Development and Evaluation of Tetra-PCR for Differential Diagnosis of *Mycoplasma Gallisepticum* and *M. Synoviae*

Avian mycoplasmosis, caused by *Mycoplasmosis gallisepticum* and *M. synoviae*, is one of the economically significant diseases of the commercial poultry flocks. So far, even in developed countries, the poultry farmers could not eliminate the disease completely from the commercial flock because of their chronic mode of infection. So there is always a need of quick and authentic method of diagnosis and confirmation. Among the available methods, PCR remains one of the most reliable and sensitive tool as compared to culture and serology. In this study we combined the two step PCR i.e. Nested PCR by Tetra PCR one of variant of PCR as the nested PCR is more sensitive compared to the conventional PCR technique.

We targeted the 16s rDNA for primer designing and evaluation. The PCR was optimized by incorporation of variable concentrations of each of the primer designed as Outer Forward & Outer Reverse and Inner Forward and Inner Reverse. The outer pair specifically amplified the 16s rDNA universal region of mycoplasmas while the Inner pair primer targeted the specie specific region. The optimum $MgCl_2$ concentration was 3 mM, dNTPs 200µM and the optimum annealing temperature 56 ˚C.

The sensitivity of outer pair of primer was comparable to other universal mycoplasmas primers which could detect the DNA upto femto grams while the Tetra PCR (using all four primers) sensitivity is between 100-1000 cfu/mL. The specificity of the designed primers as assessed by the sequencing of the amplified product confirmed that the primers specifically anneals to the target species sequence. The mycoplasma was detected after 06 hours of inoculation of clinical specimen in broth which made possible the positivity of culture in a very short span of time. Analysis of clinical samples submitted for diagnosis indicated sensitivity and specificity of the developed PCR test were 90% and 100% respectively.

Poster 7

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Status of Serum Trace Elements and Macro Minerals in Schizophrenia Patients

Background: Schizophrenia (SCZ) is a chronic, severe, and disabling neuropsychiatric disorder often characterized by abnormal social behavior and failure to recognize the reality. Study says trace metals play an important role in neuropsychiatric diseases like SCZ. Less information is available about the role of macro and trace elements in SCZ.
Objective: The objective of this study was determining serum level of macro-minerals (Calcium, Potassium and Sodium) and trace elements (Zinc, Iron and Selenium) in patients with SCZ and thereby, finding any pathophysiological correlation.
Method: Our study was conducted as case-control study with 63 SCZ patients as case and 63 healthy normal individuals as controls. Serum macro-minerals and trace elements were determined by atomic absorption spectroscopy. Independent sample t-test and Pearson's correlation test were used for statistical analysis using SPSS for Windows® version 16.0.
Results: The study found significantly lower level of trace elements, and macronutrients in patients than controls ($P<0.05$). Serum level of zinc, iron, selenium, calcium, potassium, and sodium were found 0.33±0.008, 0.24±0.01, 0.025±0.0006, 36.88±2.56, 64.18±2.72, and 2657.5±53.32 mg/L respectively in patients, whereas 0.79±0.03, 0.78±0.03, 0.0650±0.004, 86.43±2.55, 168.01±2.85, and 3200.8±29.96 mg/L respectively were found in controls. Pearson's correlation analysis revealed negative correlation between zinc and sodium ($r=-0.189$, $p=0.137$); zinc and potassium ($r=-0.021$, $p=0.869$); zinc and calcium ($r=-0.087$, $p=0.499$); zinc and iron ($r=-0.143$, $p=0.263$); zinc and selenium ($r=-0.097$, $p=0.448$); iron and sodium ($r=-0.070$, $p=0.586$); and iron and selenium ($r=-0.119$, $p=0.353$) in patients.
Conclusion: Study suggests that pathogenesis of SCZ has strong relation with decreased level of macro-minerals and trace elements. Dietary supplements may help to improve this abnormality, and therefore it demands further research.

Poster 8

Kanmani Tumkur Lakshmikantha

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Comparison of Effect of Mental Stress on Autonomic Nervous Activity between the Normotensive Offspring of Normotensive and Hypertensive Parents

Hypertension is one of the major risk factors for coronary artery diseases, congestive heart failure, stroke, etc. Numerous controlled clinical trials have verified that lowering blood pressure significantly reduces morbidity and mortality.
Essential hypertension is characterized by an increase in sympathetic activity, reduced vagal modulations of the sinoatrial node and blunted baroreflex gain. Genetic component of essential hypertension is as high as 60%.
Heart Rate Variability (HRV) is a practical, non-invasive tool to quantitatively investigate cardiac autonomic dysregulation in hypertension. Change in the HRV pattern provides an early and sensitive indicator of compromised health. A high HRV is a sign of good adaptability, whereas lower variability is an indicator of abnormal and insufficient adaptability of the autonomic nervous system. A number of studies have shown that during mental stress, there is an increase in sympathetic activity and a decrease in parasympathetic activity, resulting in an increased strain on the heart.
During mental stress in offspring of normotensive parents there is an increase in sympathetic and decrease in parasympathetic activity but in offspring's of hypertensive parents there is evidence of sympatho-vagal imbalance during mental stress. This suggests the necessity to target reduction in sympathetic activation as a primary goal in prevention of hypertension, which can be done by early identification of individual with pre hypertensive state and by implementing preventive measures like regular exercises, change in food habits and life style modification.

Poster 9

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Chronic Low Back Pain is Associated with Cortical Structural and Functional Alterations

[Background] Chronic low back pain (cLBP) is a common disorder that often lacks recognizable pathology, however it is associated with alterations in increased central cerebral responses to pain, functional reorganization of the default mode network connectivity, and decreased prefrontal and thalamic Gray Matter Density (GMD). The objective of this study was to explore how the GMD and functional connectivity changes in cLBP and whether there is an interaction between structural and functional alterations.

[Method] 20 cLBP patients and 20 Healthy controls, all right handed, were recruit to this study. Each subject was placed in a prone position on a 3T MRI scanner, given lumbar mechanical stimulations by an in-house algometer at 4th-5th lumbar interspace, 5 cm left lateral. The whole-brain functional MRI and high-resolution 3D T1 image were in turn obtained. GMD changes were measured by Voxel-based Morphometry (VBM) in SPM8, Matlab. Parameter estimates for GMD were examined for correlation with physiological variables such as age, gender, illness duration and McGill Pain Questionnaire Score. Regions of Interests (ROI) were set from significant GMD regions to explore functional connectivity around the whole cortical voxels by Conn in SPM8. Finally, whether there was a correlation between anatomical and functional alterations would be examined.

[Conclusion] We found possible atrophic changes in the regions associated with somatosensory and partly affective processing of pain perception in cLBP. Right Superior Parietal Lobule might act as a hub linking to grey matter volume and functional connectivity changes, where age may be considered as an assignable confounding factor.

Poster 10

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Fibroblast Growth Factor 21(FGF21) Gene Expression is Epigenetically Regulated via Peroxisome Proliferator-Activated Receptor (PPAR) a Activation in Perinatal Period

[Background] We previously showed that fatty acid oxidation gene expressions are regulated by PPAR α dependent DNA methylation in the perinatal mouse liver (Diabetes 2015). FGF21 is a hormone predominantly produced in the liver regulating glucose and lipid metabolism. It is known that FGF21 gene expression is positively regulated by PPARαat the transcriptional level. However it is unclear whether FGF21 gene expression is epigenetically regulated or not.

[Object and Method] To determine whether FGF21 gene expression is epigenetically regulated by PPARα, we employed PPARα knockout mice and examined their DNA methylation status of FGF21 gene in the liver. Next, to determine whether perinatal PPARα activation could promote the DNA demethylation of FGF21 gene, we administered PPARα ligand (Wy14643: Wy) or vehicle to dams in late gestation and lactation period and examined DNA methylation status and mRNA levels of FGF21 gene and serum FGF21 concentrations of the offspring derived from the Wy or vehicle administered dams, referred to as Wy and vehicle group, respectively.

[Result] DNA demethylation was induced in wild-type mice in a time-dependent manner but not in PPARα knockout mice. In perinatal period, DNA demethylation in Wy group was significantly induced compared with that in vehicle group, and the DNA methylation status was maintained to adulthood. Moreover, FGF21 mRNA levels and serum FGF21 concentrations in adulthood were significantly increased in Wy group compared with those in vehicle group. [Conclusion] The DNA demethylation status is preserved to adulthood suggesting that “Epigenetic memory” is existed in FGF21 gene expression.

Poster 11

Noriko Shimazu

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Pirfenidone Prevents Liver Fibrosis with Decreased Hepatic Cell Death in a Mouse Model of NASH

Non-alcoholic steatohepatitis (NASH) is a severe form of non-alcoholic fatty liver disease, and characterized histologically by the presence of hepatic steatosis and inflammation with hepatocyte injury. Although NASH can progress to cirrhosis and its related complications including hepatocellular carcinoma, pathogenesis and effective pharmacological treatment of NASH remain elusive. Pirfenidone (PFD) has been clinically used for the treatment of idiopathic pulmonary fibrosis, but the mechanism of action is still unknown. To clarify the effectiveness of PFD and the pathogenesis of NASH, we administered PFD to melanocortin 4 receptor-deficient (MC4R-KO) mice; an originally-developed mouse model of NASH that displays steatohepatitis with obesity and insulin resistance. Oral administration of PFD strongly prevented liver fibrosis in MC4R-KO mice without affecting hepatic steatosis and systemic glucose/lipid metabolism. Microarray analysis showed that PFD attenuated the changes of cell death- and apoptosis-related gene expression in the liver of MC4R-KO mice. Accordingly, TUNEL staining in the liver confirmed that PFD decreased the number of apoptotic cells. PFD also suppressed the induction of Tgfb1 and Col1a1 gene expression, and inhibited the activation of stellate cells in the liver of MC4R-KO mice. In TNF-α-induced experimental hepatitis model using wild-type mice, PFD pretreatment markedly inhibited increase of serum ALT levels, and hepatic cell death assessed by TUNEL staining. In primary cultured hepatocytes from wild-type mice, PFD pretreatment attenuated TNF-α-induced apoptosis associated with decreased Caspase-8 activity. In summary, PFD may have therapeutic potential for human NASH, and our observation revealed pathophysiological significance of hepatocyte apoptosis in development and progression of NASH.

Poster 12

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Preparation of the Surface Immobilized with Conjugates of Antibody and Functional Groups for Cell Capture and Recollection

Recently, the immuno-therapy which is expected to increase the immune response to cancer has been drawing a researcher’s attention. Nowadays, one of the key factors which determine the efficiency of the immuno-therapy is thought to the controlling of regulatory T cell (Treg). It has been reported that the Treg removal from the patient’s blood could enhance the tumour immunity and the increase of Treg would be effective for the treatment of the autoimmune disease. In this study, our aim is set to the development of the device which can capture and collect Tregs from the patient’s blood selectively and effectively. We designed and synthesized the surface of the device by immobilization of antibody through desthiobiotin-avidin interaction. In this system, the dissociation of desthiobiotin occurs by addition of biotin due to substitution mechanism. Briefly, we polymerized PAAc to PP film by surface-grafting method and immobilized the amine-PEG3-biotin using esterification reaction between carboxyl-group of PAAc and amine group. The desthiobiotin- and the biotin-modified antibody (DB-CD45, B-CD45) were immobilized on the film, respectively. GFP mouse bone marrow cells were seeded on the film and the specific adhesion of cells was observed by using fluorescence microscope. When the biotin-modified water soluble polymer, which was dissociation agent, was added, the dissociation of the cells was occured. From these results, it was suggested that cells could be captured and recollected by using a device having surface immobilizing antibody via desthiobiotin-avidin interaction.

Poster 13

Yu-fei Chai

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J - Hook and Upper Ant. Bone Screw with Torque Control

Every orthodontic dentist know that the bite and torque control is the most difficult but also the most important thing when we face extraction ortho cases .If we choose the wrong method to close the upper premolars space, the outcome of cases will be unacceptable. Though the extraction space is closing, the overbite is becoming deeper and deeper and the torque of upper anterior teeth is losing. The more worse part is the upper anterior teeth block by the lower anterior dentition combine with the anchor of upper molar loss, upper posterior teeth mesial shifting , when this situation happen , you can't close the upper space forever.

Nowadays, most of orthodontic doctors have starting to use mini screw for the retraction of upper anterior dentition. I plan to share the method we use for recent years. It's the extraoral J-hook device, it is a kind of headgear which have the effect of instruction and retraction of upper anterior dentition. Mini screws sometimes drop by several reasons; Ex: the loose texture of maxillary bone, inappropriate force of retraction. J-hook doesn't has these kind of unpredictable problem and it can be use in the early stage of space closing period. Although the wire is not rigid enough, J-hook still could interfere the retraction force.

The position we hang hook always related to the space we left, in the early stage of closing space, canine distal drive could perform with J-hook, the backward and upward force will become the intrusion and retraction effect. J-hook can accelerate the retraction speed and it is the second insurance of upper posterior anchor.

After mention about J-hook, I like to introduce another weapon we use to intrude the upper anterior dentition very often. The upper anterior mini screw I think every orthodontic dentist has the experience of insertion upper anterior mini screw, the annoying part of upper anterior mini screw is the incisor root distance and the "foreign object" feeling that patient complained. My method of insertion upper anterior mini screw is a little different with traditional way, it would be more apically .The goal we want to achieve is instruction and bite opening, weekly changing the elastic rope which tie from the upper anterior mini screw to main wire could help the effect become obviously.

Poster 14

Kunlanun Dumrongvute

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Reponse of Dog's Pulp Tissue to Improved white Portland Cements Compared with Proroot® Mta

The purpose of this study was to compare dog's pulp response to partial pulpotomy sealed with Improved white Portland cements and ProRoot MTA®. Partial pulpotomy was done in four dogs thirty-five premolars teeth and divided into three groups. Group 1 was capped with ProRoot ®MTA (n=10) Group 2 was capped with Portland cement with bismuth oxide mixed with 5% calcium chloride and 1% methyl cellulose (n=20). After pulp capping, teeth were based with glass ionomer cement and restored with resin composite. Both groups were done in seven and seventy days. Group 3 was positive control group, pulp exposure was open for seven days (n=5). Teeth were extracted and processed for histopathologic examination. Results were analyzed by Kruskal-wallis and Chi-square at 0.05 level of confidence. There is no statistically different between ProRoot ®MTA and Portland cement to pulp inflammation and healing in seven and seventy days. No inflammation was observed in both experimental groups. In addition, completed hard tissue formation were detected. The hard tissue morphology and thickness were also not different between both groups. However, positive control group which showed moderate to severe inflammations. From results of this study can concluded that Thai Portland cement with bismuth oxide mixed with calcium chloride and methyl cellulose, when used as pulp capping material, could retain pulp vitality without inflammation and also promote pulp healing and repaired process. Furthermore, it could induce hard tissue formation similar to ProRoot ®MTA.

Poster 15

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Prevalence of Temporo-Mandibular Disorders among Dental Students at the Faculty Odonto-Stomatology

Objective: The objective of this research is to find the prevalence of TMD (LMO, CS, and P) among dental students at the Faculty of Odonto-Stomatology, Phnom Penh, Cambodia.

Materials and Methods:128 dental students (female = 46) aged 20 to 25 were selected randomly for this study to gather information related to TMD applied to participants in cross-sectional of those having , LMO, CS, and P.

Results: It was found that 72.65% of 128 samples had signs and symptoms, of which 31.18% was female. Six cases (4.69%) had LMO, CS, and pain. Nineteen cases (14.84%) had CS, and LMO. Seven cases (5.47%) had CS and pain. Three cases (2.34%) had pain only. Eighteen cases (14.1%) had CS and 40 (31.25%) had LMO only.

Discussion: This study showed that 72.65% of dental students had TMD signs and symptoms with the common cause being stress and 4.69% having TMD. This study has similar outcomes with previous studies in that:

1. 14.3% having TMJ sounds which is the most essential risk factor in terms of LMO
2. 15 individuals (32.6%) displayed of TMJ dysfunction (pain, clicking) and

Conclusion: This study confirms the psychological effects of TMD among Cambodian dental students. It is recommended that dental students should be taught about how to prevent, to diagnose, and to treat nondental orofacial pain, particularly TMD and stress reduction.

Keywords: TMD, clicking sound (CS), limited mouth opening (LMO), pain (P)

Poster 16

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Relationship of Biofilm Formation and LuxS Gene Expression in Enterococcus Faecalis Isolated from Extraradicular Persistent Apical Periodontitis Lesions

Objective: Investigate the relationship between biofilm formation ability and LuxS gene expression level of Enterococcus faecalis (E.f) in periapical lesions associated with persistent apical periodontitis.

Methods: The expression rate of E.f and LuxS was detected by polymerase chain reaction (PCR). E. faecalis lcl1709 was isolated from clinical samples of persistent apical periodontitis, ATCC 29212 strain was used as control group. Automatic microplate reader and Laser Scanning Confocal Microscopy (LSCM) were used to investigate the biofilm formation ability of E. faecali after cultivated 12h, 24h, 36h, 48h.Observing the structure of the biofilm comprising Enterococcus faecalis by using the scanning electron microscopy (SEM). The expression level of LuxS gene in E. faecalis was assessed by Real-time quantitative polymerase chain reaction.

Results: The detection rate of Ef in Persistant periodontitis is 50%, luxS gene expressed in 50% of the Ef positive lesions. The biofilm formed in 96 well palates of lcl1709 is thicker than ATCC 29212, as well as formed on apical part of extracted tooth which evaluated by LSCM increasing over time is larger, significant differences emerge at 36h and 48h($P<0.05$). 48h, biofilm structure is complex than it was at 12h. The biofilm formation ability of Ef is related to the expression level of LuxS gene. The expression lever of LuxS gene of lcl1709 is significantly higher than ATCC 29212($P<0.05$).

Conclusion: Biofilm formation ability of Ef is correlated to the expression level of luxS. In the strains isolated from persistant periodontitis lesion, the luxS expression level and biofilm formation ability is stonger than ATCC strain.

Poster 17

Wenhao Guo

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X Ray and CBCT Findings of Non-Hodgkin's Lymphoma Involving Jaws

Objective: The study aim to suggest the X ray and CBCT findings of non-Hodgkin's lymphoma involving jaws.

Method: Cone Beam Computational Tomography (CBCT) of four oral and maxillofacial non-Hodkin's lymphoma (NHL)
cases verified by pathology were retrospectively analyzed. Panoramic radiographs were only available for two patients.

Results: 3 cases involved maxillary region and one case occurred at bilateral maxilla and mandible. All CBCT imaging findings possessed the features of ill-defined borders and osteocytes regions. However, the extent of bone destruction was various. The tumor totally replaced normal bone tissue in two cases, the other cases remained residual bone tissue. Although panoramic imaging of two cases cannot surely suggest the bone destruction caused by cancer-associated osteolysis, but they also exhibited bony changes which could provide tips for radiologists and surgeons.

Conclusion: Although both CBCT and panoramic findings of NHL demonstrated general malignant features, its variety of jaw change deserved to further study.

Poster 18

Kyaw Thu Htun

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Evaluation Of Factors Related to Extraction of Endodontically Treated Teeth

Introduction: The teeth that have been endodontically treated although may have a long term high functional survival rate, yet they are generally more susceptible to fractures as compared to teeth with vital pulps. Thus, coronal and/or radicular tooth fractures continue to remain important reasons for post endodontic extractions.

Aim: To evaluate the factors related to extraction of endodontically treated teeth.

Methodology: 114 cases of extraction of endodontically treated teeth performed from 2012 to 2014 were reviewed, and the following items were recorded: type of tooth, presence and type of coronal restoration, reason for extraction and chief complaints.

Result: The percentage of teeth most extracted were maxillary and mandibular premolar (45.6%) and follow by mandibular first molar (30.7%). The reasons of extraction were periodontal diseases (9.6%), endodontic-periodontal reason (14.9%), endodontic failure (7.0%), vertical root fracture (37.7%), non-restorable crown fracture (21.9%) and for orthodontics reasons (8.8%). The percentage of teeth extraction due to Vertical Root Fracture (VRF) was highest among reasons. The percentage of teeth extraction due to VRF was about two times higher than that of non-restorable crown fracture.

Conclusion: The most common extracted types of tooth were maxillary and mandibular premolar and mandibular first molar which were lost due to vertical root fracture. The relatively high prevalence of VRF in this survey indicates that difficulties in making a clinical diagnosis of VRF before extraction. Therefore Cone-Beam Computed Tomography much more appropriate and necessary rather than periapical radiograph. Prevention of vertical root fracture is more important for endodontic treatment success. Further studies is still need to support this findings.

Poster 19

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Comparison of Cone Beam Computed Tomography and Direct Digital Radiography in Detecting Periapical Lesions

Introduction: Radiography plays an essential role in the identification and diagnosis of osseous lesions. Accurate interpretation may largely depend on the extent of bony involvement, type of diagnostic imaging system used and technique precision. Direct Digital radiograph is a two dimensional representation of a three dimensional object. Periapical lesions confined within cancellous bone were not usually detected in periapical radiograph. Cone Beam Computed Tomography (CBCT) is a technique that produces three dimensional digital imaging.

Aim: To compare the accuracy of Cone Beam Computed Tomography and Direct Digital radiograph in diagnosis of periapical lesions.

Study Design: Database such as Pub med Central and Medline were searched for the related topics from January 2004 to December 2014. Trials were selected if they met the following criteria of clinical trials comparing the accuracy of CBCT and Direct Digital radiography. All the studies included were based on the data extraction and analysis of the studies for quality and publication bias.

Result: The review concluded that CBCT is superior to Direct Digital radiography in detection of periapical lesions. CBCT was accurate in diagnosing the presence and absence of the periapical lesions.

Conclusion: With direct digital radiography, external factors (that is anatomical noise and poor irradiation geometry), which are not in the clinician's control, hinder the detection of periapical lesions. CBCT removes these external factors. In addition, it allows the clinician to select the most relevant views of the area of interest resulting in improved detection of the presence and absence of periapical lesions.

Poster 20

Tu Thi Huyen Trang

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Comparison of Decalcifying Solutions for Histological Tooth Preparation

Human teeth and bones consist of hard and soft tissues. The mineralized tissue with the most calcium content in the human body is tooth enamel with a ratio 96-98%, followed by the dentin layer of tooth with 70%. Because of that, it is very hard to prepare tooth for microscopic examinations. On the other hand, complex tooth structure and first of all the extraordinary hardness of enamel makes this organ very difficult to process and section for observation under microscope. Decalcification is a process of complete removal of calcium salt from mineralized tissues like bone and teeth and other tissues. Therefore, the goal of decalcification is to prepare them for further sectioning of histologic specimen. Histological observations of the pulp, immature enamel, dentin and cementum, require the removal of the mineral component of the dentin and cementum. These effects depend on the solution's acidity and duration of the decalcification process.

Objective: This in vitro randomized controlled trial aimed to evaluate the efficacy of 4 commonly decalcifying solutions in preparing histological tooth to identify the best demineralizing agent.

Materials and Methods: This study included 4 different decalcifying solutions: 10% formal nitric acid, 10% formic acid, Perenyi's fluid and 15% EDTA (Ethylene Di-Amine Tetra Acetic Acid). 24 freshly extracted periodontally compromised human premolar teeth without evidence of dental caries were used for decalcification in 4 agents. In each agent 6 teeth was used.

Complete decalcification was checked using X-ray and physical methods. The teeth were sent for routine processing and stained using Haematoxylin and Eosin.

Statistical Analysis Used: One-way ANOVA was used for multiple group comparisons and Chi-square test was used for analyzing categorical data. P value of 0.05/less was set for statistical significance.

Result: Not complete.

Conclusion: Not complete.

Poster 21

Vu Hoang Tri

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The Active Oral Hygiene Education Model for 12-to-17 Year-old Patients Wearing Orthodontic Brackets

INTRODUCTION: Patients undergoing orthodontic treatment often develop oral diseases due to increased risk of plaque accumulation. Therefore, active plaque control is considered to be an effective prevention against oral diseases among these patients.

OBJECTIVES: The objective of this study was to develop, test and evaluate the Active Oral Hygiene Education Model.

METHODS: A Randomized Controlled Community Intervention Trial was conducted through three stages: (1) developing the Active Oral Hygiene Education Model; (2) testing the model tools; (3) conducting a community intervention trial to evaluate the efficiency of the model. 104 patients from 12 to 17 year-old wearing braces were randomly divided into experimenting group which received Active Oral Hygiene Education and control group which only received instructions on oral hygiene instructions from dentists in the orthodontic clinics. Knowledge on oral hygiene during fixed orthodontic treatment was collected (via a questionnaire), Modified Plaque Index, early dental caries, Modified Gingival Index were recorded by calibrated examiners. The data were recorded after 4, 12, 24 weeks

RESULTS: Active Oral Hygiene Education tools were successfully created. The results showed that the percentage of patients with satisfactory level of knowledge on oral hygiene while wearing braces increased by 95% after educated.

CONCLUSIONS: The establishment of the Active Oral Hygiene Education Model for Orthodontic Patients is both essential and practical as it can contribute to improving orthodontic treatment outcomes. However, the trial should be continued to prove the real effectiveness of the model.

Poster 22

Abhishekhi Shrestha

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Fabrication of Obturator Type of Sports Mouthguard for Maxillectomy Patient and its Speech Intelligibility Assessment : A Case Study

Introduction: Sports mouthguard is an effective dental protector widely used in contact sports such as American football, boxing, rugby, football and martial arts. The objective of this study was to develop a customized obturator type of mouthguard for sports-active patient with maxillectomy and encourage the sporting activity without any functional hindrance.

Materials and methods: The subject was football loving elderly (male, 64 years old) who had undergone maxillectomy to remove his right side maxillary bone due to squamous cell carcinoma and had finished maxillary obturator prosthesis rehabilitation. To respond to his demand for mouthguard from preventing football injury, dental impressions with compound sticks and alginate impression materials were taken and casts were prepared for both upper and lower jaws. The occlusal bite registration was done and casts were mounted in mean value articulator using split cast technique. The customized obturator type of mouthguard was fabricated by lost-wax method. After waxing up on upper cast, flasking, deflasking and cooling process, the thermoplastic polyolefin-based mouthguard materials were adapted in mould cavity. Re-flasking and cooling was completed and excess material was trimmed with scissors and tungsten carbide burs. The final product was polished with silicon burs and buff wheels.

Result and discussion: The fabrication of the obturator type of mouthguard was successfully completed. After the chair side adjustment, speech intelligibility test was performed to confirm non-interference of the special mouthguard. Satisfactory feedback was obtained from the player after use. The fit, protection, respiration, speech and comfortability were clinically assessed with visual analog scale.

Poster 23

Alaa Abdulahad Turkistani

Department of Cariology and Operative Dentistry, TMDU (Saudi Arabia)

Marginal Sealing of Adhesive Restorations and Lesion Progress: in Vitro Evaluation by Optical Coherence Tomography

This study evaluated the influence of adhesives and marginal sealing on demineralization progress using optical coherence tomography (OCT). Cervical cavities (4x2mm) were restored with Estelite Flow Quick (EF) and one of four adhesives; SE Protect (SP), Bond Force (BF), Scotchbond Universal (SB) or G-Bond Plus (GB). Control group was restored with EF only (n=10). After 3-day incubation in artificial saliva and 10,000 thermal cycles, enamel and dentin marginal gaps were measured on four B-scan images obtained across each restoration by swept-source OCT at 1310nm wavelength. Specimens were then demineralized (pH=4.5) for 5w and scanned every week to monitor lesion progress at the same margins. Repeated-measures ANOVA showed that demineralization period and adhesive type, and their interaction had a significant effect on lesion size in both substrates ($p<0.001$). Before demineralization, SP, BF and SB had significantly lower enamel and dentin microgaps than control and GB ($p<0.05$). In enamel, lesion progress was slower in fluoride-releasing adhesives SP and BF, and significantly different from SB, GB and Control ($p<0.001$). lesions formed around dentin margins of SP and BF were smaller and significantly different from GB and Control ($p<0.001$), but not from SB ($p> 0.05$).Pearson's correlation suggested a significant positive correlation ($p<0.05$) between initial gap and formed lesion size in both substrates, which was stronger in enamel ($r=0.63$) than dentin ($r=0.35$). Clinical OCT would be a promising tool for monitoring and evaluation of composite-restoration margins. Marginal microgaps significantly contribute to lesion progress around margins, while fluoride-release may decrease the progression rate, especially in enamel.

Poster 24

Thwe Zin Ei

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Monitoring the Fluoride Release of Pit and Fissure Sealants in Simulated Saliva Solutions

Fluoride incorporation into pit and fissure sealants (PFS) is a viable way for caries prevention through its potential to inhibit demineralization with the release of fluoride into enamel. This study compared the fluoride release (FR) of Teethmate F-1 (TF, light-cured) and Fuji VII (FVII, glass ionomer) in artificial saliva (AS) solutions containing the salivary phosphoprotein homologue casein. 2 x 2 x 0.5 mm Class I cavities were prepared in bovine enamel blocks and were filled with the PFS according to the manufacturers' instructions (n=20). Specimens were then incubated in AS (1mM $CaCl_2$, 3mM KH_2PO_4, 100mM NaCl, 100 mM Na acetate, 0.02% NaN_3, 100µg/ml casein), pH 6.3 at 37°C. AS were refreshed every 2 days for 30 days and FR were measured accordingly. Morphological assessment of adjacent enamel surfaces of PFS and PFS-free specimens was performed using scanning electron microscopy. FVII showed higher cumulative FR at all times that was significantly greater ($p<0.05$) than TF after 12 days. Precipitates on adjacent enamel surfaces were observed for 30-day PFS specimens. Both FVII and TF may provide some protection to the adjacent enamel with FVII exhibiting consistently greater FR over time. Concurrent studies are being undertaken to further elucidate their demineralization inhibition potentials.

Poster 25

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Inhibition of IGF-IR Retards Release from Radiation-induced G2 Arrest

We previously reported that the fluorescent ubiquitination-based cell cycle indicator (Fucci) visualizes radiation-induced G2 arrest kinetics in HeLa cells lacking the p53 function. Using this system, we are investigating factors which influence radiation-induced G2 arrest kinetics. Insulin-like growth factor I receptor (IGF-IR) is a multifunctional transmembrane receptor tyrosine kinass, including cell growth, transformation, inhibition of apoptosis, and DNA repair. The object of this study was to examine the possible involvement of the receptos in the radiation-induced G2 arrest kinetics. For this purpose, we utilized HeLa cells expressing the Fucci (HeLa-Fucci cells) and a specific inhibitor for IGF-IR (NVP-AEW541). We found that 2 μM AEW541 almost completely inhibit IGF-I-induced activation of ERK, a downstream kinase of IGF-IR. Using the inhibitor, pedigree analysis of each cell exhibited that the significant elongation of G2 arrest was observed in both cells irradiated in red phase (G1 phase) and green phase (S/G2 phases). Because IGF-IR is reportedly involved in DNA double strand break (DSB) repair, we next examined DSB repair kinetics following irradiation. Inhibition of IGF-IR is likely to inhibit DSB repair as detected by 53BP1 foci. Taken together, it was suggested that IGF-IR inhibitor inhibits DSB repair following irradiation, thereby, G2 arrest is prolonged, subsequently resulting in a retarded release from G2 arrest. We are now assessing the effect of the inhibitor on radiosensitivity.

Poster 26

Ashik Pokharel
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Epidemiological Study: TB among Bhutanese in Bhutanese Refugee Camps, Jhapa, Nepal

GENERAL BJECTIVE: To conduct an epidemiological study on TB among Bhutanese refugees in 7 Camps of Jhapa district of Nepal.

METHODOLOGY: Retrospective study on 7 Bhutanese refugee Camps on a total population of 107279 and total cases reviewed were 897.

INTRODUCTION: TB is one of the major public problems in the SAARC region with immense socioeconomic impact. 45 percentage of the total population is infected with TB, out of which 60 percentage are adults. Refugees are the most vulnerable populations for the occurrence of TB because of their lifestyles, poor economy, overcrowding, malnutrition, low literacy and HIV-AIDS.

CONCLUSION: TB is a major health problem of refugees in the Bhutanese refugee Camps, which is the scenario in National situation. Though, there has been consistency in high case detection ratio, smear conversion rate, cure rate, recording and reporting of TB cases, similar incidence of the TB cases every year reflects that the risk factors for TB still do prevail and there is profound need of upliftment of socioeconomic, health and nutritional status and continuation of the awareness programme.