Case Report – Prediabetes/Diabetes Mellitus

Acute Pancreatitis Induced by Severe Hypertriglyceridemia in Poorly Controlled Type 2 Diabetes

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Mild to moderate hypertriglyceridemia that is seen in association with diabetes is the most common form of hypertriglyceridemia. However, severe hypertriglyceridemia (triglyceride >1,000 mg/dL) in diabetes is uncommon. A 38-year-old woman who had a history of diabetes and repeated acute pancreatitis presented to the emergency room with 48h of epigastric pain. She did not take any hypoglycemic agents including insulin about for one year. Other causes such as obesity, alcohol ingestion, drugs, hypothyroidism or renal disease can aggravate hypertriglyceridemia were not detected in this patient. Blood test revealed that severe hypertriglyceridemia of 9880 mg/dL, detectable urine ketones and 14.0% of HbA1c. Arterial blood gas analysis revealed mild metabolic acidosis (pH 7.298) and underlying diabetic ketoacidosis. She was treated aggressively with multiple insulin injection, fibrate and omega-3 for management of diabetes and severe hypertriglyceridemia. Her blood glucose levels were well controlled, plasma triglyceride level fell within normal range after two weeks, and pancreatitis was fully resolved. Uncontrolled diabetes-induced severe hypertriglyceridemia should be considered as a cause of acute pancreatitis and glucose control is important for prevention of pancreatitis.

Keywords: diabetes mellitus, hypertriglyceridemia, acute pancreatitis

Case Report – Prediabetes/Diabetes Mellitus

Angiotensin-Converting Enzyme Inhibitor for Prevention of Microalbuminuria In Type 2 Diabetes

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Diabetic nephropathy is found in 20-40% of diabetic patients who are mostly Type 2 diabetes. Researches on the effectiveness of angiotensin-converting enzyme inhibitor (ACEI) for reducing microalbuminuria incidence in Type 2 diabetic patients with normoalbuminuria have been published. Evidence search was done through Pubmed and Cochrane Library databases using keywords. After applying inclusion and exclusion criteria, filtering doubles, reading abstracts and looking for full text availability, there were two remaining journals which were appraised based on standardized British Medical Journal criteria of validity, importance, and applicability. Of the two meta-analyses, the article written by Hirst JA et al is valid, important, and applicable for patient's case. Meanwhile, the article written by Vejakama P et al. is valid, but not important and applicable because of the study's heterogeneity. ACEI reduced microalbuminuria incidence by 16% significantly over placebo for type 2 diabetic patients with normoalbuminuria.

Keywords: Angiotensin-converting Enzyme Inhibitors, Type 2 diabetes, microalbuminuria

Case Report – Thyroid Disorders

Metastatic Papillary Thyroid Carcinoma Complicated by Adrenal Insufficiency and Diabetes Insipidus

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Papillary thyroid carcinoma (PTC) has a relatively favorable prognosis, and distant metastases, primarily to the lungs and bone, occur infrequently. Brain metastases are seen in only 0.1 to 5% of cases, and metastases to the sellar-parasellar region have been reported in only a few individuals. A 63-year-old Filipina with a history of PTC was admitted for debulking of a recurrent neck mass. Post-operatively, the patient developed persistent hypotension associated with a low cortisol level (9.7 ug/dL), which promptly improved upon administration of hydrocortisone. On the fifth post-operative day, the patient complained of bilateral lower extremity weakness. Diagnostic exams revealed marked hypernatremia (Na=183 mmol/L) and hypokalemia (K=1.9 mmol/L), and a low urine osmolality (216 mOsm/kg). She was noted to have increasing urine output and, upon further investigation, a history of polydipsia in the preceding months was discovered, supporting a diagnosis of diabetes insipidus. The patient was given desmopressin which lead to clinical improvement. A cranial MRI showed a sellar-suprasellar midline mass, along with other cerebral nodules suggestive of metastases. She was discharged stable on oral prednisone and desmopressin, with a plan for further metastatic work-up and external beam radiation therapy. This case illustrates the value of a thorough evaluation of a patient with an unusually aggressive PTC. Diabetes insipidus is a common presenting feature of malignancies with metastases to the sellar-suprasellar region. However, this condition appears to be less common in PTC; only two cases of diabetes insipidus associated with sellar metastases from PTC have been previously described.

Keywords: papillary thyroid carcinoma, thyroid, diabetes insipidus

Case Report – Thyroid Diseases

Atypical Presentation of Uncontrolled Graves' Disease – Posterior Reversible Encephalopathy Syndrome

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The clinical spectrum of Posterior Reversible Encephalopathy Syndrome (PRES) is rarely reported in the presence of autoimmune thyroid disease. In this article, we report a case of uncontrolled Graves' disease in thyroid storm, with characteristic radiologic findings and neurologic manifestations consistent with PRES. A 33-year-old Filipino woman, with Graves' disease for 7 years, presented with sudden complete loss of vision and signs and symptoms of thyroid storm (Burch and Wartofsky

score of 80). Cranial MRI showed multiple cortical/subcortical foci of T2/FLAIR prolongation in the occipital lobes and the parasagittal regions of the parietal and frontal lobes which were bilateral and fairly symmetric in distribution. Baseline thyroid function tests showed a TSH of 0 uIU/mL, elevated Free T3 and Free T4 levels at 6.11 pg/mL and 2.29 ng/dL, respectively. She was given propanolol and propylthiouracil, which was later shifted to methimazole. Spontaneous improvement in vision was noted a few hours after onset of symptoms. On the 5th hospital day, the patient had sudden onset of difficulty of breathing and went into cardiopulmonary arrest. The patient was resuscitated after nine minutes and underwent therapeutic hypothermia. Intravenous antibiotics for possible aspiration pneumonia and vasopressors were given. The patient developed acute renal failure with multiple electrolyte imbalance for which renal replacement therapy was started. Cardiology referral was made due to multiple arrhythmias with findings of diastolic failure secondary to hyperthyroidism, ventricular diastolic dysfunction and hypertension. The patient's sensorium gradually improved and she was discharged with complete recovery of vision with no neurologic deficits after more than a month of hospital stay. Repeat cranial MRI done as outpatient showed near total resolution of previous neuroimaging findings. Autoimmune work-up (ANA) was negative. The patient underwent RAI therapy 3 months after admission and is presently clinically and biochemically euthyroid. PRES can lead to significant morbidity and mortality. Early determination of its underlying etiology, as seen in this case - Graves' disease in thyroid storm, is necessary for opportune management.

Keywords: hyperthyroidism, Graves' disease, Posterior Reversible Encephalopathy Syndrome

Case Report - Thyroid Diseases

Graves' Thyrotoxic Heart Disease: An Atypical Presentation

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Thyrotoxic Heart Disease (THD) is a threatening complication of thyrotoxicosis increasing risk of morbidity and mortality. Over the past decades, there has been an increasing number of reports about newly recognized (atypical or unusual) manifestations of Graves' disease (GD). Anasarca, spider angioma and right-sided heart failure are atypical manifestation of GD and THD, but these were evident in this case. A 58-year-old female with uncontrolled GD for 7 years presenting with anasarca, spider angioma and pancytopenia. As an outpatient, she was biochemically hyperthyroid. Thyroid scintigraphy showed diffuse thyromegaly with signs of hyperfunction. carbimazole was started. Ultrasound showed hepatosplenomegaly with dilated IVC. Upon admission, she was dizzy and had bipedal edema. She was dyspneic and hypotensive. There was anasarca, pallor, lid retraction, diffusely enlarged thyroid, neck vein distention, bibasal rales, spider angiomas, ascites, bipedal edema, cyanotic nailbeds and hand tremors. Echocardiography showed dilated both atriums, ventricles with multi-segmental areas of hypokinesia; EF of 40% and moderate pulmonary hypertension. She was started on norepinephrine drip and digoxin. Thallium Scan showed no inducible myocardial ischemia. Carbimazole was shifted to propylthiouracil because of impending thyroid storm. There was worsening of leucopenia while on PTU and RAI of 10 mCi was given. After 1 month, the patient improved and ascites and bipedal edema decreased. The unusual manifestations of GD are diverse and affect various systems. A comprehensive history and physical examination in the background of a good knowledge on the pathophysiology of GD is necessary to avoid misdiagnosis and unimportant ancillary tests.

Keywords: hyperthyroidism, Graves' disease, thyrotoxicosis

Case Report – Thyroid Diseases

Systemic Lupus Erythematosus Presenting as Evan's Syndrome in a Young Female with Graves' Disease

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The co-existence of Graves' disease and SLE is rare. Studies showed prevalence of Graves' disease among patients with SLE ranging from 0.7-2.6%. Here we present what we believe to be the first reported case of SLE presenting as Evans Syndrome in a patient with Graves' Disease in the Philippines. Our patient is 28-year-old female with hyperthyroidism for 5 years, was admitted at our institution due to fever, arthralgias, discoid rash and jaundice of two weeks duration. On admission: BP 130/90 CR 100s sinus. Sclerae were icteric and thyroid diffusely enlarged but non-tender. Left knee was inflamed with a small effusion. Workup showed the following: TSH 0 uIU/mL, free T3 4.19 pg/mL, free T4 4.9 ng/dL; Hgb 44, WBC 14, Plt 88,000; TB 13.48 B1 10.24 B2 3.29; Direct and indirect Coombs tests were positive; G6PD levels, Anti-DS DNA 24.9 IU/mL, Anti-smith 21.9 IU/mL, ANA15.9IU/mL;. TSH-Receptor Antibody 4.03 U/mL, Anti-TPO 1800 U/mL, C3 48mg/dL (83-193mg/dL). She was diagnosed with SLE with Evan's Syndrome and Graves Disease. She was given methimazole, and propranolol for the hyperthyroidism and pulse methylprednisolone IV x 3 days for the hemolyic anemia. Hyperthyroid symptoms, rashes and arthritis improved rapidly. However, the anemia and thrombocytopenia improved slowly so she was transfused with packed RBC and platelet concentrate and was started on mycophenolate mofetil. She was discharged improved after 10 days in the hospital. Autoimmune diseases may have an overlap of clinical manifestations and laboratory abnormalities. Some of these findings may or may not indicate co-occurrence of 2 disease states. With Graves Disease and SLE, there are several hypothesis regarding

the relationship: co-occurrence, predisposition, increased risk or benefit of anti-thyroid drug therapy to incidence of SLE. There is still much that we still need to know regarding the relationship of the two diseases.

Keywords: SLE, Graves' Disease, hemolytic anemia

Case Report – Thyroid Diseases

Subacute Thyroiditis Presenting as Fever of Unknown Origin

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Subacute thyroiditis (granulomatous thyroiditis) is predominantly as pain in the thyroid region radiating to the jaw or shoulder. It is a clinical diagnosis, however, the diagnosis can be missed when it presents atypically. A 57-year old diabetic male presented with complaints of intermittent, low grade fever and 2-kilogram weight loss of one month duration. He denied any history of cough, sore throat, chest pain, abdominal discomfort, change in appetite, or dysuria. He was not on any medications other than an oral hypoglycemic agent (metformin). He denied the use of any over-the-counter medications. His physical examination was unremarkable. His CBC, BMP, urinalysis, blood culture, urine culture, chest X-ray, and tests for endemic infections like malaria QBC test, PPD skin test and dengue, leptospirosis and Scrub typhus serology were all negative except for a raised ESR (100 mm/hr). HIV ELISA, Serum electrophoresis and ANA were also non-contributory. Imaging such as 2D-Echocardiogram, chest X-ray, CT scan of chest and abdomen were also normal. At this point a PET-CT scan was done that showed altered attenuation and diffuse uptake in both lobes of the thyroid gland suggestive of thyroiditis. This prompted us to do a thyroid function test which revealed thyrotoxicosis (TSH: 0.04 ulU/ml & free T4: 2.30 ng/dl). A 131 radioactive Iodine uptake showed a very low uptake with a homogenous distribution. Subacute thyroiditis should be considered as one of the differential diagnosis in patients presenting with fever of unknown origin with elevated ESR. PET-CT scan can be helpful in finding the cause for fever of unknown origin.

Keywords: subacute thyroiditis, granulomatous thyroiditis, fever of unknown origin

Case Report – Thyroid Diseases

Medullary Thyroid Cancer: Retrospective Analysis of a Cohort Treated at a Single Tertiary Care Centre Between 2008 to 2012

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Medullary thyroid carcinomas (MTC) constitute about 5 to 7 % of thyroid neoplasms. The aim of this study is to examine clinical aspects, surgical management and long term survival of patients with medullary thyroid carcinoma. This is a retrospective analysis of the cases diagnosed as Medullary Thyroid Carcinoma (MTC) in Regional Cancer Centre, Trivandrum, Kerala, India over a period of 5 years (2008-2012). A total of 22 cases were accrued. The demographic data, clinical details and the treatment modalities were studied. The period of follow-up ranged from 1.8 year to 5.6 years. In this study, out of a total of 22 patients, the male to female ratio was 12:10. None had family history. Type of surgery were total thyroidectomy (TT) with neck dissection (ND) in 13 patients; completion thyroidectomy with ND in 4 patients, and TT alone in 5 patients. External Beam Radiotherapy (EBRT) was given in 4/22 (18%) because of extra thyroidal spread or extra capsular spread. 6 (27.2 %) patients had subsequent nodal recurrence, all of whom had raised calcitonin level after initial surgery despite absence of macroscopic or radiologic disease. These patients had salvage surgery and all of them were advised EBRT but one refused. Three (13.6 %) patients had distant metastases of which one patient died after 18 months. The 5 year overall survival probability was 85.5% and disease free survival probability was 76.7%. Our survival outcome is comparable to other international studies. Persistent elevated serum calcitonin levels correlated with locoregional and distant metastases.

Keywords: medullary thyroid carcinoma, serum calcitonin

Case Report – Thyroid Diseases

Transformation of Well-Differentiated Thyroid Carcinoma to Poorly Differentiated Thyroid Cancer

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Papillary thyroid carcinoma is the most common thyroid malignancy and has relatively good prognosis with a 93% 10-year survival rate compared to other thyroid cancers. Lately, there are reported cases of transformation of a well differentiated thyroid carcinoma to a poorly differentiated or undifferentiated type. These types account for a significant morbidity and mortality in thyroid cancer. A 52-year old female was diagnosed with papillary thyroid cancer stage 2, post total thyroidectomy for 7 years. Post-operative Total Body Scan (TBS) revealed residual thyroid tissue of 0.5 cm. with serum thyroglobulin (Tg) of 4.06 ng/ml. Close monitoring was continued. Three years later Tg increased to 72.10 ng/ml and TBS revealed single island at the left bed for which she had radioactive ablation therapy of 150 mci. She had regular visit and surveillance where serum Tg decreased to 2.21 ng/ml. Patient was stable with no palpable cervical lymphadenopathies and unremarkable neck ultrasound. 2 years prior to admission serum Tg was elevated at 352.24 ng/ml, neck ultrasound was done and showed a 2.8 x 2.4 x 2 cm thyroid tissue at the right lobe. Completion thyroidectomy with radical neck dissection (Level 2, 3 and 4) was done and histo-pathological analysis revealed papillary thyroid carcinoma with lymph node metastases. Post-thyroidectomy body scan showed recurrence of right thyroid tissue. A repeat thyroidectomy with neck dissection (Level 5 and 6) and histopathological analysis now showed a poorly differentiated type of thyroid carcinoma with lymph node

metastases. Patient underwent 33 cycles of external beam radiation. However patient had recurrent malignant pleural effusion and chest CT scan showed liver, lymph nodes and lung metastases. Patient was started on targeted kinase inhibitor however she subsequently expired due to multiple organ complications. This case illustrates from the start, a persistent thyroid carcinoma of a well differentiated type and its subsequent transformation into a poorly differentiated type. Poorly differentiated thyroid cancer is an intermediate between well differentiated and anaplastic thyroid cancer and can co-exist with well and undifferentiated type. Though well established that papillary thyroid carcinomas have good prognosis, there is still no identifiable risk factors for when this transformation will occur except genetics. Prognosticating our patient from the start, female and age of 45, she has a 99% 20 year survival rate based on MAICS scoring system and after the transformation became 24%. Targeted expression of BRAF in thyroid cells in transgenic mice results in papillary thyroid cancer to undergo dedifferentiation to a poorly differentiated carcinoma. In our patient, the dedifferentiation led to her increased morbidity and mortality. Understanding this mutation might help in identifying valuable prognostic factors and future therapeutic agents.

Keywords: papillary thyroid carcinoma

Case Report – Thyroid Diseases

Thyrotoxic Hypokalemic Periodic Paralysis in a 16-Year Old Female

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Hypokalemic periodic paralysis is a condition characterized by potentially fatal episodes of muscle weakness or paralysis. Attacks are sudden in onset, intermittent, and usually associated with transient hypokalemia. The condition can be familial, sporadic, or associated with thyrotoxicosis (Thyrotoxic hypokalemic periodic paralysis), which is predominantly due to Graves' disease. It is commonly observed in Asian males aged between 20 to 40 years, and occurrence is rare in a female adolescent (<0.1%). We report a case of a 16-year-old Asian female with Graves' disease for 4 years with episodic muscle numbness and tingling of both lower extremities even at rest a year prior to admission. She presented with fine tremors, palpitations and acute muscle weakness of both lower extremities while resting after an activity. Except for hyporeflexia and hand tremors, neurologic exam was normal. At the emergency room, serum potassium was low at 2.4 mmol/L. Thyroid function tests revealed increased Free T4 at 62.38 pmol/L with suppressed TSH at 0.07 uIU/ml. ECG showed sinus tachycardia, prolonged QT interval, P on T phenomenon and flattened T waves. Potassium replacement was given and maintenance methimazole was adjusted. Patient's muscle weakness improved with normalization of serum potassium level. Thyrotoxic hypokalemic periodic paralysis should be among the entities in the differential diagnosis in the evaluation of young women with Graves' disease who present with symptoms of acute paresthesia and weakness of no other apparent cause.

Keywords: thyrotoxic hypokalemic periodic paralysis, hyperthyroidism, Graves' disease

Case Report – Thyroid Diseases

Orbital Metastasis as Initial Manifestation of a Widespread Papillary Thyroid Microcarcinoma

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A 49-year-old woman consulted for a slowly enlarging right supraorbital mass of 2 years duration with no associated symptoms. On examination, right supraorbital mass was 4.0 x 3.2 cm in size, firm and nontender, displacing the globe inferolaterally. The rest of the physical examination was unremarkable including the thyroid region. Orbital computed tomography showed expansile lytic lesion in the orbital plate of the right frontal bone with a soft tissue component, with its most inferior extent abutting and slightly displacing the ipsilateral globe inferiorly. An incision biopsy of the mass revealed thyroid tumor consistent with a well-differentiated thyroid carcinoma. A neck ultrasound was done afterwards which showed normal-sized thyroid lobes, and a hypoechoic nodule in the inferior pole of the right lobe measuring 0.4 x 0.4 x 0.4 cm. Thyroid function tests were normal. Patient underwent total thyroidectomy with no post-operative complications. Histopathology showed follicular variant of PTC at the inferior pole of the right lobe measuring 0.5 x 0.5 x 0.5 cm. She then underwent radioactive iodine therapy (200 mCi). Post-therapy whole body scan revealed metastatic thyroid tissues in the right orbital, right posterior parietal, left shoulder and left hip areas. She is currently doing well and is maintained on levothyroxine at suppressive dose along with calcium supplements. She is scheduled for another RAI therapy after 6 months. Thyroid carcinoma metastasizing to the orbit is rare accounting for 3% of all metastatic orbital tumors, and even rarer as initial presentation. Thirteen cases have been reported in the literature, and 10 presented initially with orbital metastasis, similar to our case. Unlike ours, most if not all of these reported cases presented with either goiter or palpable nodule/s on physical examination. Unique to this case is the absence of abnormal findings on physical examination of the neck and the subcentimeter (non-palpable) size of the primary tumor that eventually was found to be widespread in nature. Although infrequent, thyroid carcinomas should be included in the differentials of patients with orbital metastasis even if examination of the neck is unremarkable.

Keywords: papillary thyroid microcarcinoma, follicular variant of papillary thyroid carcinoma

Case Report – Thyroid Diseases

Papillary Carcinoma in a Thyroglossal Duct Cyst

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Thyroglossal duct cyst is a frequent congenital cervical anomaly occurring in 7% of the adult population. The incidence of carcinoma arising in a thyroglossal duct cyst occurs in about 1% with majority of the cases discovered during the pathologic examination of the surgical specimen. Two patients, a 35-year-old female and an 18-year-old male were admitted due to an anterior neck mass with an assessment of thyroglossal duct cyst. They underwent sistrunk procedure. Papillary carcinoma was established upon pathological examination, after which, they underwent total thyroidectomy with unremarkable thyroid gland on histopathology. The first patient received radioactive iodine therapy one month after thyroidectomy while the second patient was initially started on thyroid hormone for TSH suppression and underwent radioactive iodine treatment 3 months after thyroidectomy. The papillary carcinoma accounts for 75-85% of all the malignant tumors of the thyroglossal duct cyst. The excision of the cyst, without thyroidectomy, is valid for microscopic carcinomatous foci without invasion of the cyst wall. Total thyroidectomy is still recommended by due to the occurrence of multicentric papillary carcinoma throughout the entire thyroid gland. Post-operative radioiodine therapy is done if necessary. Follow-up includes whole body scan and serum thyroglobulin levels. Papillary carcinoma in thyroglossal duct cyst is rare and the diagnosis is often histological. Management and prognosis of cancer of the thyroglossal duct cyst does not differ from that of thyroid cancer.

Keywords: papillary thyroid carcinoma, thyroglossal duct cyst

Case Report – Thyroid Diseases

Thyroid Cancer in the Young: A Villain in Disguise

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Thyroid carcinoma in the pediatric age group is rare. We report a case of a 12-year-old female who presented with an asymptomatic but persistent and enlarging lateral neck mass. Two years prior, the patient had a non- tender, firm, 1x 1 cm, right neck mass. The patient was given co-amoxiclav for a week with no improvement. Tuberculin skin test was negative. Cervical mass persisted with further increase in size within 12 months, which prompted the patient to seek another consult. Chest x-ray done revealed hilar lymphadenopathy. Pulmonary tuberculosis was diagnosed. She was given triple therapy of anti-Koch's regimen (rifampicin, isoniazid and pyrazinamide) for two months then isoniazid and rifampicin for the next four months. Thereafter, a repeat chest x-ray revealed decreased nodular densities with healed lesion but the lateral neck mass enlarged to 3 x 3 cm in size. Ultrasound of the neck showed a solid right submandibular mass and normal thyroid. Excision biopsy of lateral neck mass revealed metastatic papillary thyroid carcinoma. The thyroid scan was normal. Total thyroidectomy with bilateral lymph node dissection was recommended. Histopathology revealed a papillary microcarcinoma at the right superior pole of the thyroid with metastasis to the ipsilateral lymph nodes. Postoperatively, patient had hypoparathyroidism which was subsequently managed. Thyroid cancer in children usually presents with lymphadenopathy rather than a thyroid nodule. Though with lymph node involvement, pediatric papillary cancer carries a much better prognosis than adult thyroid cancer. Total thyroidectomy with lymph node dissection followed by radioactive ablation iodine therapy is the treatment of choice.

Keywords: papillary thyroid carcinoma, pediatric thyroid cancer, papillary microcarcinoma

Case Report – Thyroid Diseases

Gestational Trophoblastic Disease and Trophoblastic Hyperthyroidism

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The incidence of molar pregnancy in the Philippines has been reported to be 1 in 80 pregnancies. Clinical hyperthyroidism is rare and is reported in approximately 5% of women with hydatidiform mole. Human chorionic gonadotropin (hCG) is a weak thyrotropin with a relative potency for the TSH receptor 4000 times less than that of TSH. It is believed to be responsible for hyperthyroidism of gestational trophoblastic activity. We report the case of a 31-year-old G4P3, 12 weeks into molar pregnancy, who presented with vaginal bleeding. On further examination, the patient was anxious and tachycardic, with both hands warm to touch with tremors. Beta hCG was elevated at 471,000. Thyroid function tests showed low TSH and elevated free thyroid hormones. The patient was given steroids, thionamides and beta blockers perioperatively to avoid thyroid crisis; these were immediately discontinued post suction curettage. Normal thyroid function returned after the complete mole was evacuated, and the biochemical improvement correlated with declining hCG levels. A high index of suspicion for hyperthyroidism must be kept in mind with gestational trophoblastic disease. This case report highlights the perioperative management and optimization of hyperthyroid state prior to surgical evacuation of the hydatidiform mole. The hyperthyroid state rapidly resolves after surgical evacuation of hydatidiform mole.

Keywords: molar pregnancy, gestational trophoblastic disease, hyperthyroidism

Case Report – Thyroid Diseases

Fatal Combination: Thyroid Storm and Severe Diabetic Ketoacidosis

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Thyroid storm is not an uncommon complication among patients with hyperthyroidism. The same is true with diabetic ketoacidosis among patients with poorly controlled Type 1 diabetes mellitus. The simultaneous occurrence of these two endocrine emergencies is however infrequent. A 17-year-old female presented with diffuse abdominal pain and vomiting for one day. She was diagnosed with Graves' disease with Type 1 diabetes mellitus three months earlier. At the emergency room, she appeared drowsy, agitated, highly febrile with body temperature of 38.7 degree Celsius and tachycardic with pulse rate of 160 beats/min. A grade II diffuse goiter was palpated with bilateral exophthalmoses and dry skin were found. Initial capillary blood glucose revealed hyperglycemia of 499 mg/dl and arterial blood gas noted compensated metabolic acidosis. She had urine ketones of 50 mg/dl. Furthermore, her thyroid profile revealed a significantly low thyroid stimulating hormone and an elevated free T4. Burch and Wartofsky scoring showed a score of 65, highly suggestive of thyrotoxic crisis. Patient was managed with high dose propylthiouracil, dexamethasone, and propranolol simultaneously with hydration, insulin, and bicarbonate correction for the acidosis. Subsequently after management of the condition patient improved significantly and was discharged with full recovery. The simultaneous presentation of two endocrine emergencies such as diabetic ketoacidosis and thyroid storm is possible. In the setting of Diabetes Mellitus, the concomitant occurrence of Hyperthyroidism may predispose patient to succumb to life-threatening complications like Diabetic Ketoacidosis and Thyroid Storm.

Keywords: diabetic ketoacidosis, hyperthyroidism, thyroid storm

Case Report – Pituitary Disorders/Neuroendocrinology

Idiopathic Central Diabetes Insipidus

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Diabetes insipidus is characterized by excessive thirst and excretion of large amount of diluted urine. We present a case of 36-year-old female with central diabetes insipidus, who consulted at the emergency room due to abdominal pain, assessed as a case of acute abdomen due to appendicitis and underwent emergency appendectomy. A few hours post-operation, the patient developed changes in sensorium. Initial laboratory tests done showed hypernatremia. She was also noted to have increased urine output at range of 400-600 cc/hr. Endocrine referral was done with consideration of diabetes insipidus. Urine osmolality and urine specific gravity showed low levels. Serum osmolality was elevated. Desmopressin was given to the patient which improved urine output to 40-100cc/hr, hence central diabetes insipidus was considered. Plain cranial MRI was normal. Monitoring of sodium, urine output and hydration status was done with adjustments in fluid intake and desmopressin dosage. On the second hospital day, the patient was more oriented and conversant but with episodes of agitation due to fluid limitation. On further exploration of the case, the patient claimed to have history of polyuria and polydipsia since she was young. She denies history of head trauma and surgery. Patient continued to improve with normalization of serum sodium. She was eventually discharged with titration of desmopressin. On discharge, the cause of the central diabetes insipidus was still unknown. Idiopathic central diabetes insipidus is a rare disorder characterized by polyuria and polydipsia, and an abnormal urine concentrating ability without any identified etiology. Further analysis for inflammatory or autoimmune causes of idiopathic central diabetes insipidus should be sought along with monitoring of brain imaging, since majority of idiopathic diabetes insipidus cases are being diagnosed to have these causes due to better diagnostic modalities.

Keywords: diabetes insipidus, central, idiopathic

Case Report – Pituitary Disorders/Neuroendocrinology

Hypoglycemia: A Diagnostic Dilemma

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Insulinomas are the most common of the neuroendocrine tumors. Its incidence is around 1-4 cases/million population. 90% of insulinomas are less than 2 cm and most of the lesions are benign. Diagnosis is done by clinical suspicion and biochemical features and confirmed by imaging. We are presenting a case of insulinoma not diagnosed for nearly 5 years. A 43-year-old male from Sudan presented with history of recurrent low blood sugar. For the last 5 years, he was having recurrent episodes of hypoglycaemia leading to frequent hospital admissions. He would eat frequently and always carry sweets with him. Patient was started on 10% Dextrose. Once stable and admitted to the ward, he was started on 72-hour fasting to evaluate for insulinoma. Blood sugar was checked hourly. Within 4 hours of stopping IV dextrose and placing patient on NPO, the patient developed hypoglycaemia. Reports showed RBS: 39 mg/dl, S. Insulin: 38.3 mcIU/ml, S.C-Peptide: 8.9 ng/ml, S.Chromogranin-A: 453.77 ng/ml(<100) and S. Gastrin: 84.90 pg/ml. DOTANOC PET CT was done which did not show any avid focal lesion in the pancreas but one non-avid suspicious lesion in the tail of the pancreas was found. Octreotide 50 mcg was started twice a day. Hypoglycemic episodes were reduced significantly correlating with the diagnosis of insulinoma. Patient underwent distal pancreatectomy. Patient did not have any hypoglycaemia post-operatively. Octreotide was also stopped. He later developed prediabetes and was

discharged with diet advice for diabetes. Not all insulinomas can be localised by advanced imaging techniques. Clinical scenario and biochemical confirmation should help in clinching the diagnosis in such ambiguous cases.

Keywords: hypoglycemia, insulinoma, pancreatectomy

Case Report – Pituitary Disorders/Neuroendocrinology

Central Diabetes Insipidus Secondary to Lymphocytic Infundibulo-Neurohypophysitis

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Lymphocytic infundibulo-neurohypophysitis, an inflammatory process that affects the infundibulum, pituitary stalk and neurohypophysis with distinctive clinical, radiologic and histologic characteristics, has recently been described as a cause of central diabetes insipidus. A 35-year-old male was admitted due to excessive thirst. Six months prior to admission, the patient had polydipsia, consuming approximately 12 L of water per day, with polyuria and nocturia. He also experienced anhidrosis even during exertion and in warm environments. There was no head trauma, diplopia, blurring of vision and dry eyes. Two weeks prior, serum electrolytes, FBS and ultrasound of KUB revealed normal results. He was admitted for further work-up. Water deprivation test done was consistent with complete central diabetes insipidus. MRI of brain with contrast (IV Gadolinium) showed focal infundibular thickening. He was started on desmopressin 50 mcg. Diabetes insipidus is a consideration in a patient presenting with polyuria or polydipsia and idiopathic central DI that can be caused by lymphocytic infundibulo-neurohypophysitis.

Keywords: central diabetes insipidus, lymphocytic infundibulo-neurohypophysitis

Case Report – Pituitary Disorders/Neuroendocrinology

Thyrotropin-Producing Pituitary Macroadenoma in a Filipino Patient

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Thyrotropin-producing pituitary tumors are very rare. They usually present with symptoms of hyperthyroidism with or without compressive manifestations. We report a 46-year-old female, Filipino, presenting with a 3-year history of palpitations, tremors and irritability accompanied by diffuse goiter. Three years prior, baseline thyroid function tests showed elevated free thyroid hormones with inappropriately elevated thyrotropin or thyroid stimulating hormone (TSH). Pituitary MRI showed a pituitary mass (1.2 x 1.3 x 1.2 cm) with slight deviation of the infundibular stalk. She was lost to follow-up and consulted another physician who gave methimazole and propranolol. Persistence of symptoms prompted repeat consult. Physical examination showed diffuse goiter. Thyroid function tests revealed the same pattern of elevation. Other pituitary gland function tests were unremarkable except for mildly elevated prolactin. Somatostatin analogue treatment was offered but not started due to financial constraints. She underwent transphenoidal surgery of the pituitary gland with the final histopathology showing positive immuno-histochemical staining for TSH. A week post-surgery, there was normalization of TSH and free thyroid hormone levels and resolution of symptoms and the goiter. Despite being rare, TSH-producing pituitary adenoma is a differential in thyrotoxicosis with discordantly elevated TSH and free thyroid hormone levels. Prompt diagnosis is important since this is not generally responsive with anti-thyroid drugs. Pituitary surgery in this case proved successful in abating the patient's symptoms and goiter. The positive immunohistochemical stain for TSH confirmed the diagnosis for this case and to our knowledge, this is the first reported case of TSH-positive pituitary macroadenoma in the Philippines.

Keywords: thyrotropin, thyroid stimulating hormone, pituitary macroadenoma, hyperthyroidism

Case Report – Pituitary Disorders/Neuroendocrinology

Late Detection of Panhypopituitarism in a Normal-Looking Pituitary: Sheehan's Syndrome

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A 46-year-old female, G6P6 (6006), transferred for work-up, had anemia, thrombocytopenia and elevated creatinine on laboratory examination. Endocrinology work-up revealed secondary hypothyroidism. History revealed that twelve years prior to consult, she received ≥4 bags of blood due to post-partum bleeding from her 6th pregnancy. Postpartum, she did not lactate and became amenorrheic. She noted progressive weakness, fatigue and leg edema. Four years postpartum, she was diagnosed hypothyroid and was treated with levothyroxine, but she was lost to follow-up. Review of systems revealed constipation, thinning of hair, cold intolerance, dry skin and decreased libido. On physical examination, she looked weak, slow to respond, with pale palpebral conjunctivae, periorbital edema, dry skin, lack of axillary and pubic hair, and bipedal edema. Laboratory examinations showed low prolactin, FSH, LH and cortisol. Plain MRI showed indistinct pituitary gland and neurohypophysis; pituitary infundibulum is present and appears normal. Sheehan's syndrome is postpartum hypopituitarism from pituitary necrosis secondary to post-partum hemorrhage. In a case series, it caused 0.5% of panhypopituitarism cases (Bates, 1996). It commonly presents as failure to lactate and amenorrhea, but any manifestation of hypopituitarism can occur anytime. In a study by Gei-Guardia et al (2010), the average time between obstetric event and diagnosis was 13 years, and for this case it was 12 years post-partum. In a study by Sert et al (2003), the Pituitary CT/MRI of 20 of 28 patients is normal, similar to our patient. Sheehan's Syndrome is a rare cause of hypopituitarism that can be

detected late and manifest clinically and biochemically despite a normal looking MRI.

Keywords: panhypopituitarism, Sheehan's Syndrome

Case Report – Pituitary Disorders/Neuroendocrinology

Langerhans Cell Histiocytosis Presenting with Central Diabetes Insipidus in an Adult with Diabetes Mellitus

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Langerhans cell histiocytosis (LCH) is a rare proliferative disorder of histiocytes with variable clinical presentation and multiorgan involvement. Adult onset LCH occurs in 1 per 560,000 adults. Because of its relative rarity and the broad clinical spectrum, the diagnosis is often delayed or missed. We report a case of an adult Filipino male with worsening polyuria despite good control of the diabetes mellitus. He later presented with other organ involvement. A 42-year-old male consulted because of polyuria with polydipsia, high plasma osmolality and low urine osmolality consistent with diabetes insipidus. These were accompanied by anemia and leukopenia. Later, he manifested with cognitive dysfunction, emotional lability and ataxia as well as loss of libido. These were followed by appearance of multiple purpuric papules over the head, chest and extremities. He also had gum swelling and accelerated loss of teeth with radiographic lucencies of the alveolar bone of maxilla and mandible. Cranial magnetic resonance imaging showed a 6-mm pontine lesion with thickened hypothalamus and pituitary infundibulum. Skin punch biopsy and immunostaining with S-100 and CD1a were consistent with LCH. He received induction chemotherapy with vinblastine and prednisone with considerable improvement of skin and bone lesions. There is no interval change in the hypothalamic lesion. He is maintained on desmopressin for the diabetes insipidus. Adult LCH remains an insidious disease but considering LCH in the differential diagnosis of a patient presenting with central diabetes insipidus and anterior pituitary hormone deficiency could lead to early diagnosis and treatment.

Keywords: Langerhans Cell histiocytosis, central diabetes insipidus, adult

Case Report – Pituitary Disorders/Neuroendocrinology

Glucagonoma in a 42-Year Old Filipino Woman Presenting with Necrolytic Migratory Erythema

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Glucagonoma is a rare alpha-cell tumor of the pancreatic islets of Langerhans. Glucagonoma syndrome is characterized by necrolytic migratory erythema (NME), weight loss, and diabetes mellitus. It is highly malignant and, in most cases, present with hepatic metastases at diagnosis. A 42-year-old female was admitted due to weight loss associated with depression. In 2010, she was diagnosed to have disseminated tuberculosis. She had a liver mass, biopsy of which she refused. After 1 year of treatment with anti-TB medications, her lung condition was considered treated but her liver mass has grown in size. In 2013, she developed on and off diarrhea and was diagnosed to have diabetes (currently on insulin). In 2014, liver biopsy was done which turned out to be negative for malignant cells. She also developed a skin lesion which was biopsied. Histopathology results showed necrolytic migratory erythema secondary to glucagonoma vs vitamin B deficiency. CT scan showed a liver mass and a pancreatic tumor (body: 0.7 x 1.3 cm, tail: 0.7 x 0.7 cm), which were both biopsied revealing a neuroendocrine tumor. Her blood glucagon level was 1243 pg/mL. She was then treated with everolimus and octreotide. Diabetes with "4 D" syndrome (dermatosis, depression, deep venous thrombosis, and diarrhea) are the clinical presentation of glucagonomas. Other clinical features include weight loss. Fasting plasma glucagon levels tend to be higher in patients with large hepatic metastases. Glucagonomas are generally single, large, and associated with liver metastasis. Most glucagonomas are diagnosed at the late stage. Early recognition of glucagonoma syndrome may lead to early diagnosis.

Keywords: glucagonoma, necrolytic migratory erythema

Case Report – Pituitary Disorders/Neuroendocrinology

Various Carcinomas in Patients with Acromegaly: Report of 3 Cases

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Acromegaly is associated with an increased risk for a variety of cancers such as colorectal, breast, bronchi and thyroid carcinoma. However, there have been a few reports of other malignancies in acromegaly patients. We report 3 cases of uncommon malignancy during the course of acromegaly.

A 46-year-old woman was diagnosed acromegaly in June 2011 (GH: 40 ng/ml, IGF-1: 582.42 ng/ml). After a transsphenoidal surgery (TSA), her IGF-1 was 333.95 ng/ml, and GH was 2.33 ng/ml under suppression test. She had been taking a dopamin agonist, cabergoline to treat acromegaly for 2 years (IGF-1 69.61, GH 3.34 in March 2013). She was told to have papillary thyroid carcinoma and had a total thyroidectomy around the same time. In May 2014, she was diagnosed serous cystadenoma in right ovary and underwent operation and chemotherapy. A 35-year-old woman presented with acromegaly in 2012 (GH: 12.6 ng/ml, IGF-1: 592.26 ng/ml). Considering her fertility, cabergoline was administered to treat acromegaly in March 2012 (GH: 10.6 ng/ml, IGF-1: 426.57 ng/ml). She presented with bicytopenia and hepatosplenomegaly in February 2014. A bone marrow examination showed acute B-cell lymphoblastic leukemia. She underwent chemotherapy and bone marrow transplantation. A 62-year-old woman was diagnosed acromegaly and had

a TSA in February 2003 (GH 68.19 ng/ml before TSA, GH 1.19 ng/ml after TSA). She had been taking lanreotide every 4 weeks for 11 years without complication. In March 2014, she complained of dyspnea at rest, we found out left renal cell carcinoma with lung and multiple bone metastasis. She has been taking conservative treatment without surgery considering her age.

Keywords: acromegaly, carcinoma, growth hormone

Case Report – Metabolic Bone Disease

A Case of Parathyroid Carcinoma with Co-Existing Micropapillary Thyroid Carcinoma

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Parathyroid carcinoma is a rare cause of hyperparathyroidism. In some countries, it has been estimated to cause hyperparathyroidism in 0.017% to 5.2% of the cases; some series reporting it to account for less than 1%. We present a case of parathyroid carcinoma with coexisting finding of micropapillary thyroid carcinoma. MF, a 55-year-old female, presented with recurrent nephrolithiasis. Work-up showed elevated total calcium and intact PTH (iPTH) of 2,070pg/ml. Sestamibi scan showed a large avid mass over left the thyroid. Patient underwent completion thyroidectomy and parathyroidectomy. Intraoperative monitoring of iPTH showed decreasing trends. Final histopathological examination revealed a 4.9 cm parathyroid carcinoma with extracapsular extension into thyroid tissue with perineural invasion and papillary thyroid microcarcinoma. Postoperatively, iPTH normalized and ionized calcium was monitored. Parathyroid cancers are hyperfunctional unlike other endocrine tumors that become less hormonally active when malignant. The features of parathyroid carcinoma are caused by effects of excessive secretion of PTH by the tumor rather than by infiltration of vital organs. Patients are more likely to be symptomatic, presenting with neck mass, bone and kidney disease, marked hypercalcemia, and high PTH. Surgery is the only effective therapy for parathyroid carcinoma. In patients with parathyroid carcinoma, preoperative suspicion and intraoperative recognition is critical to achieve a favorable outcome, which involves en bloc resection of the tumor with all potential areas of invasion during initial operation.

Keywords: hyperparathyroidism, parathyroid, carcinoma

Case Report – Metabolic Bone Disease

Brown Cell Tumor from Parathyroid Carcinoma

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Parathyroid carcinoma is a rare cause of hyperparathyroidism. In most cases, hyperparathyroidism is caused by a single benign adenoma. The vast majority of the remaining cases are caused by parathyroid hyperplasia or multiple adenomas. A 19-year-old Filipina presented with bone pains for 7 months associated with fatigue, anorexia, weight loss and muscle weakness. Subsequently, she had multiple fractures on all extremities and fixed hard masses on the left humerus and tibia. Her past medical and family histories were unremarkable. Corrected calcium was elevated at 15.4mg/dL, Phosporus was decreased at .81 mmol/L. Intact PTH (iPTH) was extremely high at 2001 pg/ml (8.5-72.5). X-ray of the extremities showed osteopenia, endosteal resorptive changes and multiple pathologic fractures. Bone biopsy revealed brown cell tumor/multifocal polyostotic giant cell tumor and negative for malignancy. Ultrasonography of the neck revealed parathyroid adenoma inferior of left thyroid gland measuring 2.3 x 1.1 x 1.0cm. Ultrasound-guided FNAB revealed findings consistent with parathyroid carcinoma. She was hydrated and was given diuretic to control the severe hypercalcemia. She underwent 3½ gland parathyroidectomy with en-bloc left thyroid lobectomy. Intraoperative findings showed a 2.5 (L) cm x 1.7 (T) cm x 1.2 (W) cm left mass with non well-circumscribed borders invading the capsule and local tissues and a right mass 2.7 cm (L) x 2 cm (T) x 1.3 cm (W). Serum calcium and iPTH immediately after OR decreased to 12.8 mg/dL and 211.8 pg/ml respectively. Further reduction was noted after 24-hrs of surgery (iPTH, 48 pg/ml; corrected calcium: and 9.2 mg/dL). Parathyroid carcinoma is a rare malignancy of the parathyroid glands. These tumors usually secrete parathyroid hormone, thereby producing hyperparathyroidism, which is usually severe. Surgery with en-bloc resection is the initial therapy, but when the tumor is no longer amenable to surgical intervention with intent to cure, treatment becomes focused on the control of hypercalcemia. Nonsurgical forms of therapy for parathyroid carcinoma generally have poor results. Patients rarely die from the tumor itself; rather, they die from the metabolic complications of uncontrolled hyperparathyroidism.

Keywords: parathyroid carcinoma, hypercalcemia, hyperparathyroidism

Case Report – Metabolic Bone Disease

Distal Renal Tubular Acidosis in Primary Hyperparathyroidism

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Primary hyperparathyroidism manifests biochemically as a disturbance in serum calcium homeostasis. The kidney appears to be the central organ that sets serum calcium level. Several observed biochemical features of primary hyperparathyroidism are induced by the kidney which include hypercalcemia, hypophosphatemia and increased serum 1,25-dihydroxyvitamin D. Hypercalciuria is an expected feature caused by combined effects of increased calcium reabsorption and bone resorption.

Hyperchloremia, defective urinary acidification and renal tubular acidosis have been reported to be associated with primary hyperparathyroidism. Distal renal tubular acidosis due to primary hyperparathyroidism is rarely reported. Renal tubular dysfunction due to significant hypercalciuria appears to be one of the proposed mechanism. We present a case of a 26-year-old Filipino male presenting with a 3-year history of recurrent episodes of urinary tract infection associated with nephrolithiases. An incidental hypercalcemia noted led to the diagnosis of primary hyperparathyroidism from a hyperfunctioning parathyroid adenoma on further work-ups. Concomitant findings of severe hypokalemia and hypomagnesemia associated with recurrent proximal muscle weakness led to the consideration of an associated distal renal tubular acidosis. Patient underwent minimally invasive selective parathyroidectomy that resulted in full reversal of hypercalcemia and hyperparathyroidism together with the features of distal renal tubular acidosis. He is currently on frequent follow-up for monitoring of electrolyte abnormalities and gradual resolution of nephrocalcinosis. Primary hyperparathyroidism can cause distal renal tubular acidosis accompanied by medullary nephrocalcinosis. Early treatment via parathyroidectomy can help cure secondary distal renal tubular acidosis before development of irreversible renal tubular changes occurs.

Keywords: primary hyperparathyroidism, distal renal tubular acidosis, nephrolithiasis, minimally invasive parathyroidectomy

Case Report – Obesity and Metabolic Syndrome

Maternal Child Abuse as an Unusual Cause of Exogenous Obesity

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Obesity is a medical condition in which excess body fat has accumulated. Exogenous obesity is thought a combination of excessive food energy intake and a lack of physical activity. Here a 3-year-old boy with exogenous obesity is presented. He has been admitted to our clinic for vomiting. Obesity was observed in his physical examination. Detailed history showed maternal child abuse. His vomiting was related to overfeeding and his mother was giving antiemetic drug before feeding. After his mother was treated, health of our patient improved. I recommend that detailed history is an important part of evaluation of exogenous obesity.

Keywords: obesity, child abuse, overfeeding vomiting

Case Report – Adrenal Disorders

Primary Adrenocortical Carcinoma Arising from a Longstanding Adrenal Mass

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Primary Adrenocortical Carninoma (ACC) is a very rare and aggressive malignancy with annual incidence of 1 per 1 million. A 67-year-old female presented with increase abdominal girth. Two years PTA, she had sudden onset of continuous back pain radiating to the right scapula. Abdominal ultrasound revealed gallbladder sludge and right perirenal pole mass lesion (adrenal etiology?). Managed as acute calculous cholecystitis and given antibiotics. CT scan of abdomen done: right adrenal mass (8.0 x 6.1 x 5.9 cm) with central necrosis. She was advised surgery. Work-up showed normal urinary VMA (22.80 umoL/24H), normal renin (upright 0.349 ng/ml/hr N1.9–6) and aldosterone (upright 3.739 ng/dl N 4-31) and normal cortisol (497.8 nmol/L, N 138-690 nmol/L). However, she declined surgery and went home with antibiotics. After a month, abdominal CT scan (plain) was done showing decrease in size of adrenal mass 5.2 x 4.8 x 4.3 cm (from 8.0 x 6.1 x 5.9 cm). FNAB done showed no inflammatory changes or atypical elements present. She was advised to repeat CT scan of the abdomen as surveillance. Three months PTA, patient developed enlarging abdominal girth and easy fatigability with weight loss and hirsutism (thickened eyebrows and moustache). Repeat CT scan showed increase right adrenal mass 15.8 x 13 x 18.1 cm (from 8.0 x 6.1 x 5.9 cm) with feeding arteries and internal necrosis represent malignant process. Repeat work up done showed elevated cortisol (1,181 nmol/L,N138-690 nmol/L) and elevated 1 mg Dexamethasone Suppression Test (cortisol 1,184 nmol/L,N <50 nmol/L). She was advised surgery and admission. Exploratory laparotomy with cholecystectomy, hepatectomy, right lobe; adrenalectomy, right; nephrectomy was done. Histopathological diagnosis: Adrenocortical carcinoma with hemorrhage and necrosis, tumor size 16 cm, lymphovascular invasion identified and one margin (diaphragmatic) positive for tumor involvement. Other surgical margins negative for tumor involvement. Immunostains: positive synaptophysin, vimentin, inhibin. ACC can arise from an initially benign, nonfunctional adrenal tumor to a highly aggressive, metastatic, functional ACC.

Keywords: adrenocortical cancer, functional adrenal tumor

Case Report – Adrenal Disorders

Autoimmune Polyendocrine Syndrome (APS) Type 2

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A 56-year-old female was admitted to Mandalay General Hospital on 18 February 2013 for tiredness, anorexia, drowsiness, fatigue, muscle pain all over the body and marked weight loss over eight months. There was also pigmentations over the lips, tongue, upper and lower extremities. Twenty years ago, she was diagnosed and treated as Grave's disease. Two years ago, she was diagnosed as diabetes mellitus which was managed initially with insulin. After 3 months, insulin was stopped because of hypoglycemia. One year ago, symptoms of thyrotoxicosis reappeared. She had 2 episodes of near-syncope and became unconscious. She was diagnosed as stroke and thyrotoxicosis and treated with antithyroid

drugs which was continued till January 2013. BMI was 20.2 .No abnormalities in examinations of all systems except proximal myopathy and small diffuse goiter. BP=90/60mmHG (supine & standing). ECG , CXR ,USG (Abd), LFT, CBC, ESR, URE, T& DP, serum Ca++ were normal. HBsAg, Anti HCV Ab and retroviral antibody were negative. Creatinine 1.82 mg / dl, sodium 122 mmol/ L, potassium 6.8 mmol/L, chloride 97 mmol/L, Bicarbonate 23 mmol/L, TSH 100 μIU / ml, free T3 1.98 pg / ml, free T4 0.16 pg /dl. Her 8:00 am serum cortisol was 27 ng/ ml which strongly suggests adrenal insufficiency. The presence of primary adrenal insufficiency, thyroid disease and diabetes makes one consider the diagnosis of Autoimmune Polyendocrine Syndromes (APS) type 2.

Keywords: primary adrenal insufficiency, thyroid disease, diabetes, Autoimmune Polyendocrine Syndrome (APS) Type 2

Case Report – Adrenal Disorders

Refractory Hypokalemia: End of Seven Years of Struggle

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Hypokalemic paralysis is a relatively uncommon condition causing significant morbidity. It is potentially life-threatening if not identified and treated appropriately. Etiology includes familial or primary hypokalemic periodic paralysis, barium poisoning, hyperthyroidism, renal and gastrointestinal causes and Primary Hyperaldosteronism/Conn's-syndrome. Here is a case of Conn's syndrome with refractory hypokalemia. A 36-year-old female from Bangladesh was admitted with complaints of weakness of hands and legs. Over 7 years, she had been admitted to the ICU with syncopal episodes and low potassium at least 6-7 times and was treated with IV and oral Potassium, but the problem would recur. She was diagnosed to have hypokalemic paralysis. Initial potassium was 2.5 mmol/l and sodium was 137 mmol/l. Intravenous potassium was started. Overnight DST showed 8AM cortisol: 0.62mcg/dl. The 24 hour urine collection for electrolytes showed sodium: 236.5 (40.0-220.0 mmol/day) and potassium: 159.5 mmol/day (25.0-125.0). Her 24-hour urinary catecholamines and metanephrines were normal. In spite of intravenous and oral potassium supplementation, her potassium levels could not be maintained above 3.5 mmol/l. Hence, serum renin and aldosterone could not be done. An MRI of the abdomen revealed well defined non-enhancing right suprarenal mass-lesion 2.0 x 1.8 x 2.0 cm in lateral limb, suggestive of adrenal adenoma. Patient was started on spironolactone. Her serum potassium levels improved. Once stable, she underwent right adrenalectomy. Post operatively, potassium was stable without any supplementation. She has not had any further episodes of hypokalemia. Conn's syndrome is a potentially treatable cause of hypokalemia. The delay in diagnosing was due to the refractory hypokalemia and the BP being stable with minimal antihypertensives. Other causes of hypokalemia had to be ruled out before considering Conn's Syndrome.

Keywords: *hypokalemia, adrenal adenoma, hypokalemic paralysis, Conn's syndrome*

Case Report – Adrenal Disorders

Hypokalemic Periodic Paralysis in a Patient with Primary Hyperaldosteronism caused by Aldosterone-Producing Adenoma

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Primary hyperaldosteronism (Conn's syndrome) is a rare and potentially the underlying cause of hypertension with hypokalemic periodic paralysis. We report a case of hypokalemic periodic paralysis in patient with primary hyperaldosteronism caused by aldosterone-producing adenoma. The diagnosis was confirmed by clinical features, operation and pathology. A 37-year-old woman, consulted with the main complaint of recurrent symmetrical flaccid weakness since 3 months. She also has hypertension since 8 years ago. Physical examination revealed hypertension (170/110 mmHg) and hypokalemia (1.7 meq/l) were recorded. Arterial blood gas analysis was suggestive of metabolic alkalosis. As the patient had hypokalemia with metabolic alkalosis, with history of hypertension, hyperaldosteronism was suspected. A morning ambulatory test aldosterone level was tested and found to be 56 ng/dL (normal: < 28 ng/dl) at 08:00 h. Abdomen computerized tomography (CT) revealed a hypodense mass over the right adrenal gland. The diagnosis of primary hyperaldosteronism due to an aldosterone-producing adenoma of the right adrenal gland was therefore confirmed, so she underwent laparoscopic right adrenalectomy tumor resection. After removal of tumor, the pathology confirmed an aldosterone-producing adenoma. Three days after operation, the serum potassium level returned to normal range (3.87 meq/l) without any potassium supplementation since then and her muscle strength is also normal. Her blood pressure also returned to normal (125/70 mmHg). Hypokalemic periodic paralysis, characterized by neuromuscular weakness and low serum potassium levels, with secondary hypertension due to an adrenal adenoma is rare but treatable. Surgical treatment is very effective in cases due to aldosterone-producing adenoma. In this case, we showed normalization of blood pressure and potassium level during her postoperative course.

Keywords: hypokalemic periodic paralysis, secondary hypertension, Conn's syndrome, adrenal adenoma

Case Report – Reproductive Endocrinology

Fluoxymesterone-Induced Gynecomastia in a Patient with Childhood Aplastic Anemia

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Gynecomastia is a benign condition characterized by enlargement of the male breast, which is attributable to proliferation of the glandular tissue and local fat deposition. It can be physically uncomfortable, psychologically distressing and may have a negative impact on self-confidence and body image. Drug-induced gynecomastia merits deep consideration as it may account for as many as 25% of all cases of gynecomastia in adults. Although the mechanism is not fully clear, some mechanisms include estrogen-like activities, stimulation of testicular production of estrogens, inhibition of testosterone synthesis or blockade of androgen action. Anabolic steroids in particular when used during the pubertal stage may cause significant irreversible gynecomastia. This is a case of a 28-year-old Filipino male who presented with persistent pubertal gynecomastia. During his pre-pubertal age, he was diagnosed with aplastic anemia and treated with prednisone (20 mg/day), human anti-thymocyte globulin and fluoxymesterone (25 mg/day). As he entered puberty, prednisone was tapered and discontinued but fluoxymesterone was continued until the age of 16. His breasts continued to enlarge and reached female-like maturity without galactorrhea. On physical examination, the patient had a normal male body habitus and genitalia. What was striking was the presence of a grade 3 gynecomastia and the absence of discharge on breast nipple expression. Biochemical and hormonal tests to rule out pathologic causes of gynecomastia were normal. Based on the clinical history, temporal relationship between drug initiation and appearance of gynecomastia and the absence of pathologic causes, the patient was diagnosed to have drug-induced (fluoxymesterone) gynecomastia. A planned breast reconstruction surgery was temporarily postponed because of thrombocytopenia on repeated examinations. A repeat bone marrow aspiration was compatible with a reactive bone marrow indicating continuous remission with residual thrombocytopenia from the aplastic anemia. Although patient was unable to undergo breast reconstructive surgery, he was referred to a psychiatrist for psychologic counselling. As of the last visit, he lives a happy life as a fisherman and a father of 2 children. Use of fluoxymesterone especially during puberty can lead to irreversible and persistent gynecomastia. Its' use should always outweigh probable harm as certain associated adverse effects can lead to permanent physical abnormalities brought about by hormonal disruptions.

Keywords: gynecomastia, fluoxymesterone, aplastic anemia

Case Report – Others

Serum Uric Acid Levels as a Therapeutic Monitor in Cerebral Salt Wasting

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Cerebral salt wasting (CSW) is an underdiagnosed cause of hyponatremia that occurs in the setting of intracranial lesions. However, there was a few reports related to cerebral salt wasting caused by acute bacterial meningitis. We described an infant with acute pyogenic meningitis, who was subsequently diagnosed with cerebral salt wasting. We have successfully managed this case monitoring the level of fractional excretion of uric acid. Serum uric acid levels can be used as a therapeutic monitor in cerebral salt wasting.

Keywords: cerebral salt wasting, pyogenic meningitis, uric acid level

Case Report – Others

Ovarian Serous Cystadenocarcinoma in a 29-Year Old Post-TAHBSO Female with Mayer-Rokitansky-Kuster-Hauser Syndrome, Heterotaxy Syndrome with Polysplenia and Hypothyroidism

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The incidence of MRKH is 1 in every 4,500 female live births, while Heterotaxy syndrome occurs in 4 in every 1M live births. There was one reported case of MRKH with Hypothyroidism and one case with Hypoplastic R lung. The incidence of MRKH plus Heterotaxy syndrome with polysplenia is still unknown. MKRH with ovarian tumors revealed 5 reported cases but none of these was consistent with ovarian serous cystadenocarcinoma. There is no documented association of Heterotaxy syndrome with polysplenia and ovarian serous cystadenocarcinoma. A 29-year-old female was admitted for an appendectomy with incidental note of an unresectable retroperitoneal mass. Biopsy showed suppurative appendix and an abscess with granuloma formation. She underwent pelvic laparotomy with bilateral salpingooophorectomy at age 16 for primary amenorrhea and an absent vaginal orifice. CBC showed anemia and persistent leukocytosis with absolute neutrophilia. There were low Na+ and K+ levels and remittent azotemia with hypoalbuminemia. TSH was high but T3 was low. Karyotyping bared normal 46, XX karyotype. Chest X-ray revealed narrowed right intercostal spaces; hyperlucent left lung with widened intercostal spaces; shifting of the trachea and mediastinum to the right; and elevated right hemidiaphragm. Chest and abdominal CT scans demonstrated structural alterations consistent with Heterotaxy syndrome; a lobulated, solid mass with areas of hypodensities and punctuate calcifications within the pelvic cavity. A 2D-Echocardiography showed a dextro-positioned heart. Hormone panel was consistent with menopausal levels. Immunohistochemistry studies showed inflammatory myofibroblastic tumor. Histopathology revealed ovarian

serous cystadenocarcinoma. Final diagnosis was Ovarian Serous Cystadenocarcinoma; Mayer-Rokitansky-Kuster-Hauser syndrome, Atypical; Heterotaxy syndrome with Polysplenia; Hypothyroidism; Chronic kidney disease Stage 4 due to Obstructive nephropathy; Undernutrition; S/P Bilateral salpingooophorectomy, Closure of Inguinal Hernia (1997); S/P Appendectomy, Biopsy of Retroperitoneal tumor, Loop colostomy, Enterocutaneous fistula creation (March 2010). Anemia was corrected, and intravenous antibiotics were started. Patient was discharged improved, however, eventually succumbed after 5 months.

Keywords: Mayer-Rokitansky-Kuster-Hauser Syndrome, Heterotaxy Syndrome, ovarian serous cystadenocarcinoma

Original Research – Prediabetes/Diabetes Mellitus

Difference of Blood Glucose Levels in 20-60 Year Old Male Tobacco Smokers and Non-Smokers

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Introduction. Chronic complications of diabetes such as cardiovascular disease, diabetic ulcers, kidney disease, and retinopathy can be caused by smoking. Recently, it has been said that smoking can increase the risk of diabetes type 2. Although the mechanism is not clear, it has been suspected that insulin resistance caused by nicotine in tobacco smokers is related with increasing number of people who have type 2 diabetes mellitus.

Methodology. This research was designed to investigate the difference of blood glucose level in 20-60 years old male tobacco smokers and non-smokers in Salemba in 2009-2010. The data from 32 male smokers and 32 male non-smokers taken by consecutive sampling was collected from questionnaire and measuring fasting blood glucose level by finger prick technique.

Results. The average value of fasting blood glucose in non-smokers group was 102.0 (86-150) mg/dL and in smokers group was 118.6 (SD 25,2) mg/dL. With Mann-Whitney test, it was known that p=0.002.

Conclusions. There was a significant difference of blood glucose level in male tobacco smokers and non-smokers.

Keywords: tobacco-cigarette, fasting blood glucose, Type 2 diabetes mellitus, insulin resistance, nicotine

Original Research – Prediabetes/Diabetes Mellitus

Prevalence and Characteristics of Diabetic Peripheral Neuropathy Using Toronto Clinical Scoring System (TCSS)

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Introduction. Diabetic peripheral neuropathy is one of the most common complications of diabetes with a worldwide prevalence of 22.7% to 54%. Estimates vary due to inconsistent definitions, differences in the diagnostic methods and criteria and lack of population based studies. The quantity and quality of epidemiological data is still lacking. This study aims to determine the prevalence of diabetic peripheral neuropathy using the Toronto Clinical Scoring System (TCSS) and to correlate the associated risk factors to the presence and severity of neuropathy.

Methodology. This is a cross-sectional, analytical study. A total of 170 subjects is needed to achieve an 80% power. We saw 109 patients who underwent peripheral neuropathy screening and assessment using the TCSS. Descriptive statistics were used to characterize the population and ordinal logistic regression was used to analyze the contribution of risk factors to the presence of peripheral neuropathy.

Results. The prevalence of diabetic neuropathy was 36% (39/109) using the TCSS among which 22% had mild neurop athy, 10% moderate neuropathy and 4% severe neuropathy. Mean age of patients with neuropathy was 61.9 years old with a mean duration of diabetes of 13.9 years vs 8 years among those without neuropathy. Duration of diabetes appeared to significantly contribute to the severity of neuropathy with odds ratio 1.67 (CI 1.02-2.72) and p-value 0.04.

Conclusions. Our study showed that about one third of diabetic patients already have peripheral neuropathy with majority presenting as mild neuropathy. The duration of diabetes is an independent risk factor associated with peripheral neuropathy. The results, thus, highlights the need for regular foot examination and screening for neuropathy especially in patients with prolonged diabetes. However, results of this study are preliminary and other risk factors may need to be considered in future studies.

Keywords: diabetic neuropathy, peripheral neuropathy, Toronto clinical scoring system

Original Research – Prediabetes/Diabetes Mellitus

Gender Differences of Diabetic Peripheral Neuropathy in Korea

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Introduction. Gender differences of diabetic peripheral neuropathy (DPN) were introduced in several observational and experimental studies. It was suggested that the incidence of DPN might be more frequent in men whereas more diabetic peripheral neuropathic pain (DPNP) in female. We investigated whether gender differences would be consistently observed in Korean diabetic patients.

Methods. Data from multi-center, cross-sectional, observational study were used. The prevalence and characteristics of DPN and DPNP were analyzed between male and female groups.

Results. The prevalence of both DPN (female in DPN 55.7% vs. Non-DPN 49.4%, $p < 0.01$) and DPNP (female in DPNP 57.2% vs. Non-DPNP 51.2%, $p < 0.05$) were higher in female group. Female patients showed higher pain score in BPI-sf, lower quality of life in EQ-5D, better response to drugs, higher use of non-pharmacological therapy. Male patients showed higher score in MOS sleep scale.

Conclusions. Gender differences of DPN were observed in Korean diabetic patients, but the details were inconsistent with previous reports.

Keywords: diabetic peripheral neuropathy, gender

Original Research – Prediabetes/Diabetes Mellitus

Attainment of HbA1c Target through Stepwise Algorithm of Insulin Combinations in Type 2 Diabetes Mellitus

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Introduction. In the management of diabetes, lifestyle modification is the initial course of action, followed by oral hypoglycemic agents. Insulin is initiated when there is failure to achieve good control on maximum oral agents. This study looks into an algorithm used in an Endocrinology referral clinic in the UST Hospital incorporating a stepwise regimen to achieve desirable HbA1c levels.

Methodology. This is a retrospective chart review of 104 patients using an algorithm consisting of the following: oral regimen (metformin/glitazone with SU and/or DPP IV inhibitors); regimen A: basal+oral; regimen B: basal+premeal bolus±oral; regimen C: premix 70/30 TID premeal or premix 70/30 BID + prelunch bolus ± oral; regimen D: premix 70/30 BID+premeal bolus ± oral; regimen E: premix 70/30 BID+premeal bolus + basal ± oral. All patients received automatic snacking 2 hours after main meals, a regimen proven to prevent hypoglycemia. Hba1c goals were set at<7% for age <60 years and < 7.5% for age ≥ 60 years or with chronic kidney/liver disease. Data was analysed using paired T test, frequencies and percentages.

Results. Significant HbA1c reduction was demonstrated by insulin regimens A, B, D and E, as follows, regimen A (n=8): 1.376 ± 0.919 (p=0.004), regimen B (n=18) 2.320 ± 2.177 (p=0.0005), regimen D (n=57) 2.197 ± 2.158 (p=0.0001), regimen E (n=18) 2.684 ±1.689 (p=0.0005). Overall mean weight gain was not statistically significant at 1.070 ± 11.435 kg (p>0.05). Only eleven patients experienced hypoglycemia.

Conclusions. The stepwise algorithm of insulin combinations is an effective tool to attain adequate HbA1c reduction. Weight gain was not significant and there were minimal occurrences of hypoglycemia attributed to proper diet education and automatic snacking 2 hours after meals.

Keywords: diabetes, HbA1c, insulin

Original Research – Prediabetes/Diabetes Mellitus

Shifting to Biosimilar Insulin Preparation: Impact on Glycemic Control and Cost

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Introduction. In the long-term clinical course of type 2 diabetes mellitus (>10 years), over 90% of patients on oral hypoglycemic agents will eventually need insulin to maintain the HbA1c goal of <7%. The appropriate combination of several kinds of insulin (human and analogue) has been shown to be effective. Throughout the years, the use of biosimilar insulin preparations has become popular to address the economic aspects of treatment.

Methodology. This is a descriptive analysis of 100 patients seen at a private clinic at 2 major hospitals from 2008-2014. We have reviewed the charts of 100 patients who have been using premixed NPH and regular insulin (Humulin 70/30, Mixtard 30 and Scillin M30) and who later on have been switched to biosimilar preparation (Wosulin 70/30). We compared the total insulin requirement and HBA1c levels of the patients before and after switching to Wosulin 70/30. After review of 100 charts, only 18 patients were included in this study.

Results. Eighteen patients (13 females and 5 male) aged 46 to 66 years with an average duration of diabetes of 24.8 months were included in the study. After switching to Wosulin 70/30 the mean HBA1c decreased by 3.3% while the total insulin dose increased by 4.57 units per day. Even with minimal increase in insulin dose, Wosulin 70/30 was still 30-40% more affordable.

Conclusions. After switching to Wosulin 70/30 insulin preparation, there was a decrease in the mean HBA1c of 3.3% with a minimal increase in the dose of insulin. Biosimilar insulin preparation is a cost-effective alternative among diabetic patients requiring insulin to maintain appropriate glycemic control.

Keywords: Wosulin 70/30, insulin 70/30, HbA1c

Original Research – Prediabetes/Diabetes Mellitus

Nonalcoholic Fatty Liver Disease in Patients with Pre-Impaired Glucose Tolerance

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Introduction. Pre-impaired glucose tolerance (pre-IGT) or compensated hyperinsulinemia, is defined as second hour glucose of <140 mg/dL, and insulin of >30 uIU/mL after a 75-gram oral glucose load. It is characteristic of the early stage of diabetes mellitus (DM), where beta cells compensate for insulin resistance by increasing insulin secretion to maintain normoglycemia, and observed in 42-68% of individuals at high risk to develop DM. With continuing beta cell failure, insulin secretion eventually fails, leading to the progression to type 2 DM. Nonalcoholic fatty liver disease (NAFLD) is a common feature of insulin resistance, found in 54.5% and 33% of DM and pre-diabetes patients respectively. However, its prevalence or association with pre-IGT patients has not yet been elucidated. We determined if NAFLD was present in patients with pre-IGT, and its relationship with body mass index (BMI), lipid profile and insulin levels.

Methodology. This was a descriptive study on the determination of nonalcoholic fatty liver disease in eleven (11) pre-IGT patients, conducted at a university hospital. NAFLD was diagnosed using the Hamaguchi Scoring System, which utilizes echo contrast, bright liver, deep attenuation and vessel blurring on liver ultrasound. A score of ≥ 2 confirms the diagnosis. Descriptive statistics and the Pearson product-moment correlation were used for data analysis.

Results. The baseline characteristics of the subjects were as follows: mean age of 33.82±7.03 years, with an average BMI of 25.97±2.24 kg/m2; 81.8% were female. Average total cholesterol, triglyceride, HDL and LDL levels were 181.50, 82.10, 69.61 and 95.20 mg/dL respectively; kidney and liver functions were likewise normal. The mean second hour glucose and insulin levels were 89.77 mg/dL and 56.92uIU/mL, after a 75-Gram oral glucose load. NAFLD was identified in 4 of the 11 subjects, which only had moderate positive correlation with BMI and insulin levels.

Conclusions. Nonalcoholic fatty liver disease was identified in 36% of patients with pre-IGT, which correlated with higher BMI and insulin levels.

Keywords: pre-IGT, non-alcoholic fatty liver disease, compensatory hyperinsulinemia

Original Research – Prediabetes/Diabetes Mellitus

Considerable Factors of Insulin Statics for Korean Women with Gestational Diabetes

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Introduction. Each insulin dose is decided usually based on carbohydrate amount and the carbohydrate counting method (CCM) was widely accepted for intensive insulin therapy, but study showing CCM for gestational diabetes (GDM) was not found. We investigated the correlations between total and prandial insulin doses and several glycemic predictors including carbohydrate amount in the hospitalized GDM patients who had achieved adequate glycemic goal (premeal <95mg/dL, postmeal 2 hour <120 mg/dL).

Methodology. This retrospective investigation was conducted in an attempt to identify predictors for achieving euglycemia among high carbohydrate diet population through a multivariate stepwise regression study. Among 723 daily seven-point blood glucose profiles of 35 patients, euglycemic 113 daily glucose profiles were analyzed.

Results. To maintain adequate glycemia during pregnancy, prandial insulin was needed 59% of total daily insulin dose on average. The carbohydrate amount was not correlated with prandial insulin doses (r=-0.007, p=0.364). The gestational age (r=0.089, p<0.01) and BMI (r=0.283, p<0.01) were well correlated with the insulin doses in GDM patients.

Conclusions. BMI and gestational age were important predictors to decide total and prandial insulin doses. More prandial insulin would be required for the population with high carbohydrate diet. Carbohydrate amount was not a good predictor for insulin dosing in this study setting.

Keywords: body mass index, gestational diabetes, insulin dosing, carbohydrate counting method

Original Research – Prediabetes/Diabetes Mellitus

Screening for Diabetic Nephropathy Using Non-Invasive Non-Mydriatic Fundus Photography in Patients with Type 2 Diabetes

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Introduction. The prevalence of diabetes mellitus Type-2 (T2DM) is on the rise. In adults, T2DM accounts for 90–95% of all diagnosed cases of diabetes. Approximately 40% of diabetic cases are diagnosed during their lifetime with diabetic nephropathy (DN), which has become the leading cause of end-stage renal disease (ESRD) in the developed and developing world. Kidney biopsy can discriminate DN from non-diabetic renal disease (NDRD), but it is invasive, and not necessary for every patient. NDRD is rare in type 1 diabetes mellitus, particularly in patients with a history of diabetes of >10 years. The current study strives to investigate the association whether micro albuminuria or moderately decreased eGFR and fundus photography can predict renal involvement in a type 2 diabetic cohort and tries to establish a novel screening technique for diabetic patients. This can be done by trained person even in remote rural India for retinopathy by using non-invasive, non-mydriatic digital fundus photography. We can predict nephropathy in these patients who can further be referred to a nephrologist.

Methodology. In an observational study, 150 diabetic patients were assessed for presence of diabetic nephropathy and fundus images were taken by non-invasive, non mydriatic fundus camera (Digital fundus photography were taken using the 3nethra – A single, portable, intelligent, non-invasive, non-mydriatic eye pre-screening device which is more economical as it can be done at periphery without causing any discomfort to patient. Two retinal images of each eye were be obtained, one centred at the optic disc and another centred at the fovea. The prevalence of diabetic nephropathy and correlation between nephropathy and retinopathy was calculated using Spearman coefficient.

Results. The overall prevalence of retinopathy was 20.66 (150 patients), which showed to be non-proliferative diabetic retinopathy (NPDR). The prevalence of micro-albuminuria was 28.66%. As expected, diabetic retinopathy and renal involvement were highly positively (72.08%) correlated.

Conclusions. Microalbuminuria is associated with diabetic retinopathy in type 2 diabetic patients and retinopathy is a reliable marker of nephropathy. Ophthalmic detection of retinopathy should enforce nephrology consultation for kidney disease amongst diabetics with retinopathy.

Keywords: microalbuminuria, diabetic retinopathy, type 2 diabetes mellitus

Original Research – Prediabetes/Diabetes Mellitus

Helicobacter pylori Infection and Glycemic Control in Type 2 Diabetic Patients

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Introduction. The aim of this study is to find out the association between *Helicobacter pylori* infection and glycemic control of type 2 diabetic patients by rectifying the frequency of *Helicobacter pylori* infection in well or poorly-controlled type 2 diabetic patients.

Methodology. Hospital based cross-sectional descriptive study was carried out on 88 type 2 diabetic patients. Glycemic control was detected by haemoglobin A1c and *Helicobacter pylori* infection by stool antigen test. Then, *Helicobacter pylori* prevalence was compared between patients with good and poor glycemic control.

Results. Among well-controlled patients, *Helicobacter pylori* prevalence was 14% whereas 24% in poorly-controlled patients. But p value was 0.544 (>0.05), indicating no statistically significant association. Higher prevalence of *Helicobacter pylori* infection was seen in increasing age (>60 years) of poorly-controlled type 2 diabetic patients compared with the age and sex matched well-controlled group.

Conclusions. Although statistically significant association between *Helicobacter pylori* infection and glycemic control in type 2 diabetic patients cannot be proved during my study period and study population, findings and knowledge from this study can be used to support the larger studies for further details of correlation between Helicobacter pylori infection and glycemic control of type 2 diabetic patients. Consideration should be given to the cost effectiveness of *Helicobacter pylori* stool antigen test which was proved to be comparable to the rapid urease test and urea breath test in diagnosis and detecting the response to eradication therapy.

Keywords: diabetes mellitus, Helicobacter pylori, HbA1c

Original Research – Prediabetes/Diabetes Mellitus

Differential Management of Diabetes

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Introduction. Type 2 diabetes mellitus is fast emerging as a global health crisis affecting nations across the globe. The ramification of the sudden surge of the disorder affecting the young to middle aged has been huge and has threatened to affect their respective economies. This has forced nations to increase their budgetary spending on combating the same. Nearly 347 million people suffer from this disorder worldwide. Most startling of all, is that 80% of deaths due to diabetes occur in the low- and middle-income countries. According to the WHO, diabetes will become the 7th leading cause of death by 2030. Type 2 diabetes comprises 90% of the diabetes suffered across the world.

Methodology. The selection of patient has been in the age group of 20-80 yrs. The co-morbidities suffered in these patients varied from cardiac, neuro related, obesity, thyroid dysfunction, et cetera verified with periodic investigations.

Results. The consensual cause across the race, class, genera for this disorder has been largely due to unhealthy dietary practices and sedentary lifestyle. Among the Type 2 Diabetics, the co-morbid such as cardiopathy, nephropathy, retinopathy, neuropathy, obesity, thyroid dysfunction, etc., dominate the sufferings causing significant drop in the Quality of Life (QOL). The increase in co-morbids has made us to think different and adopt such safe regimens that provide stability in the life of Diabetics. There have been appreciable results with the adoption of an integrative approach in the management of Diabetes. With the adoption of Ayurveda with oral Synthetic Anti-Glycemic (SAG) Agents (80%)* or solely (60%), there has been an impressive qualitative change in the clinical condition systemically with a huge impact on the Quality of Life (QOL). Ayurveda when adopted with its Medicine, Diet and Lifestyle change (MDLC) in patients with type 2 Diabetes, they have done extremely well clinically with a notable boost at the energy level. There is a visible pro- change in the physical and mental status of the diabetic subjects, especially the elderly.

Conclusions. An effective management of diabetes with above regimen invariably provides better QOL with facilitation of qualitative aging.

Keywords: quality of life, type 2 diabetes mellitus

Original Research – Prediabetes/Diabetes Mellitus

Hemodialysis Patients' Compliance and Adherence Behaviors to Renal Replacement Therapy in 2 Dialysis Centers in Iloilo City, Philippines

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Introduction. Approximately 120 per million population develop kidney failure, translating to about 10,000 Filipinos needing to replace their kidney function per year. Without appropriate intervention, those having kidney failure will surely succumb.

Methodology. This is a cross-sectional study in which subjects answered the End-Stage Renal Disease – Adherence Questionnaire (ESRD-AQ).

Results. Of the 102 patients, 59.8% (n=61) were enrolled. The mean age was 47 years with average HD vintage of 30 months. More females were non-adherent to HD treatment, 17.1% vs. 15.4%; whereas more males were non-adherent to the remainder descriptors (medications, 11.5% vs. 8.6%; fluid restriction, 23.1% vs. 17.1%; and diet recommendations 30.8% vs. 25.7%). There were less non-adherent patients than adherent ones (HD attendance, 9,803.92 vs. 50,000; medications, 5,882.35 vs. 53,921.57; fluid restriction, 11,764.71 vs. 48,039.22; and diet, 16,666.67 vs. 43,137.25 per 100,000). There were significant differences in their behaviors toward HD attendance (P=0.000); shortening of HD treatment (P=0.000); duration of shortening HD (P=0.000); adherence to medications (P=0.000); to fluid (P=0.000); and to diet (P=0.000). Both groups demonstrated the same level of perception and understanding towards the importance of HD (P=0.306 and 0.096, respectively). There was no significant difference in their perception to medications (P=0.427); however figures illustrate a significant difference in their levels of understanding towards its importance (P=0.001). Adherent subjects have better perception and understanding in fluid restriction regimen and dietary recommendations as data show significant differences in between groups (P=0.000 and 0.000; and P=0.001 and 0.004, respectively).

Conclusions. The compliance of adherent subjects to HD treatment, medications, fluid restriction protocol and dietary recommendations was more adequate. Non-adherent subjects were less prevalent than adherent ones.

Keywords: renal replacement therapy, end-stage renal disease, adherence questionnaire

Original Research – Prediabetes/Diabetes Mellitus

Renal Function Assessment in Newly Diagnosed Type 2 Diabetic Patients

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Introduction. It is important to detect the presence of diabetic nephropathy in newly diagnosed type 2 diabetic patients. By studying the renal function in the newly diagnosed patients, we can know much about diabetic nephropathy, can get early detection and can start treatment to retard the progression to ESRF.

Methodology. This is a hospital-based cross-sectional descriptive study. Fifty one patients meeting the inclusion criteria were enrolled. A complete history taking and physical examination were performed. Fasting and/or random venous plasma glucose, fasting lipid profile, serum creatinine and urine for routine examination with dipstick were done as baseline investigations. Microalbuminuria was measured in a spot urine sample by reagent strips.

Results. The prevalence of renal impairment in newly diagnosed type 2 diabetes patients was 56.86%.The overall prevalence of microalbuminuria among newly diagnosed type 2 diabetic patients was 35.29%. The mean age was 56 ± 5.5 years and the prevalence of renal impairment was highest in 41-50 and 51-60 years age group (29.41%) each . Renal impairment was more frequent in females (62.75%) than males (37.25%). Renal impairment was found in 47,62% of smokers and 71.43% of patients with raised TG, 40% of patients with raised TC, 82.35% of hypertensives, 60% of obese patients and 73.91% of those with low HDL.

Conclusions. This study demonstrated that a large proportion of patients (35.29%) with newly diagnosed type 2 diabetes exhibit microalbuminuria. Renal impairment had relationship with smoking, central obesity, hypertension and dyslipidaemia although significant association could not be shown because of small sample size.

Keywords: renal function, microalbuminuria, Type 2 diabetes mellitus

Original Research – Prediabetes/Diabetes Mellitus

Serum Ceruloplasmin Level as a Predictor for the Progression of Diabetic Nephropathy in Korean Men with Type 2 Diabetes Mellitus

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Introduction. Oxidative stress is known to be associated with progression of diabetic kidney disease. Ceruloplasmin acts as a pro-oxidant under conditions of severe oxidative stress. Thus, we conducted a longitudinal observational study to evaluate whether the serum ceruloplasmin level is a predictive biomarker for progression of diabetic nephropathy.

Methodology. A total of 643 Korean men with type 2 diabetes mellitus were enrolled. Serum ceruloplasmin was measured using a nephelometric method. Progression of diabetic nephropathy was defined as transition in albuminuria class (i.e., normo- to microalbuminuria, micro- to macroalbuminuria, or normo- to macroalbuminuria) and/or a greater than 2-fold increase of serum creatinine at follow-up compared with the baseline value.

Results. During the follow-up period (median: 2.7 years, range: 0.3–4.4 years), 49 of 643 patients (7.6%) showed progression of diabetic nephropathy and three (0.5%) patients developed end-stage renal disease. Baseline ceruloplasmin levels were higher in the progressors than in the non-progressors (262.6 ± 40.9 vs. 233.3 ± 37.8 mg/l, P

< 0.001). Kaplan–Meier analysis showed a significantly higher incidence of nephropathy progression according to ceruloplasmin tertile (log-rank test, P < 0.001). The hazard ratio (HR) for progression of diabetic nephropathy was significantly higher in the highest ceruloplasmin tertile category compared with the lowest ceruloplasmin tertile category, even after adjusting for confounding variables (HR = 3.01, 95% confidence interval 1.16–7.74, P = 0.008).

Conclusions. Our study demonstrated that baseline serum ceruloplasmin is an independent predictive factor for the progression of diabetic nephropathy in patients with type 2 diabetes mellitus.

Keywords: ceruloplasmin, diabetic nephropathy, oxidative stress, type 2 diabetes mellitus

Original Research – Prediabetes/Diabetes Mellitus

Increased Prevalence of Albuminuria in Individuals with Higher Range of Impaired Fasting Glucose: the 2011 Korea National Health and Nutrition Examination Survey

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Introduction. The prevalence of albuminuria in subjects with impaired fasting glucose (IFG) has not been reported in Korea. The aim of this study was assessment of the prevalence of albuminuria and its associated factors of albuminuria in albuminuria in subjects with specifically divided fasting glucose level.

Methodology. A total of 5,202 subjects who participated in the fifth Korea National Health and Nutrition Examination Survey (KNHANES V-2) were enrolled in this study. And, albumin-creatinine ratio was calculated.

Results. We divided the subjects into five group according to fasting plasma glucose level of <4.9 (NGT1, n=1905), 5.0-5.5 (NGT2, n=1784), 5.6-6.0 (IFG1, n=727), 6.1-6.9 (IFG2, n=268), and ≥ 7.0 (or diabetes, n=518) mmol/l. Albuminuria was present in 7.6%(n=395) of study subjects. The proportion of subjects with albuminuria was 4.1, 6.0, 7.6, 12.3, and 23.4%, respectively, in the five groups (P < 0.01 for the trend). The differences in proportion of subjects with albuminuria between the group with IFG2 and those with the others persisted after adjustment for age, sex, hypertension and obesity. In a multivariate logistic regression, independent associations with albuminuria were age, hypertension, and increasing fasting glucose including IFG2 and diabetes.

Conclusions. Prevalence of albuminuria is increased along the level of hyperglycemia even in non-diabetic range and this association is independent of traditional risk factors such as age, hypertension and obesity.

Keywords: albuminuria, hyperglycemia, impaired fasting glucose

Original Research – Prediabetes/Diabetes Mellitus

Pioglitazone Amplified the Fgf21 Function via Increase of B-Klotho Expression in Pancreatic MIN6 Cell Line

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Introduction. Fibroblast Growth Factor-21 (FGF21), secreted from liver, is a novel candidate as an anti-diabetic hormone, showing correlation with abnormal glucose metabolism. The pancreatic β-cell is a target of FGF21, although its function on the β-cell is unknown. This study investigated involvement of thiazolidinediones (TZDs), ligands for peroxisome proliferator-activated receptor gamma (PPAR-γ), in the function of FGF21 via regulation of β-klotho, a co-receptor of FGF21.

Methodology. MIN6 cells were cultured in DMEM medium containing palmitate (500 uM) in the presence or absence of 10 mM pioglitazone, and then FGF21 (100 nmol/L) or vesicle was additionally treated for 48 h. We examined the effect of pioglitazone on expression of β-klotho, FGF21-induced response activation of ERK/Akt signal pathway and glucose-stimulated insulin secretion. The islets of pancreas, isolated from KK mice fed high fat diet with or without pioglitazone, were observed through immunohistochemistry for pancreatic protein and β-klotho.

Results. Pioglitazone significantly recovered β-klotho expression, whereas expression of FGFR1 was not altered. The down-stream signaling pathway of FGF21 binding was also increased by pioglitazone. Moreover FGF21 improved glucose-induced insulin secretion depend on concentration of pioglitazone. Knock-down of β-klotho completely blocked FGF21-induced improvement on GSIS. In pancreatic β-cell from high fat-fed KK mice, treatment of pioglitazone significantly increased β-klotho expression.

Conclusions. This study suggests that pioglitazone amplifies FGF21 function in pancreatic β-cell via increase of β-klotho level in fatty acid-challenged condition. Finally, preservation of FGF21 function may protect β-cell function against lipotoxicity.

Keywords: Fibroblast growth factor 21, FGF21, pioglitazon, beta cell, diabetes mellitus, lipotoxicity

Original Research – Prediabetes/Diabetes Mellitus

Validation of Self-Reported Oral Health Measures for Predicting Periodontitis among Adult Filipinos with Type 2 Diabetes Mellitus

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Introduction. Diabetes mellitus is currently being recognized as a global health problem. The likelihood of having periodontal disease among people with diabetes is about 3 times greater and progresses rapidly when uncontrolled. Adults with diabetes were less likely to have been seen or consulted a dentist than to seek consult with a health care provider for diabetes care. This provides an opportunity for health care providers to screen and educate patients regarding the possible oral complications that might develop. A cheap and easy way of clinical assessment via self-reported oral health questionnaire would be of great use especially in a developing country like the Philippines where there's limited resources for health care access. This study aims to validate self-reported oral health measures, socio-demographic and medical variables in predicting the presence and severity of periodontitis in Filipino adults with type 2 diabetes mellitus

Methodology. The validated self-reported oral health questionnaires created by the CDC Periodontal Disease Surveillance Project was translated into Filipino and used in this study. A cross-sectional study of 180 adult diabetic participants was conducted in a single institution. Socio-demographic and medical variables were obtained. Participants were given the self-reported oral health questionnaire and finally underwent a formal periodontal evaluation. Data analysis was done using the software Stata SE version 12. Multivariable logistic regression analyses were used to determine significant predictors that predicted the prevalence of total periodontitis and serious periodontitis. The predictive power of each variable was calculated and expressed using odds ratio.

Results. In total, 93.9% of the study participants had clinically defined periodontitis: 29.4% had mild periodontitis, 37.8% had moderate periodontitis and 26.7% had severe periodontitis. In general, understanding and responses to all oral health questions were very high and consistent. Socio-demographic and medical variables considered to be significantly predictive of serious periodontitis were male sex [OR =2.17], low educational status [OR =2.98], poor glycemic control [OR =2.58], less frequent dental visits [OR =2.77] and teeth loss >6 [OR =5.02]. Self reported oral health variables shown to be significantly predictive of serious periodontitis included gum disease –Q1 [OR =8.33], state of gum health –Q2 [OR =0.39], loose teeth –Q3 [OR =63.0], brushing of teeth –Q4 [OR =0.65], use of mouthwash –Q4 [OR = 0.69] and poor tooth appearance –Q5 [OR = 48.42]. A recommended set of questions and proposed scoring system based on the logistic regression analysis of each predictors' strength was then formulated.

Conclusions. The use self-reported oral health questions appears to be a potentially useful screening tool for predicting the presence of serious periodontitis among type 2 diabetic patients in a local setting where resources are limited and routine clinical oral examinations are not feasible. This will provide a cost-effective and rapid method of identifying patients who are in need of immediate dental evaluation and would benefit most to a dental referral.

Keywords: oral health screening, periodontitis, Type 2 Diabetes mellitus

Original Research – Thyroid Diseases

Predictive Factors for Locoregional, Distant Metastasis and Persistent Disease in Micropapillary Thyroid Cancer among Filipinos

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Introduction. Micropapillary Thyroid Cancer is becoming a common finding due to the increase use of thyroid ultrasound. The purpose of this study is to determine risk factors for locoregional and distant metastasis on presentation and the risk factors for persistent disease after thyroidectomy.

Methodology. This is a retrospective cohort study that included all patients who had a histopathology result of Micropapillary Thyroid Carcinoma from January 1, 2004 to December 31, 2012. Patients who had accompanying well differentiated thyroid tumors other than Micropapillary Thyroid Cancer and those patients with a diagnosis of Micropapillary Thyroid Cancer with no follow up after the surgery were excluded.

Results. A total of 109 patients were eligible for the study. The mean age was 46.06 years with majority being female (96.3%). The average tumor size was 0.502 cm. Seventy-five (68.81%) received RAI after thyroidectomy. The mean follow up of the patients was 4.67 years. Nineteen patients (17.92%) had multifocal disease while 11 (10.09%) had multicentric disease. Fifteen patients (13.76%) had locoregional metastasis while 8 (7.34%) had distant metastasis on presentation. Nine patients (8.25%) had persistent disease. Exact logistic regression showed that locoregional metastasis (p=0.004) is a risk factor for distant metastasis on presentation.

Conclusions. This study showed that locoregional metastasis is a risk factor for distant metastasis in patients having Micropapillary Thyroid Cancer.

Keywords: micropapillary thyroid cancer, metastasis

Original Research – Thyroid Diseases

Risk Factors for Recurrence in Filipinos with Well-Differentiated Thyroid Cancer

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Introduction. With improved disease surveillance using better imaging test and more sensitive monitoring with serum thyroglobulin, the incidence of recurrent well-differentiated thyroid cancer (WDTC) continues to rise. Despite the continued excellent prognosis of WDTC, increasing morbidity from recurrent diseases continues to affect long-term outcome of most patients leading to higher medical cost and poorer quality of life. Filipinos in particular were reported to be the ethnic group with the highest incidence of thyroid cancer with a highly aggressive and recurrent nature. Several studies have tried to identify risk factors that predict WDTC recurrence. This paper aims to determine the recurrence rates and identify associated risk factors for recurrence among Filipinos with WDTC.

Methodology. This is a retrospective cohort study of 723 patients diagnosed with WDTC (649 Papillary and 79 Follicular) seen at the Philippine General Hospital (PGH) between 1990 and 2014. Study population was divided into groups based on presence or absence of recurrence. Disease recurrence was considered if the patient had clinical, biochemical or radiologic evidence of cancer remnants. Multivariable logistic regression analyses were then used to determine significant predictors of tumor recurrence.

Results. There were 214 (32.9%) patients with papillary thyroid cancer (PTC) and 23 (29.1%) patients with follicular thyroid cancer (FTC) that developed recurrence within a median interval of 13 months and 26 months from thyroidectomy respectively. Age >45 [HR=1.44], multifocality of cancer [HR=1.43], nodal involvement [HR=4.0] and distant metastases at presentation [HR=2.78] were the risk factors identified to negatively impact the risk of recurrence for PTC. Follicular variant histology [HR=0.60] and post-surgical radioactive iodine ablation therapy [HR=0.31], on the other hand were protective factors for PTC recurrence. Distant metastases at presentation [HR=19.4] as a risk factor and post-surgical radioactive iodine ablation therapy [HR=0.41] as a protective factor were identified for FTC recurrence.

Conclusions. Lymph node metastases at presentation was the most important predictor of recurrence in PTC while it was distant metastases at presentation for FTC recurrence. Identified recurrence factors for WDTC among Filipinos in this study will be helpful in guiding the intensity of their treatment strategies and long-term thyroid cancer surveillance aimed to reduce future morbidity and somehow mortality.

Keywords: papillary thyroid cancer, follicular thyroid cancer, recurrence

Original Research – Thyroid Diseases

Well-Differentiated Thyroid Cancer: The Philippine General Hospital Experience

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Introduction. Well-differentiated thyroid carcinoma (WDTC) is the most common thyroid malignancy, comprising approximately 90% of new cases of thyroid cancer in iodine-sufficient areas of the world. Asian women in particular were observed to have the highest incidence rates for WDTC. Although WDTC is associated with a good prognosis, it may have a highly recurrent state and fatal outcome in a few selected group of patients. Filipinos in particular were reported to be the ethnic group with the highest incidence of thyroid cancer in studies done in Hawaii and Los Angeles. Thyroid cancer among Filipinos were also observed to be more aggressive and recurrent in nature. This paper aims to describe the clinical experience of a tertiary care hospital center in the Philippines (Philippine General Hospital) in managing patients with differentiated thyroid cancer.

Methodology. This is a retrospective cohort study of 723 patients diagnosed with WDTC (649 Papillary and 79 Follicular) seen at the Philippine General Hospital between January 1990 and June 2014. We evaluated clinic-pathologic profile, ultrasound features, management received, clinical course, tumor recurrence and eventual outcome during a mean follow-up period of 5 years.

Results. Mean age at presentation was 43 ± 13 for papillary thyroid cancer (PTC) and 44 ± 13 for follicular thyroid cancer (FTC). Majority of both PTC (63.2%) and FTC (54.4%) presented initially as stage 1. A greater proportion of FTC cases (12.7% vs 3.7%) presented with distant metastases with lung and bone being the most common. Nodal metastases at presentation were observed more frequently among PTC (29.9% vs. 7.6%). Fine-needle aspiration biopsy (FNAB) was less reliable in diagnosing FTC with only 32% diagnosed preoperatively. Majority of cases received complete thyroidectomy, subsequent radioactive iodine therapy and TSH suppression therapy which led to a disease-free state in most cases. Excluding patients with distant metastases at presentation, recurrence rates for papillary and follicular thyroid cancer were 30.1% and 18.8% respectively. Recurrences for PTC and FTC frequently occurred within 15-16 months from the initial post-surgical radioactive iodine therapy. FTC had a higher mortality rate (2.5% vs. 0.3%).

Conclusions. PTC among Filipinos presents at a younger age, larger tumor size, higher distant metastases at presentation and a higher recurrence rate suggesting a more aggressive and recurrent behaviour for this type of

thyroid malignancy. FTC among Filipinos also presents at a younger age and a higher recurrence rate but appears to behave similarly with other racial groups. Nodal metastases at presentation was more commonly observed in PTC while distant metastases at presentation affected more FTC patients. Most Filipinos with WDTC will be categorized as stage I upon presentation. Majority will achieve disease free state after complete thyroidectomy, radioactive iodine (RAI) therapy and adequate TSH suppression therapy. Overall prognosis and survival rates remained to be excellent among Filipinos with WDTC, although a higher morbidity from disease recurrence was commonly seen.

Keywords: papillary thyroid cancer, follicular thyroid cancer

Original Research – Thyroid Diseases

Prevalence of Short Stature in Juvenile Hypothyroidism and the Impact of Treatment in a Tertiary Care Center

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Introduction. Juvenile hypothyroidism is a very common problem in developing parts of world, and produces various skeletal manifestations. One of them is short stature, which is the most common reason for endocrinologist referrals. This study aimed to determine the prevalence of short stature in juvenile hypothyroidism, the various radiological manifestations of juvenile hypothyroidism and the impact of treatment on growth velocity and various skeletal manifestations.

Methodology. Out of a total of 900 hypothyroid patients, 87 patients from 6-18 years of age, either newly diagnosed with or on follow up for juvenile hypothyroidism in the endocrine clinic over a period of 1 ½ years, were enrolled in the study. Serial TSH, T4, skeletal x-rays and anthropometry were done at regular intervals and clinical and radiological outcome of patients were analyzed.

Results. The mean age of diagnosis of juvenile hypothyroidism was 11.2 years, and the females had twice the incidence than that of males. The mean TSH value was 118±24.3 μIU/ml. Prevalence of short stature was found to be 45% while delayed bone age was found to be 72% in juvenile hypothyroid populations. Height SDS increased from –2.9+0.9 at the start of thyroxine therapy to –1.8+0.8 after 12 months ($p < 0.001$). Bone age SDS increased from 8.9+2.5 at the start of thyroxine therapy to 10.8+2.7 after 12 months later. Height velocity increased from 4.9+0.8 cm/year in the year before treatment to 8.7+1.3 during treatment ($p < 0.001$).

Conclusions. The presentations of juvenile hypothyroidism may be varied but prompt recognition of the findings can lead to early and effective treatment, and improving the skeletal defects.

Keywords: juvenile hypothyroidism, short stature

Original Research – Thyroid Diseases

Profile of Thyroid Function and its Relationship with Fetal Development in Kediri Baptis Hospital, Indonesia

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Introduction. Thyroid disorders, such as hypothyroidism and hyperthyroidism, often occur in pregnant women. Both mother and fetus are exposed to the effects of the thyroid disorders, leading to conditions such as eclampsia, thyroid crisis, abortion, prematurity, abnormalities in growth (small for gestational age), abnormalities in brain development, and bone disorders. The aim of this study is to determine the profile of thyroid disorders in pregnant women seen in Kediri Baptis Hospital and its relationship with fetal development.

Methodology. This is a cross-sectional study with consecutive sampling of pregnant patients seeking treatment at the Obstetrics and Gynecology Department of Kediri Baptis Hospital between September until December 2013. After fulfilling the inclusion and exclusion criteria, patients had their blood drawn and ultrasound was performed by an obstetrician.

Results. Of the 41 subjects, first trimester hypothyroidism was found in one subject (20%), second trimester hypothyroidism in one subject (6.7%), and third trimester hypothyroidism in three subjects (14.3%). In the hypothyroid pregnant patients, all fetuses were normal for gestational age. In the euthyroid pregnant patients, 29.3% had fetuses that were small for gestational age, and 4.9% had fetuses that were large for gestational age. There was no significant association between hypothyroidism and fetal development ($p=0.228$).

Conclusions. All thyroid disorders seen in this study were hypothyroidism. There was no association between hypothyroidism and fetal development.

Keywords: thyroid disorders, hypothyroidism, Intra-uterine Fetal Growth

Original Research – Lipid/Cardiovascular Disorders/Hypertension

Postprandial Lipemia is Strongly Correlated with Poor Glycemic Control and Postprandial Hyperglycemia among Patients with Type 2 Diabetes Mellitus

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Introduction. Postprandial lipemia, characterized by a rise in triglyceride-rich lipoproteins after eating, is associated with increased risk of cardiovascular disease. Among

diabetic patients, postprandial lipemia is often overlooked once fasting lipid parameters are within target. The aim of the study is to determine the correlation of glycemic control and postprandial hyperglycemia with postprandial lipemia among patients with type 2 diabetes mellitus.

Methodology. Retrospective chart review of 102 patients was performed. Subjects included adult patients with type 2 diabetes mellitus whose fasting lipid parameters were controlled with diet and/or medications. Plasma glucose and glycosylated hemoglobin (HbA1C) were independent variables while triglyceride, total cholesterol, low density lipoprotein (LDL) and high density lipoprotein (HDL) were dependent variables. Pearson correlation determined the strength of relationships among the variables. A p-value <0.05 was considered significant.

Results. Of the 102 patients, 52.9% were achieving their target HbA1C. The plasma glucose, mean triglyceride, total cholesterol, LDL and HDL were 196.39 mg/dL, 189.06 mg/dL, 177.07 mg/dL, 122.40 mg/dL and 34.83 mg/dL, respectively. Glycosylated hemoglobin has strong positive correlation (Pearson's r=0.40) while the 2-hour plasma glucose has moderate positive correlation (Pearson's r=0.34) with postprandial lipemia. Both relationships were considered significant (p-value <0.05).

Conclusions. A significant correlation of glycemic control and postprandial hyperglycemia with postprandial lipemia was observed. Our data suggest that despite achievement of optimal fasting lipid parameters, poor control of diabetes mellitus is positively correlated with abnormal elevation of postprandial triglyceride. Addressing both postprandial hyperglycemia and lipemia may improve cardiovascular outcomes.

Keywords: postprandial hyperglycemia, postprandial lipemia, diabetes mellitus

Original Research – Lipid/Cardiovascular Disorders/Hypertension

A Study of Diabetic Dyslipidaemia in a Primary Care Clinic in Labuan, Malaysia

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Introduction. Diabetic dyslipidaemia is a clinical condition associated with a high risk of coronary artery disease (CAD). It is known that all patients over 40 years of age should be treated with a statin regardless of baseline LDL cholesterol level. This study aimed to determine the pattern of dyslipidaemia among patients with Type 2 diabetes mellitus (T2DM) aged above 40 years and to determine the percentage of them receiving lipid-lowering agents.

Methodology. This was a cross-sectional study involving 747 T2DM patients aged ≥40 years who actively attended the primary health clinic in Labuan, Malaysia, at least once in 6 months. Data were obtained from the manual diabetic registry consisting of socio-demographic characteristics, other co-morbidities, target organ damage, HbA1clevel and lipid profile. The type of medication used for T2DM and the status of lipid-lowering agents were also studied.

Results. The mean age of the patients was 56.7±9.2 years. 39.9% (n=298) of patients were male and 60.1% (n=449) were female. 87.8% (n=656) of patients with T2DM had one or more types of dyslipidaemia. The most common type of dyslipidaemia in this study was high low density lipoprotein (LDL) cholesterol (71.8%, n=536), followed by high triglyceride (TG) cholesterol (37.6%, n=281) and low high density lipoprotein (HDL) cholesterol (31.1%, n=232). Although 75.9% (n=567) of patients had been receiving lipid-lowering agents, only 0.8% (n=61) were treated to target.

Conclusions. Diabetic-dyslipidaemia is prevalent in the primary health clinic in Labuan and the majority of the patients who had been receiving lipid-lowering agents were not treated to target of their cholesterol level. Therefore, there is a need to be more aggressive in drug management, education, counselling and behavioural intervention.

Keywords: Type 2 diabetes mellitus, dyslipidaemia, coronary artery disease, primary care

Original Research – Obesity and Metabolic Syndrome

Correlation of ALT/AST Ratio with Insulin Resistance in Metabolic Syndrome

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Introduction. In recent years, non-alcoholic fatty liver disease is considered as a novel component of insulin resistance and Metabolic Syndrome, which is associated with long-standing elevation of liver enzymes. The aim of this study was to correlate the ALT/AST ratio with insulin resistance calculated by HOMA-IR method among patients found to have Metabolic Syndrome.

Methodology. This is a hospital based observational cross sectional study which included 60 subjects of Metabolic Syndrome defined by International Diabetes Federation criteria. The relevant clinical examination and basic investigations were done. Fasting insulin levels were analysed by chemiluminescence method. Liver function tests were done by fully automated Analyzer Synchron CX-9 . Data was processed and analyzed by SPSS version 17.0 software. The correlation between ALT/AST ratio and HOMA-IR was assessed using Pearson correlation test.

Results. About 83.3% of patients were observed to have ALT/AST ratio ≥1. On considering patients whose HOMA IR≥2 as insulin resistant and HOMA<2 as non-insulin resistant, it was found that about 81.7% patients among the study group were insulin resistant. The ALT/AST ratio was found to have positive correlation with HOMA-IR (Pearson's correlation coefficient is +0.742 and the

significance was <0.001). The ROC curve of ALT/AST ratio was plotted in relation to HOMA-IR and the area under the curve was 0.862 and the cut off of about 1.06 has the sensitivity of 93.9% and the specificity of 81.8 %.

Conclusions. This study shows that ALT/AST ratio can be used as a screening tool for Metabolic Syndrome in the community. Further studies are needed on liver enzymes in subjects with Metabolic Syndrome in comparison with the normal population. Moreover, definite cut offs of HOMA-IR to identify Metabolic syndrome should be derived in different populations.

Keywords: ALT, AST, ALT/AST ratio, Metabolic Syndrome, HOMA-IR

Original Research – Obesity and Metabolic Syndrome

Plasma Ghrelin and Insulin Level in Obese and Non Obese Women

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Introduction. Ghrelin and insulin play an important role in the regulation of energy homeostasis. Circulating ghrelin levels are elevated by fasting and suppressed following a meal. In this study, the association of ghrelin and insulin in obesity was studied.

Methodology. 38 non-obese women (BMI 18-25 kg/m2, waist circumference ≤ 80 cm) and 38 obese women (BMI > 25 kg/m2, waist circumference > 80 cm), aged between 30-60 years were examined in this study. Informed consent were obtained prior to the study. The fasting plasma ghrelin and insulin levels were determined by ELISA method. Insulin resistance was calculated by using original HOMA model. All procedures were performed according to guidelines of the Ethical Committee of the University of Medicine 2, Yangon, Myanmar.

Results. Plasma ghrelin level of non-obese women was significantly higher (196.29 + 19.99 pg/ml) than obese women (115.68 + 11.22 pg/ml) (P <0.001). Mean plasma insulin level of non-obese women (12.48 + 1.50 μIU/ml) was significantly (p<0.001) lower than obese women (22.19 + 1.49 μIU/ml). The significant negative correlation (p<0.05) was found between insulin resistant and fasting plasma ghrelin level in both study groups.

Conclusions. Plasma ghrelin level was reduced whether obese or non obese in the insulin resistant group. It appears that insulin resistance and obesity are independently and inversely associated with ghrelin secretion. Therefore, increased insulin and increased HOMA-IR found in the obese group may be attributed to a fall in plasma ghrelin level and the change may lead to alteration in food intake and energy homeostasis in obesity.

Keywords: ghrelin, insulin, obesity

Original Research – Obesity and Metabolic Syndrome

Correlation of Visceral Adipose Tissue Level by Bioelectrical Impedance Analysis with Metabolic Parameters Among Adult Filipinos

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Introduction. Visceral adiposity is associated with various medical pathologies. Bioelectrical Impedance Analysis (BIA) is a non-invasive method to assess visceral fat. Currently, there is no data yet for Visceral Adipose Tissue (VAT) level by BIA and their correlation with metabolic variables among adult Filipinos. The study aimed to determine the correlation between VAT level with metabolic parameters (FBS, total cholesterol, LDL-cholesterol, HDL-cholesterol, triglycerides, systolic BP [SBP], and diastolic BP [DBP]) among adult Filipinos. The study also compared the correlation between VAT level, percent fat, and other anthropometric markers with metabolic parameters.

Methodology. This is an analytical cross-sectional study. We did records review of patients seen at the Weight Management Center of St. Luke's Medical Center from January 2013-March 2014. We included adult Filipino patients (>18-year old). Subjects taking anti-hypertensive, oral-hypoglycemic agents, insulin, or lipid-lowering medications were excluded. Data were analysed separately in men and women.

Results. A total of 189 patients (119 women and 70 men) were analysed. However, only 126 patients had the FBS and blood lipid examination. In men, VAT level has significant positive correlation only with SBP & DBP. In women, VAT level significantly inversely correlated to HDL and positively correlated to FBS, SBP, and DBP. In Filipino men, WHR was the strongest determinant of FBS, total cholesterol & triglycerides. Whereas in Filipino women, WHR was the strongest determinant of total cholesterol, LDL-cholesterol, and triglycerides.

Conclusions. VAT level has significant positive correlation only with SBP & DBP among adult Filipino men & women. Among adult Filipinos, WHR has the strongest correlation with total cholesterol & triglycerides.

Keywords: Bioelectrical Impedance Analysis, visceral adipose tissue,

Original Research – Obesity and Metabolic Syndrome

Awareness Among Medical Students About Obesity and its Health Hazards

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Introduction. Obesity is simply defined as excess of body fat. In modern times, obesity is becoming the single most

cause of all ailments. Right from high blood pressure to diabetes, it is the root cause of a myriad of health problems. Being obese leads to a whole spectrum of metabolic conditions. The objective of the research project is to evaluate the awareness of obesity and its health hazards in medical students.

Methodology. 200 students were selected at random from all the batches of MBBS class of Topiwala National Medical College, Mumbai. The study was cross sectional in nature. The data was collected using a pretested questionnaire approved by the ethics committee of the institute. There were 15 questions and the questionnaire was collected on the spot from participants after explaining them the importance of study and obtaining their oral consent. The data was entered in MS Excel and analysed using SPSS 14.0

Results. It is interesting that awareness about obesity in students is '78% above average,' '18% average' and '4% below average.' We have confirmed that these students are unaware about the concept of BMI (body mass index), diet and gender with respect to obesity. These are a few reasons that contribute to their obesity and finally resulting in health hazards.

Conclusions. The awareness about obesity is important among medical students because: a) Stressful routine keeping up with medical studies; b) Loneliness and emotional turbulence due to hostel life; c) Irregular diet; d) Irregular sleeping habits; e) Lack of exercise due to tough academic competition; and f) Limited variety of budget fast-food options available. All these reasons cause them to overeat or eat irregularly, resulting in overweight or obesity. These students are future doctors and thus, they should be aware of the health hazards from obesity. They should be the ideal candidates to spread awareness about the same to the general public. Students should be healthy so that they can make their patients healthy. It is rightly said, "Mentally and physically, healthy person is the richest person in the world."

Keywords: obesity, overweight

Original Research – Obesity and Metabolic Syndrome

Clinical Impact of Obesity and Metabolic Syndrome on Non Alcoholic Fatty Liver Disease in Filipino Patients at the Cardinal Santos Medical Center

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Introduction. We aimed to examine the association of Obesity and/or Metabolic Syndrome in Filipino patients diagnosed with NAFLD.

Methodology. This is a retrospective cohort study of patients who underwent annual checkups admitted at CSMC from Jan 2012 to Sep15, 2013.

Results. A total of 480 subjects were included. Of these, 300 (62.5%) subjects have fatty liver and 49.7% are obese. There are more patients with NAFLD (50.3%) who belong to the non obese group (BMI<25) p 0.0024. The median age is 49.2 (+ 13), while subjects with NAFLD is 57.4 (+ 10.7) vs without NAFLD 38.8 (+ 9.7) p<0.0001. There are more males who have NAFLD (77.67%) vs females (22.3%; p<0.0001). The mean BMI is 25.09 (+ 3.6) kg/m2 (p=0.0056). There are 43.3% with diabetes and 38.5% of diabetics have NAFLD (p<0.0001). Likewise, 43.3% have hypertension and 38.5% of hypertensives have NAFLD (p<0.0001). Levels of cholesterol (triglyceride, LDL, HDL), FBS, ALT, AST, TG/HDL ratio and AST/ALT levels are not shown to be associated with risk of fatty liver. Only hypertension, diabetes and HDL are shown to be independently associated with risk of having fatty liver (OR=7.0, OR=6.8, and OR=0.5 respectively). There are 182 (37.92%) subjects who fulfilled the criteria for MS. There are more patients with MS who have fatty liver 142 vs. 40 (78.02% vs 21.98%) (p value <0.0001). Increase in number of MS criteria is significantly associated with increase of developing NAFLD.

Conclusions. The prevalence of fatty liver is 62.5% and 49.7% of them are obese. There are significantly more patients who have NAFLD in the non-obese population. Gender and age were both directly associated with NAFLD. More males were noted to have NAFLD than women. Patients with NAFLD are older by ~20 years. Diabetes Mellitus, hypertension and low HDL are shown to be independent risk factors in developing NAFLD. The prevalence of Metabolic Syndrome is 78.2%. There is a direct association between metabolic syndrome and fatty liver. Increasing number of MS components is significantly associated with increased risk of developing NAFLD. There was no significance in associating each components of the MS with risk of NAFLD.

Keywords: Metabolic Syndrome, Obesity, Non Alcoholic Fatty Liver Disease

Original Research – Obesity and Metabolic Syndrome

Metabolic Syndrome: An Independent Risk Factor for Erectile Dysfunction

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Introduction. This study aimed to determine the role of various components of metabolic syndrome as independent risk factor for erectile dysfunction.

Methodology. A total of 113 subjects of metabolic syndrome, as recommended by Adult Treatment Panel III (ATP III) guideline were selected for study in between Aug 2013 to March 2014. After doing anthropometric examination, venous blood sample was collected from each participant in after an overnight fast for laboratory assay for FBS, fasting insulin, HbA1c, TG, HDL, LDL then

2 hr. OGTT was done. Erectile function was assessed by completing questions one through five of the International Index of Erectile Function (IIEF-5), which is a multidimensional questionnaire consists of 5 questions for assessing erectile dysfunction. A multiple linear regression analysis was carried out on 66 subjects with IIEF-5 score as dependent variable and components of MetS, FBS, 2 hr. OGTT, TG, HDL and waist circumference as independent variables.

Results. Using a multiple linear regression analysis, we observed that, presence of the various components of MetS was associated with erectile dysfunction and a decrease IIEF-5 score and this effect was greater than the effect associated with any of the individual components. Of the individual components of the MetS, HDL (B=0.136; p=.004) and FBS (B=-0.069; p=.007) conferred the strongest effect on IIEF-5 score. However, overall, age had most significant effect on IIEF-5 score.

Conclusions. It is crucial to formulate strategies and implement them to prevent or control the epidemic of the MetS and its consequences. The early identification and treatment of risk factors might be helpful to prevent ED and secondary cardiovascular disease, including diet and lifestyle interventions.

Keywords: Metabolic Syndrome, Erectile Dysfunction

Original Research – Obesity and Metabolic Syndrome

Frequency of Metabolic Syndrome According to Increasing Fasting Blood Glucose Levels in Healthy Elderly

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Introduction. High levels of fasting glucose is one of the components of Metabolic Syndrome. In previous data, increasing fasting glucose within the normal range is associated with metabolic syndrome in all ages. This study investigated the frequency of metabolic syndrome according to increasing fasting blood glucose levels in the elderly.

Methodology. Data were obtained from 24,603 individuals who underwent health examination in Eulji Medical Center from January 2006 to June 2007. We selected non-diabetic patients aged 65 and over. Fasting glucose, waist circumference, blood pressure and lipid profile of 707 individuals were obtained. After dividing the participants into 4 groups according to quartile of fasting glucose level, each group was compared with the frequency of metabolic syndrome and metabolic parameters, respectively.

Results. The total number of people who had normal fasting glucose was 624 and 10.4 %(76 individuals) had metabolic syndrome. The prevalence of metabolic syndrome of men was higher than women (77.6% vs. 22.4%, p<0.01). Fasting glucose levels ranged from 58 mg/dL to 99 mg/dL. As increasing fasting glucose levels, the frequency of metabolic syndrome was increasing without statistically significance. However, fasting glucose levels were significantly related with metabolic parameter in metabolic syndrome (p< 0.05).

Conclusions. In non-diabetic elderly with normal glucose level, increasing fasting glucose level within normal range was not correlated with the frequency of metabolic syndrome but associated with metabolic parameters, significantly. It suggest that increasing fasting glucose level is also a key marker of metabolic derangement in the healthy elderly.

Keywords: fasting blood glucose, Metabolic Syndrome

Original Research – Obesity and Metabolic Syndrome

Association of Metabolically Healthy Obesity (Mho) with Subclinical Coronary Atherosclerosis in a Korean Population

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Introduction. The long-term outcome of metabolically healthy obesity (MHO) has been investigated by several studies. However, results are conflicting. In this study, we compared the degree of subclinical coronary atherosclerosis detected by coronary multidetector computed tomography (MDCT) in four groups defined by the state of metabolic health and obesity in an asymptomatic Korean population.

Methodology. We collected the data of 4,009 asymptomatic subjects (mean age, 53.2 yr) who participated in a routine health screening examination at the Asan Medical Center (Seoul, Korea). Significant coronary artery stenosis defined as >50% stenosis, plaque, and coronary artery calcium scores (CACS) were assessed by MDCT. Participants were stratified by BMI (cut-off value, 25 mg/m2) and metabolically healthy state, which was defined by Wildman criteria.

Results. MHO subjects (32.9% of obese subjects) had a significantly higher prevalence of significant subclinical coronary atherosclerotic burden compared with metabolically healthy non-obese (MHNO) subjects. In general, MHO subjects showed intermediate coronary MDCT findings between MHNO and metabolically unhealthy non-obese (MUNO) or metabolically unhealthy obese (MUO). The odds ratios of the MHO group for various coronary MDCT findings (MHNO group as the reference), such as coronary artery stenosis, any plaque, calcified plaque, mixed plaque, CACS >0, and CACS >100, were 1.92 (95% CI 1.18–3.11), 1.33 (1.02–1.72), 1.39 (1.05–1.85), 1.61 (1.02–2.53), 1.38 (1.05–2.53), and 1.66 (1.01–2.73), respectively, even after adjustment for conventional cardiovascular risk factors. In addition, MUNO subjects

showed significant risks for subclinical coronary atherosclerosis, which was comparable to MUO subjects.

Conclusions. Our data illustrate that MHO might not be a benign disease in terms of coronary atherosclerotic burden. Thus, it is important to consider both the metabolic health state and obesity in evaluating cardiovascular risk.

Keywords: metabolically healthy obesity, coronary disease

Original Research – Metabolic Bone Disease

Relationship Among Serum B-Crosslaps, Risk Factors for Osteoporosis and Bone Mineral Density in Postmenopausal Women

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Introduction. The aim is to study the relationship among the level of bone resorptive marker (serum ß CrossLaps), risk factors for osteoporosis and bone mineral density in postmenopausal women.

Methodology. A cross-sectional analytical study was carried out on 100 postmenopausal women, age 40-70 years. Identification of risk factors for postmenopausal osteoporosis, measurement of serum β-CrossLaps and bone mineral density (BMD) were performed.

Results. The statistically significant negative correlation between clinical risk factors and BMD T-score in the postmenopausal women were found with increasing age ($p = 0.001$), parity ($p = 0.048$), duration of menopause($p = 0.001$) and BMI($p = 0.009$). There was a negative correlation between serum β CrossLaps level and BMD T-score in this study. But it was not statistically significant ($p = 0.258$). There was a positive correlation between parity and serum β CrossLaps in postmenopausal women. ($p = 0.009$).

Conclusions. The strong relationship between four clinical risk factors (age, parity, duration of menopause and BMI) and BMD T-score was found but between risk factor and serum β CrossLaps level was found only with parity. Negative correlation between serum β CrossLaps level and BMD T-score was seen but it was not statistically significant. However, the results suggest a potential role of serumβ CrossLaps in early identification of postmenopausal women at risk of osteoporosis and it would be applicable in the screening and diagnosis of fracture risk in postmenopausal women.

Keywords: postmenopausal osteoporosis, bone mineral density, Serum β Crosslaps

Original Research – Metabolic Bone Diseases

Bone Mineral Density Disorders in Hepatic Cirrhosis: Prevalence and Associated Risk Factors

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Introduction. Chronic liver disease (CLD) is a risk factor for the development of metabolic bone changes. Metabolic bone disease has long been associated with cholestatic disorders. However, data in non cholestatic cirrhosis are relatively scant. This study aims, to investigate bone mineral density disorders and to evaluate their prevalence and associated risk factors in patients with hepatic cirrhosis (HC).

Methodology. Patients and Methods: For the study 164 selected patients, ALD, AIH, idiopathic, with C or B virus related HC, were enrolled. Bone mineral density (BMD) was measured (using DEXA) and laboratory investigations were performed. Diagnosis of HC was based on, clinical, biochemical and ultrasonographic examinations. Disease duration was recorded, BMI was calculated and grading of HC was assessed according to Child-Pugh scoring system.

Results. BMD (at LS, FN) was significantly lower, in the patients, than in the controls ($p < 0.01$), and was significantly, lower in Child's C, than in Child's A, patients ($p < 0.01$). BMD was low in 32/55 (58.1%) of patients (23.6% osteopenia and 34.5% osteoporosis). The overall percentage of osteopenia and osteoporosis was 35% in Child's A, 68.8% in Child's B and 73.7% in Child's C patients. Long duration (more than 5 years) and severity of liver disease (Child's C), were identified risk factors for low bone mineral density.

Conclusions. Osteopenia and osteoporosis are prevalent among viral cirrhotic patients and are more frequent in advanced HC. BMD worsen with the progression of liver disease. HC is a direct risk factor for decreased bone mineral density.

Keywords: bone mineral density, osteopenia, osteoporosis, hepatic cirrhosis

Original Report – Metabolic Bone Disease

Clinical Utility of Osteoporosis Self-Assessment Tool for Asians (OSTA) in Postmenopausal Women

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Introduction. Osteoporosis is also common in Myanmar and no data reported about utility of osteoporosis self-assessment tool for Asians in our population. The aim of this study was clinical utility of osteoporosis self-assessment tool for Asians (OSTA) by using QUS of right distal radius in postmenopausal women.

Methodology. This study was a hospital based, cross sectional, descriptive study at No. (2), Military Hospital (500 beds) Yangon, 2013.

Results. We included 106 postmenopausal women with mean age 56.34 ± 6.43 years, weight 57.51 ± 10.24 kg and body mass index (BMI) 24.58 ± 4.43 kg/m2. OSTA Index classifications were: 66.9% low-risk, 33.1% medium-risk and 1.9% high-risk. Base on WHO criteria for BMD, QUS detected that 26.4% of the postmenopausal women were at high risk of osteoporosis. The rest were normal and osteopenia 36.8% of each. For OSTA Index, statistically significant results were found in relation to analyses of age (p = 0.000), BMI (p = 0.000), and years since menopause. QUS showed significant differences with regard to the variable age (p = 0.017), years since menopause (p = 0.045), but not in BMI (p = 0.219). The sensitivity, specificity, negative predictive value and positive predictive value for OSTA were 40.29%, 79.48%, 43.66% and 77.14%, respectively.

Conclusions. OSTA Index presented a false negative rate of 59.71%, in comparison with QUS. This represented a limitation to the use of this clinical tool, because such patients would fail to be diagnosed, since they would be erroneously considered to be at low risk.

Keywords: Osteoporosis Self-assessment Tool For Asians (OSTA), Quantitative Ultrasonography (QUS), bone mineral density, postmenopausal women

Original Research – Lipid/Cardiovascular Disorders/Hypertension

Association of Serum C1q/Tnf-Related Protein-9 Concentration with Arterial Stiffness in Subjects with Type 2 Diabetes

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Introduction. Although recent animal studies have suggested that C1q/tumor necrosis factor-related protein-9 (CTRP9) is more likely to be involved in the regulation of vascular function, more specifically atherosclerosis, in rodents, little is known about whether serum CTRP9 level is associated with atherosclerosis in humans. The aim of this study was to investigate whether serum CTRP9 concentration is associated with atherosclerosis by measuring brachial ankle pulse wave velocity (baPWV) in subjects with type 2 diabetes. In addition, we examined the clinical and biochemical variables associated with serum CTRP9 concentration.

Methodology. We measured circulating CTRP9 and total adiponectin levels in 278 subjects (169 men and 109 women; mean age of 58.3 years) with type 2 diabetes. Measurements of baPWV were performed in all subjects.

Results. Serum CTRP9 concentration was positively correlated with baPWV. This correlation was significant even after adjusting for total adiponectin levels. In multiple linear regression, serum CTRP9 concentration was independently associated with increased baPWV. Female gender, higher BMI, and HOMA-IR were significantly associated with elevated serum CTRP9 concentration in subjects with type 2 diabetes.

Conclusions. Serum CTRP9 concentration was significantly and positively associated with arterial stiffness in patients with Type 2 diabetes, suggesting that CTRP9 might be important in the regulation of arterial stiffness in humans.

Keywords: CTRP9, adiponectin, arterial stiffness, pulse wave velocity, Type 2 diabetes mellitus

Original Research – Others (Growth Disorders)

Pediatric Endocrinology Transition Clinic Profile at the University of Santo Tomas Hospital Outpatient Department-Clinical Division (USTH OPD-CD)

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Introduction. Endocrine Transition Clinic is indispensable for continuous care of pediatric patients with endocrine diseases. It bridges the gap between pediatric and adult health care. While these individuals are learning to become independent, it offsets their psychosocial problems. Collaboration of doctors, family, and patient is required, the failure, results in poorly controlled disease. The UST Section of Endocrinology and Metabolism has established an Endocrine Transition Clinic in 2007. This is the first time we have assessed both the administrative and management schemes.

Methodology. The Endocrine Transition Clinic is attended by a senior pediatric resident and a senior endocrine fellow. Review of charts yielded 20 patients, aged 15 to 19 years, who were seen from January 2012 to July 2014. Their demographic data, clinical information, and number of visits were obtained. Grand rounds of notable cases were also accomplished.

Results. Majority of the patients were females (85%). Although all patients had controlled disease, only twenty percent (20%) were compliant for follow-up. Forty five percent (45%) of the patients have Graves' disease. Other cases include papillary thyroid cancer, DM type 1, DM type 2, multinodular non-toxic goiter, PCOS, Cushing's disease, congenital hypothyroidism, and pineal gland germinoma. Although one transfer to adult clinic was effected in a patient with type 1 diabetes mellitus, the process was merely verbal.

Conclusions. There is a need to modify the system of transitional care at the USTH OPD-CD, primarily in terms of structured and formal collaboration between pediatric and adult services to ensure the continuity of care, and adequacy of disease management.

Keywords: transition clinic, pediatric endocrinology, outpatient department

Original Research – Others

Predictability of 18- to 24-Hour Post-Thyroidectomy Intact PTH with Development of Post-Thyroidectomy Hypocalcemia

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Introduction. Postsurgical hypoparathyroidism, presenting as hypocalcemia is the most common cause of transient acquired hypoparathyroidism, occurring in 10% of patients who undergo total thyroidectomy and the majority recover within 6 months. International studies were done using intact PTH to predict hypocalcemia and guide management of post-thyroidectomy patients. Aside from iPTH's power to predict hypocalcemia, studies on its benefit and cost-effectiveness showed outcomes like fewer calcium determinations, lower incidence of symptomatic hypocalcemia and shorter hospital stay. This study came about due to the lack of a local study, possible significant ethnic variations and the potential for iPTH practical application. Hence, this study aims to determine if an 18 to 24th hour post-thyroidectomy intact PTH is predictive of the occurrence of post thyroidectomy hypocalcemia.

Methodology. This is a retrospective case series study of eleven adult patients, who underwent elective total or completion thyroidectomy. Patients' demographics, clinical data, work-up, surgery and in-patient course were noted via chart review.

Results. Four of 11 patients had low iPTH taken at 18-24 hours post-op. All patients with low iPTH developed hypocalcemia and the correlation is significant (p value-0.001). The mean PTH value of hypocalcemic patients is significantly lower and no other patient factor was found to be statistically correlated to post thyroidectomy hypocalcemia. Also, a lag of 2 days was seen in the development of eventual biochemical hypocalcemia in patients with low iPTH which is consistent with other studies.

Conclusion. This study showed similar high predictability value of iPTH for post thyroidectomy hypocalcemia in Filipino patients.

Keywords: post-thyroidectomy, hypocalcemia, iPTH

Original Research – Others

"Nutrition Day Worldwide" Survey 2013: Philippines' Experience

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Introduction. Malnutrition during admission can delay the healing process. To improve awareness of malnutrition, St. Luke's Medical Center-Quezon City (SLMC-QC) participated in "Nutrition Day Worldwide." This study was aimed to compare the nutritional status of patients in SLMC-QC with hospitals on a global level.

Methodology. "Nutrition Day Worldwide" is a one-day multinational cross-sectional audit with a one-month follow up. All adult patients (>18 year-old) admitted from the start of the first nursing shift to the first nursing shift of the following day, were included. All data analysis were done at the Medical University Vienna.

Results. Nutrition Day at SLMC-QC included 119 patients. The median age was 58 years. They have lower weight than patients in reference hospitals. Their median length of stay was longer (41 days vs 12 days). After 30 days, 90.8% of patients were discharged. At SLMC-QC, the number of physicians (4.30+4.11) and dieticians and dietetic assistant (0.30+0.67) were significantly lower compared to reference hospitals. From 80 patients who answered questionnaires, 37.5% experienced weight loss within the past 3 months; 52.6% ate less than normal during the last week; and 62.1% ate only half or less of their lunch. These number of patients, who were at risk for malnutrition, were statistically similar with the reference hospitals. At SLMC-QC, there were more patients who did not eat everything because of an examination or surgery (14.3%).

Conclusions. Nutritional status of patients who were hospitalized at SLMC-QC is similar with international data. However, the number of physicians and dieticians were significantly lower. Nutritional state of hospitalized patients should be closely assessed and monitored.

Keywords: malnutrition, nutritional screening

Clinical Trial – Prediabetes/Diabetes Mellitus

Effect of Oral Hygiene Reinforcement on Oral Malodor in Adolescents with Type I Diabetes Mellitus

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Introduction. Oral malodor is a common problem in humans, and is a social and psychological handicap for those affected by it. Oral malodor has a positive correlation with the accumulation of bacterial plaque in the oral cavity. The aim of the present study was to evaluate the effect of oral hygiene reinforcement on oral malodor in adolescents with Type 1 diabetes mellitus.

Methodology. The subjects of the investigation were twenty four adolescents with Type 1 diabetes mellitus. Oral malodor measurements and the gingival and plaque indexes were recorded in all patients before and after oral hygiene reinforcement. Oral malodor of patients was evaluated by the helimeter.

Results. The results of the investigation found that helimeter scores, gingival index and plaque index was more severe in the before oral hygiene reinforcement than after oral hygiene reinforcement. The statistical analysis revealed that oral hygiene reinforcement caused a significant reduction in oral malodor ($p< 0.001$).

Conclusions. Bad oral hygiene is an important factor on oral malodor in adolescents with Type 1 diabetes mellitus. Thus, oral care should not be neglected and remind patients of the importance of maintaining ideal oral hygiene.

Keywords: Type 1 diabetes mellitus, adolescents

Clinical Trial – Metabolic Bone Disease

Prevalence Study of Vitamin D Deficiency and Evaluation of the Efficacy of Vitamin D3 Granules 60,000 IU Supplementation in Vitamin D Deficient Apparently Healthy Adults

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Introduction. The objective of this study was to assess the prevalence of vitamin D deficiency in apparently healthy urban adults and to evaluate the efficacy of vitamin D3 granules 60,000 IU supplementation in increasing serum 25-hydroxy vitamin D (25(OH)D) levels.

Methodology. Healthy adults in an urban hospital were screened for 25(OH) D (radioimmunoassay method). Those found to be deficient or insufficient in vitamin D (defined as 25(OH) D <30 ng/ml) were supplemented with oral cholecalciferol granules 60,000 IU/week for eight weeks. Serum 25 (OH) D levels was estimated at the end of 60 days.

Results. A total of 510 subjects (age 19-66 years) were enrolled for the study. Baseline data was available for 474 subjects and 178 subjects consumed a total of eight sachets as per the study protocol. Of these 178 subjects, 94.94% subjects were found to be vitamin D deficient (<20 ng/ml) and the mean plasma vitamin D3 25(OH) D level was 9.36 ng/ml (±5.19) at baseline. At the end of the study, the mean 25(OH) D plasma level was noted to be 29.28 ng/ml (±13.57). The mean change from baseline was 19.92 ng/ml (±13.25). Among these 178 participants only 5.06% had 25(OH)D >20 ng/ml at baseline, which increased to 78.09% at the end of the study following vitamin D3 supplementation for eight weeks

Conclusions. This study showed that vitamin D deficiency is highly prevalent in the urban healthy adult population. Eight weeks of vitamin D3 60,000 IU/week oral granules supplementation increased serum 25(OH) D to optimal levels.

Keywords: Vitamin D deficiency, 25(OH)D

Clinical Trial – Lipid/Cardiovascular Disorders/Hypertension

Evaluation and Assessment of Rosuvastatin 40mg Treatment in High Risk Dyslipidaemia Patients (EARTH Study)

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Introduction. Rosuvastatin is commonly used in the treatment of dyslipidemia, however, studies with rosuvastatin 40 mg in Indian patients with high cardiovascular risk are lacking. It is the objective of this study to assess the safety and efficacy of rosuvastatin 40 mg in dyslipidemic patients with high cardiovascular risk.

Methodology. In an open label, non-comparative, multicentric, post marketing observational study, 574 Indian patients were enrolled. Treatment was started with rosuvastatin 40 mg once daily for one month. After one month, patients achieving target goal of LDL-C < 70 mg/dl were shifted to rosuvastatin 20 mg once daily for next two months and those not achieving were continued on 40 mg. At the third month, patients achieving LDL-C < 70 mg/dl continued 20 mg and those not achieving the target goal were continued on 40 mg for the next three months. Lipid profile was repeated after six month. The primary evaluation parameter was percentage of patients achieving target serum LDL-C goal <70 mg/dl at the end of one, three and six month. The secondary evaluation parameters included percentage reduction in serum LDL-C, serum. total cholesterol, serum triglyceride and percentage increase in HDL-C level at the end of one, three and six month, and effect on serum creatinine at six months. Global assessment for efficacy and tolerability was recorded by the doctor and patient at the end of six months. All adverse events were also recorded.

Results. Compared to baseline, there was significant increase in number of patients achieving serum LDL <70 mg/dl at one, three and six months. Similarly, significant reduction in serum LDL, total cholesterol and triglyceride level and increase in HDL was seen at one, three and six months. There was no significant effect on serum creatinine level. Most of the patients reported efficacy as either excellent or good as evaluated by both doctors and patients. Close to 95% of the patients reported tolerability as "good" as per global evaluation of tolerability by patients as well as doctors. Rosuvastatin was generally well tolerated. The incidence of adverse event was 9.9% with headache, myalgia, constipation and vomiting being the commonly reported adverse events. All the adverse events were of mild to moderate intensity and all of them resolved during the treatment. None of the patient required termination of treatment because of adverse events.

Conclusions. Rosuvastatin is effective and well tolerated medicine for the treatment of dyslipidemic patients with high cardiovascular risk.

Keywords: rosuvastatin, dyslipidemia

Clinical Trial – Obesity and Metabolic Syndrome

A Novel Approach to Type 2 Diabetes Management: Can the Physician Replace the Surgeon in Bariatric Approach?

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Introduction. Type 2 Diabetes and obesity have become modern day epidemics that are growing at an alarming rate around the world. According to the International Diabetes Federation more than 371 million people living with diabetes, by 2025 it is expected that this figure will increase to over 500 million people. Each year more than 4.8 million people die from diabetes-related causes. This is the equivalent of one death every 10 seconds. High rates of obesity, sedentary lifestyles and stress are major contributory factors in the development of Type 2 Diabetes. According to the International Association for the Study of Obesity the prevalence of adult obesity has risen three fold in many countries since the 1980s. There are around 525 million obese (BMI 30+) adults worldwide and 1.5 billion adults who are overweight (BMI 25+). Around 700 million adults are expected to be obese by 2015. Obesity is a major contributory factor in the development of Type 2 Diabetes.

Methodology. Type 2 Diabetes is a progressive disease. It manifests clinically by deterioration in clinical parameters including HbA1c, fasting plasma glucose and postprandial glucose levels. HbA1c will increase by about 1% every two years even with existing pharmacological therapies. Since every 1% increase in HbA1c increases cardiovascular and microvascular risks, there is a significant need to drive glucose levels to the normal range and to maintain them as long as possible. Despite the booming of pharmacological therapies for type 2 diabetes in last few years and the introduction of bariatric surgery as an accepted mode of treatment, there is still a big gap in achieving the goal.

Results. The EndoBarrier™, a Gastrointestinal Liner, is a breakthrough treatment designed to help patients regain metabolic control of type 2 diabetes and to aid in weight loss. This is a new class of treatment that fits between pharmaceutical regimens and surgery. It is performed easily and quickly without any incisions requiring a few hours in the hospital. Based on the growing body of clinical evidence, EndoBarrier™ has the potential to dramatically change the treatment approach for people who are obese or have Type 2 Diabetes.

Conclusions. Clinical experience has found that EndoBarrier™ can provide immediate relief from type 2 diabetes in patients with significantly elevated HbA1c. In addition, most patients experience clinically significant weight loss. This is believed to have a long term effect in managing insulin resistance as well as a positive impact on cardiovascular risk factors, including elevated lipid levels and high blood pressure.

Keywords: obesity, Type 2 diabetes mellitus, Endobarrier, bariatric

Clinical Trial - Others

Reduction of Periodontal Disease Among Diabetic Geriatric Patients

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Introduction. Diabetes mellitus (DM) is a chronic metabolic disorder affecting adults worldwide. DM is a growing global health problem leading to several complications. Among these, periodontal diseases are considered as the sixth most common complication of diabetes mellitus. There is a bidirectional interrelationship between diabetes and periodontal diseases. Diabetes is a risk factor for periodontitis, which appears to develop at least twice as often in diabetics as in populations without diabetes.

Methodology. Thorough study was done on geriatric patients with considerations of periodontal problems. Therapy was carried out for preventing periodontal infection using positive glycaemic control management.

Results. Positive glycaemic control management enables reduction of the burden of periodontal complications of diabetes mellitus.

Conclusion. Diabetics have an increased predisposition to the manifestation of oral diseases like candidiasis which is associated with poor glycaemic control and therapeutic

dentures. This predisposition also contributes to xerostomia, which may be due to increased glucose levels in oral fluids or immune dysregulation. A positive glycaemic control management enables preservation of the periodontal status of patient.

Keywords: diabetes mellitus, geriatric patients, periodontal diseases, xerostomia