

# POSTER PRESENTATIONS

PP 01

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**Stream:** Basic and Clinical Sciences

## Use of mobile SMS as a tool for modification of knowledge and belief regarding diabetes among patients and relatives

### ABSTRACT:

**Background:** Mobile technology is an innovative way to communicate with patients regarding diabetes education. An interventional study therefore was conducted to determine the effectiveness of mobile Short Message Service (SMS) to improve knowledge and belief regarding diabetes among patients and relatives.

**Objective:** To determine the effectiveness of mobile Short Message Service (SMS) to improve knowledge and belief regarding diabetes among patients and relatives.

**Methods:** This interventional study was conducted among patients with diabetes and their relatives attending the out-patient department of Baqai Institute of Diabetology and Endocrinology (BIDE) a tertiary care diabetes center from July 2014 to April 2015.

The study subjects were selected by systematic randomly. Registered patients' data was collected from the electronic hospital database called Health Management System (HMS) against their medical record number, while the information of relatives was collected on a predefined questionnaire by trained diabetes educator. Even number (patients and relatives) were treated as SMS Group while odd number (patients and relatives) were treated as Non-SMS Group. At baseline visit participant's knowledge and beliefs regarding diabetes were recorded on a predesigned questionnaire followed by an educational session given to both groups on one to one basis by a trained diabetes educator. Educational intervention regarding healthy lifestyle was repeated through SMS to the SMS Group. Two messages per days were sent to the SMS Group for two months. At the end of the study, same questionnaire was used for data collection, from both SMS and Non-SMS Group. Statistical Package for Social Sciences (SPSS) version 17.0 was used for statistical analysis.

**Results:** We assessed 1040 participants for eligibility. 520 patients and 520 relatives recruited at tertiary care center. Out of 520 patients we selected 260 as a SMS Group and 260 as a Non-SMS Group similarly out of 520 relatives we selected 260 as a SMS Group (SMS) and 260 as a Non-SMS Group (Non-SMS). After SMS messaging we found that those who was getting SMS their knowledge and beliefs becomes significantly increased.

**Conclusion:** We conclude that mobile phone messaging is an innovative and effective technology to improve knowledge and beliefs and reduce misconceptions regarding diabetes mellitus both among patients and relatives. Further large scale studies are needed to validate our findings.

**PP 02**

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**Stream:** Basic and Clinical Sciences

## Transforming Growth Factor- $\beta$ 1 as a marker of diabetic nephropathy in Pakistani patients of diabetes mellitus

**ABSTRACT:**

**Objectives:** The common complication of diabetes is nephropathy which is a leading cause of renal failure in one third of patients undergoing dialysis. Transforming growth factor-beta 1 (TGF- $\beta$ 1) plays a crucial role in the progression of diabetic nephropathy. The present study aimed to evaluate if serum TGF- $\beta$ 1 concentrations has any diagnostic role in predicting the incidence of diabetic nephropathy in the Pakistani patients before nephropathy starts.

**Methods:** The study was performed on 140 subjects including normal, type 2 diabetes patients with and without proteinuria, and type 1 diabetes patients without proteinuria. Serum level of TGF- $\beta$ 1 was estimated by ELISA technique.

**Results:** Will be presented at the conference.

**PP 03**

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**Stream:** Basic and Clinical Sciences

## Anti-diabetic activity of *Annona squamosa* leaves extract in albino rats

**ABSTRACT:**

**Objective:** The aim of this research work was to explore the anti-diabetic activity of *Annona squamosa* leaves extract in experimental animals.

**Method:** To carry out our research work, *Annona squamosa* aqueous leaves extract (250mg/kg and 350mg/kg) were administered orally to streptozotocin-induced diabetic rats. Blood glucose levels of rats were monitored throughout the research period.

**Results:** Experimental studies on rats revealed significant anti-diabetic activity of *Annona squamosa* leaves extract.

**Conclusion:** Our research work may be beneficial for individuals suffering from diabetes in improve their quality of life by using herbal drug with better therapeutic efficacy and lesser side effects as compared to the conventional drugs.

PP 04

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**Stream:** Basic and Clinical Sciences

## Prevalence of microvascular complications in newly diagnosed patients with type 2 diabetes

### ABSTRACT:

**Background & Objectives:** Microvascular complications are the major outcome of type 2 Diabetes Mellitus progression, which reduce the quality of life, incur heavy economic burdens to the health care system and increase diabetic mortality. The aims of this study were to assess the prevalence of microvascular complications among newly diagnosed type 2 diabetic patients and to analyze the association between these complications and poor glycemic control.

**Methods:** This cross sectional hospital based study was carried out in Diabetic Clinic of Shaikh Zayed Postgraduate Medical Institute, Lahore Pakistan. The study was conducted from November 2011 to November 2012 among newly diagnosed type 2 diabetic patients. Relevant information of all patients was recorded with the help of a proforma. They were investigated for retinopathy, nephropathy and neuropathy.

**Results:** We have divided the patients into two groups: Group I with good glycemic control (HbA1c6.5). In group II microvascular complications were 89.8%. Neuropathy, nephropathy and retinopathy were present in 68.5%, 56.2% and 31.4% respectively. These similar percentages in group I were 50%, 0% and 31% respectively and are significantly lower.

**Conclusion:** The study showed that even in newly diagnosed type 2 diabetic patients who had poor glycemic control, frequency of microvascular complications is much higher as compared to those who had average glycemic control. Thus tight glycemic control does count even in newly diagnosed type 2 diabetics to prevent and minimize the occurrence of complications.

**PP 05**

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## Study on the Effect of Catharanthus Roseus Extract on Certain Biochemical, Endocrinological and Oxidative Parameters of Alloxan-Induced Diabetic Rats.

### **ABSTRACT:**

The present study is the first of its kind being reported from Pakistan which was designed to assess the effects of Catharanthus roseus extract on various biochemical, endocrinological and oxidative parameters in serum of alloxan- induced diabetic rats. Diabetic rats were assigned to three groups viz. Group A: Negative Control fed basal diet; Group B: Positive Control non-supplemented; and Group C supplemented with C. roseus extract. The results indicated a statistically non-significant ( $P>0.05$ ) elevation in blood glucose, TGs, ALT and urea concentration of group C (C. roseus supplemented) as compared to group B (non-supplemented) animals. Regarding cholesterol and AST, the results indicated a statistically non-significant ( $P>0.05$ ) decrease in C. roseus supplemented group C. Blood cortisol level was increased in group C as compared to those animals in group B, though statistically non-significant ( $P>0.05$ ). Regarding the levels of T3 and T4 hormones, it was noticed that their levels were non-significantly ( $P>0.05$ ) decreased in herbal extract-supplemented group C as compared to Group B. The results of present study revealed a gradually increasing though statistically non-significant ( $P>0.05$ ) trend of catalase in group A, B and C animals, respectively. In a nutshell, we conclude that C. roseus had a restorative/corrective effect on levels of cholesterol and thyroid hormones; and a stress relieving effect through elevating catalase enzyme for potential scavenging of ROS in alloxan-induced diabetes rats. We recommend the isolation of active principal agent/constituent in order to assess bioactivity with a detailed study design and expansive animal model.

PP 06

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## Assessment of Erectile Dysfunction in Type 2 Diabetes Mellitus in a Tertiary care unit of Karachi

### ABSTRACT:

**Objective:** To compare the occurrence of Erectile Dysfunction in male type 2 diabetes mellitus subjects with healthy control and to correlate erectile dysfunction with clinical parameters; HbA1c, Cholesterol, Testosterone, Age and IIEF score for dysfunction at Baqai Institute of Diabetology & Endocrinology (BIDE), Karachi Pakistan.

**Methods:** This was a single centered case control study with cross sectional study design. After consent, a total of 325 cases of male type 2 diabetes mellitus were taken selectively. The purpose of ED study was explained to all subjects. The inclusion criteria was selection of male type 2 diabetics of age 18-55 years without, hypertension, hormonal problem, thyroid disease, smoking, psychological disorder & alcohol habits. By using IIEF-5 questionnaire format ED was assessed. The controls were asked questions based on IIEF-5 format questionnaire. The means, standard deviation, standard error of means, p value and r value were calculated from observed data. SPSS-20 used for analysis.

**Results:** ED data were obtained from interviews based on IIEF-5 questionnaire format. Odds ratio presented that diabetic are 3.6 times more have developed ED than non-diabetic subjects. Increased ED seen in age group 41-55 years in diabetic subjects (62.8%) while the same was seen (32%) in non-diabetics. The mean IIEF score for severe ED in diabetics were 5.52 and for control non diabetics was 6.66.

**Conclusion:** Increase in age with high BMI and poor glycemic control with more HbA1c was strongly associated with erectile dysfunction. Old age with decreased testosterone level was found interrelated.

PP 07

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## How did an albino patient lose 148 lbs of weight? A case report

### **ABSTRACT:**

**Introduction:** Obesity is a highly prevalent and yet the most neglected disease. The number of overweight and obese people reached 2.3 billion and 700 million worldwide respectively, by the year 2015. Obesity is not a social disgrace but an actual disease with a major genetic component to its etiology. Obesity treatment is a lifelong task. Weight reduction medications should be used as an adjunct to diet restriction, exercise and behavioral modifications when these measures alone have not resulted in adequate weight loss. We hereby present a case of a morbidly obese male patient with oculocutaneous albinism who has lost 148 lbs of weight. Furthermore, the report highlights the genetic link between oculocutaneous albinism and obesity.

**Case Presentation:** 28-year-old male with oculocutaneous albinism presented with 361.8 lbs of weight (BMI: 62.1) and complaint of difficulty in losing weight. Physical examination revealed hypertension, low intelligence, gynecomastia and infantile testicles. Lab investigations showed unregulated hyperlipidemia and hypotestosteronemia. The patient was prescribed Xenical (Orlistat) 120 mg. Over the period of five years, he lost 83.8 lbs. After this time, Xenical's effectiveness was significantly reduced. Consequently, the patient was started on Victoza (Liraglutide) on which he lost 64 lbs in three years. Thus, a sum of 147.8 lbs of weight was lost without any side effects of the drugs.

**Discussion:** Obesity needs to be treated within the healthcare system as any other complex disease. We observed Xenical and Victoza to be safe and effective in reducing obesity. Substantial literature has emerged to show that in both Oculocutaneous albinism and Prader-Willi syndrome (the most common genetic cause of obesity) the P gene is mutated on Chromosome 15. This highlights the genetic susceptibility of our albino patient for developing morbid obesity.

**Conclusion:** Obesity develops from the interplay of both genetic and environmental factors. This case clearly illustrates that Xenical and Victoza can be safe and efficient for weight loss in a morbidly obese patient. Furthermore, scientific research in the genetic aspects of obesity can help develop new strategies towards its prevention and treatment.

**PP 08**

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## Eriodictyol Stimulates Insulin Secretion Through cAMP-PKA Signaling Pathway in Mice Islets

**ABSTRACT:**

**Background and Objectives:** Sulfonylurea secretes insulin irrespective of glucose concentration and leads to hypoglycemia. Therefore, identification of new insulin secretagogue(s) that stimulates insulin secretion only at stimulatory glucose will be a better therapeutic alternative to sulfonylurea. Using in-house facilities, we tested ~260 compounds for their insulin secretory activity and eriodictyol (ED) was found the most potent insulin secretagogue stimulates insulin secretion only at high glucose concentration. Here, we explored the possible insulintropic mechanism(s) of ED.

**Methods:** Islets or MIN6 cells were incubated for 1 h at 37 °C in KRB buffer, containing 3 mM and 16.7 mM glucose in the absence or presence of ED without or with agonists and antagonists and the secreted insulin was measured by insulin ELISA kit. In vivo effects of ED on GSIS were evaluated in diabetic rats.

**Results:** ED, stimulated insulin secretion from mice islets and MIN6 cells only at stimulatory glucose concentrations, distinctly different from tolbutamide. At 16.7 mM glucose, ED potentiated insulin secretion from mice islets at 50-200  $\mu$ M, with maximum effect at 200  $\mu$ M. When islets were incubated with 200  $\mu$ M ED and 50  $\mu$ M diazoxide to keep K-ATP channels open, ED-induced insulin secretion was not affected at 3 mM but inhibited at 16.7 mM glucose. In depolarized islets, insulin secretory ability of ED was enhanced at both 3 and 16.7 mM glucose. In presence of verapamil (200  $\mu$ M), an L-type  $\text{Ca}^{2+}$  channels blocker, ED-induced insulin secretion was not affected at 3 mM but inhibited at 16.7 mM glucose. SQ22536, an adenylate cyclase inhibitor (20  $\mu$ M), moderately inhibited ED-induced insulin secretion. ED showed its effect on stimulation of intracellular cAMP content. H-89, a protein kinase A (PKA, 30  $\mu$ M) inhibitor, almost completely inhibited the ED-induced insulin secretion at 16.7 mM glucose. U0126 (20  $\mu$ M), a MEK kinase inhibitor, inhibited moderately and calphostin-C, a PKC inhibitor, partially inhibited ED-induced insulin secretion. ED-induced insulin secretion was not affected at 3 and 16.7 mM glucose in pertussis toxin treated islets. ED also improved glucose intolerance and enhanced plasma insulin in vivo diabetic rats. Molecular docking simulation studies showed the best binding affinities of ED with PKA.

**Conclusion:** Eriodictyol, a novel insulin secretagogue, exerts an exclusive glucose-dependent insulintropic effect through cAMP-PKA signaling pathway.



PP 09

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## Anti-diabetic drug research: Lead molecules isolated from natural products at ICCBS

### ABSTRACT:

Innumerable varieties of medicinal plants have been mentioned for the management of diabetes; however, the systemic approach for drug development is almost in its infancy. Here at Dr. Panjwani Center for Molecular Medicine and Drug Research, we have developed pre-diabetes, type 2 diabetes and diabetic nephropathy models in rats showing clinical presentation and pathophysiology of human subjects. A variety of in vitro and in vivo assays were employed to elucidate cellular and molecular mechanism(s) of anti-diabetic natural products using these rat models. Taking advantages of pure compounds available at H.E.J. Research Institute of Chemistry, University of Karachi, an attempt has been taken to discover novel insulin secretagogue(s) from natural compounds routinely isolating at ICCBS. To explore further in-depth mechanism(s) a series of assays were performed to evaluate the effects of pure compounds on K-ATP channels, L-type  $\text{Ca}^{2+}$  channels, cAMP-PKA and PLC-PKC, MEK-ERK1/2 signaling pathways to pin-point the specific target(s). Out of 260 compounds tested for insulin secretory activity, 7 compounds manifested potent stimulation on insulin secretion in isolated islets and showed several fold higher insulin secretory activity than tolbutamide, a standard insulin secretagogue. Among the potent compounds, cinnamic acid enhanced glucose-stimulated insulin secretion in vitro and exerts anti-diabetic activity by improving glucose tolerance in vivo. Two potent compounds, eriodictyol (ED) and coixol (CX), were studied further in-depth to explore their mechanism(s) in in vitro and in vivo. ED, stimulated insulin secretion from mice islets and MIN6 cells only at stimulatory glucose concentrations, distinctly different from tolbutamide. ED has no effects on K-ATP channels mediated insulin secretion in mice islets. ED exerts an exclusive glucose-dependent insulinotropic effect through cAMP-PKA signaling pathway. Insulinotropic activity of CX was dependent on PKA and MEK kinase signaling pathway coupled with stimulatory glucose concentration. ED and CX also improved plasma insulin and insulinogenic index in Wistar rats. ED and CX, two novel insulin secretagogues, stimulate insulin secretion only at high glucose concentrations, may exhibit a decreased risk of drug-induced hypoglycemia that is found in sulfonylurea drugs.

PP 10

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## C-reactive Protein in Patients with Type 2 Diabetes Mellitus

### ABSTRACT:

**Objective:** To determine the frequency of raised C-reactive protein (CRP) in patients with type 2 diabetes mellitus.

**Methods:** This cross sectional descriptive study of six months study was conducted at Liaquat University Hospital Hyderabad from March 2013 to August 2013. All diabetic patients of  $\geq 35$  years age of either gender for  $> 01$  year duration visited at OPD were evaluated for C-reactive protein and their glycemic status by hemoglobin A1c. The data was analyzed in SPSS and the frequency and percentage was calculated.

**Results:** During six-month study period, total 100 diabetic patients were evaluated for C-reactive protein. Majority of patients were from urban areas 75/100 (75%). The mean  $\pm$ SD for age of patients with diabetes mellitus was  $51.63 \pm 7.82$ . The mean age  $\pm$ SD of patient with raised CRP was  $53 \pm 7.21$ . The mean  $\pm$ SD for HbA1c in patients with raised CRP is  $9.55 \pm 1.73$ . The mean random blood sugar level in patients with raised CRP was  $247.42 \pm 6.62$ . The majority of subjects from 50-69 years of age group with female predominance ( $p = 0.01$ ) while the CRP was raised in 70(70%) patients in relation to age ( $p=0.02$ ) and gender ( $p=0.01$ ) respectively. Both HbA1c and CRP was raised in 64.9% ( $p = 0.04$ ) in patients with type 2 diabetes mellitus. The mean  $\pm$ SD of CRP was  $5.8 \pm 1.21$  while for male and female individuals with raised CRP was  $3.52 \pm 1.22$  and  $5.7 \pm 1.63$  respectively.

**Conclusions:** The raised C-reactive protein (CRP) was observed in patients with type 2 diabetes mellitus.

PP 11

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**Stream:** Diabetic Foot

## Characteristics of diabetic foot ulcers in our population

### ABSTRACT:

**Background and Objective:** Patients with diabetes are at high risk of developing foot ulcerations that can develop into non-healing wounds. Recent studies suggest that the lifetime risk of developing a diabetic foot ulcer is as high as 25%. Few studies have reported the prevalence of, risk factors and socioeconomic status associated with, diabetic foot ulcers in different parts of the world. The aim of this study was to evaluate the characteristics of diabetic foot ulcers in our population.

**Methods:** From January-December 2015, a total of 500 outpatients with diabetes were retrospectively extracted for analysis from the Lahore General Hospital's Foot care Clinic. Data on demographics, socioeconomic status, co-morbidities, foot ulcer characteristics and treatment were recorded on a standardized Form.

**Results:** Demographics and physical characteristics were: 65% male, median age 47 years, median body mass index (BMI) of 29 kg/m<sup>2</sup>, 77.4% had peripheral neuropathy. The majority (68 %) reported annual household incomes less than Rs.144,000/year. Diabetic foot ulcer characteristics were: median cross sectional area of 2.5 cm<sup>2</sup>, 55.1% on the plantar aspect of the foot, 16.6% University of Texas (UT) Wound Grade of 0C to 3C (with ischaemia) and 11.8% with a Grade 0D to 3D (with infection and ischaemia) and 10.6% with osteomyelitis. Six patients required an amputation: 1 major and 5 minor amputations.

**Conclusions:** In accordance with other international studies, foot ulcers are more likely to present on the plantar surface of the foot and largely affect overweight older males with longstanding history diabetes in our outpatient hospital in Lahore.

PP 12

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**Stream:** Diabetic Foot

## Prevalence of risk factors of diabetic foot complications in patients attending diabetic clinic at Bahawal Victoria Hospital & Civil Hospital Bahawalpur

### ABSTRACT:

**Background:** Diabetic foot complications are a serious and disabling complication of diabetes. The prevalence of diabetic foot ulcer (DFU) ranges from 4% to 10% in the hospitalized patients and the risk of patients with diabetes developing a foot ulcer in their lifetime could be as high as 25%. It is therefore vital to prevent foot complications. Preventing foot complications begins with identifying those at risk. Risk identification is fundamental for effective preventive management of the foot in people with diabetes and all individuals with diabetes should receive an annual foot examination to identify high-risk foot conditions.

**Objective:** To determine the prevalence of risk factors for diabetic foot complications in diabetic patients free of active ulceration in a hospital setting.

**Methods:** The study is being conducted at diabetic clinics established at Bahawal Victoria Hospital and Civil Hospital, Bahawalpur. All the patients are interviewed and clinically examined for Foot Deformity, Peripheral Sensory Neuropathy and Peripheral Arterial Disease after informed consent. The patients are then assigned to a foot risk category which was developed by the International Working Group on the Diabetic Foot. The patients are then educated for foot care for prevention of complications of Diabetic foot.

**Results:** The initial results after the analysis will be presented at the conference.

PP 13

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**Stream:** Diabetic Foot

## The Great Diabetic Debate: What part does the Physician play in patient's foot care knowledge?

### ABSTRACT:

**Objectives:** To assess the role of a physician in the knowledge of diabetic foot care amongst diabetics with respect to patient's opinion.

**Methods:** A cross-sectional study was conducted on diabetics. A structured pre-tested questionnaire was administered during September-December 2015. The data was analyzed by SPSS 23. Percentages of the categorical variables were computed and compared by cross tabulation and Chi square test at a 5% level of significance and their 95% CIs were also computed.

**Results:** Out of a total of 189 (females: 49%, males: 51%) diabetics, visiting PIMS, 53 mean age (SD 13.2) was calculated. 94.7% of the respondents had type 2 diabetes and 36.5% used insulin for their diabetes. The mean age for the diagnosis of diabetes in the respondents was observed to be 43 years (SD 12.07) whereas at an average of 9.4 years (SD 7.9) had passed since the diagnosis of diabetes amongst the respondents. Regarding foot care 61.9 % said that they were never examined by a physician or nurse while 62.4% of the patients responded that they have never received foot care guidelines from any physician and only 16.4% had received proper advice from their doctors. There's a positive correlation,  $r = 0.162$  and a highly significant relationship ( $p = 0.026$ ), between the patients who regularly examine their feet themselves and those who have been examined by their physician.

**Conclusion:** Our study shows a dire need for an extensive educational program about simple foot care measures.

PP 14

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**Stream:** Diabetic Foot

## Diabetic foot care: Knowledge and practices amongst patients attending a tertiary care hospital in Islamabad

### ABSTRACT:

**Objectives:** Awareness and good hygiene practice is all that is required to reduce 60% of annual foot amputations in Pakistan which are attributable to Diabetic foot ulceration. Our study aimed to assess the knowledge and practices of diabetic foot care and establish the need for creating proper awareness about it.

**Method:** This was a prospective cross-sectional study carried out from July 2015 till December 2015, including 193 patients of PIMS who had Type 1 or Type 2 diabetes mellitus diagnosed since at-least six months or more. A pre-tested structured questionnaire was administered to the diabetics attending the out and in patient departments and their knowledge and practices regarding foot care was scored according to Nottingham Assessment of Functional Foot Care Score.

**Results:** Of a total of 193 respondents, 98 (51%) were males while 95 (49%) were females with a mean age group of 52 years, of which 93% had Type 2 Diabetes while only 6% had type 1 diabetes. The mean age at which most of the patients were diagnosed with Diabetes was found to be 43 years and 38% (73) of the Diabetics were on injectable insulin. Mean score percentage of the patient foot care practices was found to be 58.92% (S.D 10.20) lying under the satisfactory range of score. Of those scoring 50% and above a strong correlation was found with their educational status ( $p$  value =0.030) and the regularity with which they took their medications ( $p=0.001$ ).

**Conclusion:** Since majority of the patients were found to have only satisfactory foot care practices, the study highlights the need to create awareness about proper foot care guidelines, especially amongst the illiterate and those non-compliant with their medications.

PP 15

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**Stream:** Diabetic Foot

## Study of microbiota associated with diabetic foot ulceration in Pakistani subjects

### ABSTRACT:

**Background:** Diabetes mellitus is a metabolic disorder which may lead to serious health complications like cardiovascular diseases, renal failure, neuropathy, retinopathy and foot ulcer. Among these health risks, foot ulcer is one of the major complications among diabetics. Due to diabetic foot infections, the amputation rate has increased rapidly.

**Objective:** The current study was designed to determine the microbiology of diabetic foot infections and to evaluate the antibiotic susceptibility in Pakistani population.

**Methodology:** In this study 205 foot ulcer samples of the patients with type 2 diabetes were analyzed microbiologically. Out of these, 139 were males and 64 were females. The patients were also classified in two age groups viz; 50 years.

**Results:** A total of 11 different genera of aerobic bacteria were identified. The antibiotics susceptibility was performed using 27 antibiotics, amikacin showed high susceptibility. From these 205 patients, 12.1% have no bacterial infections. Out of 205 subjects, in 17.01% subjects foot was found infected with two organisms. *Staphylococcus aureus* was found prevalent at higher rate 26.34% followed by *Klebsiella pneumonia* and *Proteus* species (10.24%). Other than these organisms *Escherichia coli*, *Pseudomonas aeruginosa*, *Streptococcus viridians*, *Enterobacter* species and *Enterococcus* species was also observed.

**Conclusion:** Over all we conclude that in Pakistani diabetic foot patients are more prone to *Staphylococcus aureus*.

PP 16

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**Stream:** Living with Diabetes

## Diabetes with end organs damage and abnormal lipid parameters- dyslipidemic diabetic complex?

### ABSTRACT:

**Background:** Diabetic Dyslipidus or Dyslipedemia is a major cause of cardiovascular morbidity and mortality. Poor glycemic control can lead to blindness and renal failure. However, this relationship between uncontrolled blood sugar, abnormal lipid parameters, retinopathy and nephropathy has not been studied previously.

**Purpose of study:** This study was conducted to find out the association of Poor glycemic levels in Type II Diabetics having Nephropathy, Retinopathy and Dyslipidemia.

**Methods:** It was a single centered, retrospective analysis of 572 T2DM patients who were brought to the Diabetes, Endocrine & Metabolic Centre (DEMC) of Lahore General Hospital (LGH), Lahore from January 2013 to December 2015. The patients with (HbA1c>9%) were identified as candidates with poor glycemic control. Their serum levels for Total Cholesterol (TC), Low Density Lipoproteins (LDL), High Density Lipoproteins (HDL), Triglyceride (TG) and urinary microalbumin levels (spot urine) and Fundus Photograph findings were also noted. These readings were correlated and analyzed by using Statistical Package of Social Sciences (SPSS) Version 19 and descriptive statistics were recorded in the form of mean and percentages.

**Results:** Out of 572 patients, values in mean & standard deviation are (Age; 43.17±9.83 Years), (HbA1c; 10.07±1.06), (TC; 199.1±51.79), (TG; 183±79), (HDL; 41.20±9.78) and (LDL; 127.83±41.72). The male: female ratio was found 51:49 respectively. Mixed dyslipidemia (>2 abnormal lipid parameters) was 38.6%, combined dyslipidemia (at least 2 abnormal lipid parameters) was 47.3% and single dyslipidemia (only 1 abnormal lipid parameter) was 14.1%. Retinopathy was graded as: Within Normal Limits -WNL (38.8%), Non-Proliferative Diabetic Retinopathy-NPDR (46.7%), Proliferative Diabetic Retinopathy -PDR (11.2%), Advanced Disease (with complications)- AD (3.3%). Qualitative analysis of spot urine revealed (73%) Positive for microalbuminuria and (27%) Negative for microalbuminuria.

**Conclusion:** Higher HbA1c levels indicating poor glycemia show strong association with Nephropathy, Retinopathy and Dyslipidemia. It can be grouped as “Dyslipedemic Diabetic Complex” requiring multidisciplinary approach for management and to prevent cardiovascular complications.



PP 17

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**Stream:** Living with Diabetes

## Complications of Type 2 diabetes mellitus in Medical Ward at Lahore General Hospital

### ABSTRACT:

**Objective:** This study was conducted at Lahore General Hospital, Punjab with objectives to explore the pattern of common diabetic mellitus type 2 complications and to compare between genders and in relation to the duration of diabetes.

**Method:** This is a retrospective study based on patient's record involving 269 patients (171 Men and 98 females) who were admitted with diabetic complications in medical ward for a period of 2 years (January 2014 to December 2015). Data analyzed on SPSS 20 and following results are obtained.

**Results:** Only patients with type II DM were included in this study. 232 patients (86.2%) out of 269 had one or more diabetic complications. In general, the most common diabetic complication was diabetic nephropathy 117 (43.5% patients) followed by diabetic foot 94 (34.9% patients). When we compared between genders, complication rate was almost equal presentation. A total of 233 patients had poor blood sugar control during their hospitalization and 107 patients had hypertension. When complication rate was determined over a period of 10 years, maximum rate was of diabetic foot 66 patients followed by renal failure 64 patients and major reason identified was non-compliance to medication and infrequent follow ups whereas patients with diabetes less than 5 years were without any complication which was 24 patients.

**Conclusion:** Patients with DM type 2 had a high prevalence of complications. Common diabetic complications among genders were same. Patients with diabetic complications had high prevalence of risk factors such as poor blood sugar control, concomitant hypertension and poor compliance to medication.

PP 18

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**Stream:** Living with Diabetes

## A comparison of the health-related quality of life in patients of diabetes with non-diabetic patients

### ABSTRACT:

**Objective:** To describe health-related quality-of-life (HRQoL) in diabetic patients by comparing their HRQoL with that of a sample from the general population without diabetes (general population) and to examine the differences between groups by socio demographic characteristics and lifestyle factors.

**Methods:** A case control study will be conducted including the diabetic patients aged above 25 years, diagnosed with diabetes type 1 or 2, as case group. The control group will be non diabetic patients aged above 25 years. Data on socio demographic characteristics (sex, age, cohabitation, education and employment) and lifestyle (body mass index [BMI] and smoking status) and HRQoL (SF-36) will be obtained.

**Results:** The study will indicate the level of wellbeing and HRQoL among diabetic patients after examining the differences between groups by socio demographic characteristics and lifestyle factors.

**Conclusion:** Diabetes has an adverse effect on patients' wellbeing and HRQoL. Results from this study could be useful in clinical practice, particularly in early treatment of diabetes, at point where improving HRQoL is still possible.

\* \* \* \* \*

PP 19

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## Effect of Coriander with Vanadyl Sulphate on Plasma Glucose Level in Diabetic Albino Rats

### ABSTRACT:

**Objective:** This study has been designed to search for new treatment options of Type 2 Diabetes mellitus.

**Methods:** Modified herbal medications with traditional drugs have been always effectuated in every era. Out of total 100 albino rats, 25 rats were used as control (Group A) while, other 75 were made diabetic by Streptozotocin (STZ) injection and grouped equally into three groups of 25 diabetic rats. Twenty five rats were treated by Vanadyl sulphate up taken coriander (Group B), 25 rats were treated with insulin (Group C) and last group did not receive any treatment (Group D).

**Results:** The Mean  $\pm$  SD of group A (control), group B (Vanadyl Sulphate with coriander), group C (treated with insulin) and group D (without any treatment) are  $121 \pm 2.79$ ,  $127 \pm 3.76$ ,  $110.68 \pm 8.81$ ,  $280.77 \pm 5.15$  respectively. Comparing control group (Group A) with treated groups (B and C), no significant difference was found ( $p > 0.05$ ). Similarly no significant difference was found ( $p > 0.05$ ) while comparing group B and C. Comparing the group B and C with group D, significant difference was found ( $p < 0.0001$ ).

**Conclusion:** The effects of medicinal plant coriander with Vanadyl sulphate act as antidiabetic agent which normalizes the plasma glucose in the treatment of diabetic rats.

**KEY WORDS:** Vanadyl Sulphate, Coriander Sativum, Streptozotocin, fasting blood glucose (FBS), Diabetes Mellitus.

PP 20

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**Stream:** Living with Diabetes

## Factors Related to Non-adherence to lifestyle Modification in patients with Diabetes Mellitus Type 2 attending Diabetic Clinic at Harare Central Hospital

### ABSTRACT:

Lifestyle modification is an important component in the long-term management of patients with diabetes mellitus. About 98.1% of patients in the diabetic clinic register are on drug therapy, which may be due to failure to maintain glycaemic control. The purpose of this study was to identify the factors related to non-adherence to lifestyle modification in patients with type 2 diabetes mellitus. The health promotion model by Nola Pender was used to as the guiding theory.

A cross-sectional study was done using descriptive correlational design. The sample comprised of 119 participants who were diagnosed within a period of 2 years, were selected using simple random sampling. Data was collected through an interviewer administered questionnaire. The questionnaire had 3 sections the demographic data and health history questionnaire, the adherence to lifestyle modification questionnaire and the diabetes related complications questionnaire. The response rate was 100 percent. Data analysis was done using STATA version 13.

Descriptive and inferential statistics such as mean, frequency and percentage were used to describe the demographic data, health history, adherence to lifestyle modification and the diabetes complications and the factors influencing non-adherence to diet and exercise as appropriate.

Among the study participants adherence to lifestyle modification was found to be below 80%. Lack of money to buy the recommended foods, attending functions, lack of satiety and tempting foods being eaten by other family members were the most common factors that the participants gave as reasons for failing to adhere to diet modification. Other factors indicated by the participants included lack of diet education, dislike of recommended foods, visiting relatives, especially those who were unaware of their dietary requirements, failure to adjust to the recommendations, bad influence from other diabetic patients, and other illnesses.

Factors influencing adherence to exercises included, illness, lack of time, fatigue, lack of education on exercises, laziness, forgetting to exercise and old age. The most common complications experienced by the study participants were retinopathy, peripheral neuropathy and sexual dysfunction. Pearson's correlation coefficient test was used to examine the relationship between adherence to lifestyle modification (dependent variable) and the total number of diabetes complications (independent variable). A weak negative linear relationship was shown between the two variables ( $r = -0.1398$ ,  $p = 0.1295$ ) but it was not significant at 0.05.

There is need for individualized care for diabetic patients as well as early detection and early treatment.

PP 21

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**Stream:** Living with Diabetes

## Frequency of complications of acute stroke in hospitalized patients suffering from diabetes mellitus.

### ABSTRACT:

**Objective:** To determine the frequency of complications of acute stroke in hospitalized patients suffering from diabetes mellitus compared to non-diabetics

**Method:** It was a cross-sectional study conducted at Department of Medicine, Bahawal Vitoria Hospital & Quaid-e-Azam Medical College, Bahawalpur. The duration of study was 3 months (July 2015- September 2015). A total of 98 patients fulfilling the inclusion criteria and informed consent were enrolled in the study. After the clinical assessment and CT scan plain brain these patients were observed for symptomatic post stroke medical complications on daily basis until discharge from the hospital.

**Results:** The mean age of the patients was  $57.15 \pm 15.42$  years. Most of the patients suffering from stroke were female (68.4 %). Patients belonged from rural population (73.5 %). Most of them were suffering from ischemic stroke (66.3 %). Of all the patients 27.6 % were suffering from diabetes mellitus. The frequency of complications of stroke i.e. Recurrent stroke, epileptic seizures, urinary tract infections, respiratory tract infections, bed sores, shoulder pain, depression, fall and venous thromboembolism was 11.2 %, 4.1%, 10.2%, 12.2%, 7.1%, 6.1 %, 14.3%, 6.1% & 3.1% respectively. Only depression was significantly more common in diabetic patients as compared to non-diabetic patients ( $p < 0.05$ ).

**Conclusion:** This study confirmed the complications which were observed in diabetic patients suffering from acute stroke. Early recognition and treatment of these potentially preventable complications can minimize the disability and mortality.

PP 22

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## Identification of previously undiagnosed prediabetes in the inpatient setting at Bahawal Victoria Hospital, Bahawalpur

### ABSTRACT:

**Background:** Prediabetes is a treatable health condition characterized by blood glucose levels that are abnormally elevated but are not high enough yet to be classified as type 2 diabetes. Prediabetes increases the risk for type 2 diabetes, heart disease, and stroke. 57 million people in the United States have prediabetes. The good news is that there is an effective treatment that can prevent or delay type 2 diabetes in those at high risk. That treatment is a structured lifestyle program that provides real-life support for healthful eating, increasing physical activity, and enhancing problem-solving skills.

**Objective:** The objective of this study is to identify the previously undiagnosed patients with prediabetes admitted to the hospital at Bahawal Victoria Hospital, Bahawalpur.

**Methods:** The study is being conducted in Department of Medicine, Bahawal Victoria Hospital, Bahawalpur from the month of April, 2016. Patients are to be labeled as prediabetic if there fasting blood sugar, random blood sugar or HbA1c meets the criteria established ADA guidelines. The patients are then educated and treated for prediabetes further.

**Results:** The results after the analysis will be presented at the conference.

PP 23

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**Stream:** Living with Diabetes

## Diabetes education and self-monitoring of blood glucose in the management of people with Type 1 diabetes: A resource constrained society

### ABSTRACT:

**Objective:** To observe the impact of diabetes education and regular self-monitoring of blood glucose (SMBG) on acute complications in people with type 1 diabetes (aged < 25 years).

**Methodology:** This prospective study was conducted at Baqai Institute of Diabetology and Endocrinology, IDF center of Education, Karachi - Pakistan. People with type 1 diabetes aged < 25 years, who attended the outpatient department (OPD) from September 2011 to September 2013, were included in the study after obtaining informed consent. Structured diabetes education was given through one to one sessions, group sessions and 24 hour helpline service. Data were collected by trained diabetes educators. The study participants were provided glucometer and strips, advised to monitor their blood glucose at home on different specified timings. Blood samples were collected for HbA1c at baseline and after every six month by the paramedical staff. SPSS, version 13.0 was used for data analysis.

**Results:** Out of 106 people with type 1 diabetes, 49 (46.22%) were males and 57 (53.77%) were females. Mean age of the participants was  $16.42 \pm 5.42$  years with mean duration of diabetes of  $6.78 \pm 4.15$  years. Total of 18093 blood glucose readings were obtained during eighteen months. There were 273 (1.5%) and 3060 (19.9%) blood glucose readings in severe hypoglycemic (< 40 mg/dl) and severe hyperglycemic (> 300 mg/dl) ranges respectively. Six episodes [2 for severe hypoglycemia and 4 for severe hyperglycemia / diabetic ketoacidosis (DKA)] required hospitalization. Mean serum creatinine was  $0.77 \pm 0.22$  mg/dl at baseline visit and  $0.83 \pm 0.20$  ( $p > 0.05$ ) at the follow-up visit. Mean HbA1c of the participants at baseline was  $11.28 \pm 2.69\%$  which decreased to  $10.14 \pm 2.17\%$  ( $p=0.001$ ) after 6 months. It was  $9.89 \pm 2.53\%$  ( $p=0.000$ ) after 12 months and  $9.96 \pm 2.41\%$  ( $p=0.000$ ) after 18 months.

**Conclusion:** The results of the study suggest that diabetes education with regular SMBGs would enable people with type 1 diabetes to maintain better glycemic control as evidenced by improvement in HbA1c levels.

**Acknowledgment:** This is a study from "Insulin my life" (IML) project, a collaborative project of World Diabetes Foundation (WDF), Life for a Child program (LFAC) and Baqai Institute of Diabetology and Endocrinology (BIDE).

PP 24

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**Stream:** Maternal and Child Health

## Alarming rates of prediabetes and type 2 Diabetes among adolescents aged 12 to 18 years in Al Ain UAE

### ABSTRACT:

**Background:** The United Arab Emirates (UAE) has one of the highest prevalence of diabetes mellitus in the world among its adults; however, similar data for adolescents is not available.

**Objective:** To estimate the prevalence of prediabetes, diabetes mellitus type 1 (T1DM) and type 2 (T2DM) in UAE youth and evaluate associated risk factors.

**Methods:** A random sample of 1186 adolescents, aged 12 to 18 years old was selected from 114 public and private schools in Al Ain, UAE. Prediabetes, T2DM & T1DM were diagnosed by a) laboratory findings according to American Diabetes Association guidelines: fasting plasma glucose (FPG)  $\geq 126$  mg/dl (7.0 mmol/l) and 100-125 mg/dl (5.6-6.9 mmol/l), respectively and/or b) or clinically by history of insulin or oral hypoglycemic drug use.

**Results:** Overall, the prevalence of prediabetes, T2DM and T1DM were 85 per 1000 (95% CI, 68-99), 8.4 per 1000 (95% CI, 3.9-14.0), and 1.7 (95% CI, 0.2-4.5), respectively. After controlling for age, the potential determinants for prediabetes, included native Emirati ethnicity (adjusted odds ratio [AOR]=2.2; 95% CI: 1.3-3.7).

**Conclusions:** The prevalence of prediabetes and T2DM is high among adolescents of the UAE. Lifestyle changes are urgently needed to mitigate this major public health epidemic.

PP 25

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**Stream:** Maternal and Child Health

## Estimation of Iodine Status in neonates using serum thyroid stimulating Hormones

### ABSTRACT:

**Background and Objective:** Iodine deficiency constitutes a leading cause of preventable intellectual impairment. In Pakistan salt iodination programs were started in 1989, but the reported use of iodized salt for cooking was (39.8%) across Pakistan, according to national nutrition survey 2011. We aimed to evaluate iodine status in neonates tested at our center using the 'consensus criteria' for iodine deficiency of a population by World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), and the International Council for Control of Iodine Deficiency Disorders (ICCIDD).

**Methods:** An observational study was conducted at the Section of Clinical Chemistry, Department of Pathology and Laboratory Medicine. Analysis was done for serum neonatal TSH performed from January-December 2013. Serum TSH was analyzed on ADVIA Centaur (Siemens Diagnostics, US) using chemiluminescence immunoassay. According to the 'consensus criteria' more than 3% prevalence of serum TSH  $\geq 10$  mIU/L in a population is taken as an indicator of iodine deficiency. A frequency of 3%-19.9% indicates mild iodine deficiency. Frequencies of 20%-39.9% and above 40% indicate moderate and severe iodine deficiency, respectively.

**Results:** In a period of one year a total of 11570 neonatal serum TSH were analyzed, mean age of neonates was  $2.0 \pm 0.5$  days. The overall mean TSH were  $4.5 \pm 4.4$  mIU/L with optimal levels in 93% and while 7.9% (n=916) of the neonates showed TSH  $\geq 10$  mIU/L which is higher than the recommended WHO/UNICEF/ICCIDD criteria for mild endemicity for iodine deficiency in the population.

**Conclusion:** These results suggest that there is need for effective intervention programs and increasing awareness among all regarding use of iodized salt. We also recommend iodine supplementation to be given before pregnancy in reproductive age women.



PP 26

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**Stream:** Maternal and Child Health

## Reference Interval Establishment of Neonatal Thyroid Stimulating Hormone

### ABSTRACT:

**Background and Objective:** Neonatal screening for thyroid stimulating hormone (nTSH) is conducted in our hospital to timely diagnose and treat congenital hypothyroidism. However, reference intervals (RI) of TSH are known to be method and population dependent as well as age specific. So the aim of this study was to determine the reference interval of neonatal TSH based on laboratory data.

**Methods:** A cross-sectional analysis of results of serum nTSH of neonates ( $\leq 1$  month of age) acquired from October 2015 to March 2016. Analyses of TSH serum samples was performed on an automated immunoassay system (ADVIA® Centaur™, Siemens Diagnostics, NY, US) using a direct chemiluminescence detection system. The CLSI recommended method was used for the determination of upper and lower end points covering 95% of the reference values of each analyte with respective 90% Confidence intervals (CI). Subjects were sub-grouped according to age,  $\leq 5$  days of life and 6 days to 1 month. Standard statistical methods, including Reeds test and Kolmogorov-Smirnov test were used for data analysis using the MedCalc 16.2.1 software package (MedCalc, Mariakerke, Belgium).

**Results:** Total 6400 NTSH tests were performed over a period of 6 months, amongst them 88% (n=5610) were aged  $\leq 5$  days of life. There was a near equal gender distribution for both age group. The RI for nTSH using the CLSI recommended method for  $\leq 5$  day's age group was calculated to be 0.62 ulu/mL to 14.97 ulu/mL with CI of 0.58 - 0.67 and 14.5-15.63 respectively. For the 6 days to 1 month age group RI was 0.462 ulu/mL to 9.102 ulu/mL with CI of 0.35- 0.62 and 8.5-10.6.

**Conclusion:** Our results show that age specific RIs for TSH in neonates differ from population to population. We recommend reporting neonatal TSH values in neonates using age and population specific reference intervals.

PP 27

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**Stream:** Endocrinopathies

## A cross-sectional study of association between Vitamin-D metabolites and markers of bone metabolism in renal dysfunction patients

### ABSTRACT:

**Objective:** To compare the relationship between 25(OH)D, 1,25(OH)<sub>2</sub>D with other markers of bone metabolism in healthy and subjects with renal dysfunction.

**Methods:** A cross sectional study was conducted at section of Chemical Pathology, AKU from February 2015 to June 2015. Eighteen renal dysfunction patients (serum creatinine >1.3mg/dl) and 22 healthy controls were included. Serum samples were collected for markers of bone metabolism calcium (Ca), phosphorus (PO<sub>4</sub>), creatinine (Cr), alkaline phosphatase (Alk Phos) and vitamin D metabolites; 25OHD and 1,25OHD. Serum Ca, PO<sub>4</sub>, Cr, Alk Phos was analyzed on ADVIA 1800, while 25OHD and 1,25OHD analyzed on liasion-XL by electro-chemiluminescence immunoassay. The calculated parameters included Ca×PO<sub>4</sub> product and estimated PTH using formula proposed by Harvey et al. Means of vitamin D metabolites and markers of bone metabolism were compared between the two groups by t test and association was assessed by spearman's correlation.

**Results:** The mean age of study participants was 46±20yrs with majority being females (67%). For all subjects, 1,25(OH)<sub>2</sub>D levels were found to correlate significantly. On comparison of healthy and subjects with renal dysfunction, mean comparison showed that 1,25(OH)<sub>2</sub>D and Ca were significantly lower, while Cr, PO<sub>4</sub>, Alk Phos and estimated PTH were significantly higher in patients with renal dysfunction. In patients with renal dysfunction on correlating 1,25(OH)<sub>2</sub>D with on correlating 1,25(OH)<sub>2</sub>D with other parameters only 25OHD was significantly correlated. While in healthy group only creatinine was significantly correlated with 1,25(OH)<sub>2</sub>D. Out of 18 subjects 12 had <20ng/ml 25OHD, of these 10 subjects had low 1,25(OH)<sub>2</sub>D levels, whereas all healthy subjects had both vitamin D metabolites in normal ranges.

**Conclusion:** Circulating 1,25(OH)<sub>2</sub>D was significantly lower in patients but levels of 25(OH)D were not significantly lower in renal dysfunction patients, indicating that simply replacing the substrate is not enough until one knows the status of 1,25(OH)<sub>2</sub>D in these patients, necessitating the measurement of 1,25(OH)<sub>2</sub>D in renal dysfunction patients for maintaining calcium and phosphorus homeostasis.

**Reference:** 1. Harvey A, Hu M, Gupta M, Butler R, Mitchell J, Berber E, et al. A new, vitamin D-based, multidimensional nomogram for the diagnosis of primary hyperparathyroidism. *Endocr Pract.* 2011, Mar-Apr;18(2):124-31.

PP 28

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**Stream:** Endocrinopathies

## Parathyroid Hormone Disorders Identified by Bone Health Screening Panel

### ABSTRACT:

**Objective:** Parathyroid hormone (PTH) disorders are not uncommon and patients may be asymptomatic in early stages. Diagnosis is challenging in asymptomatic stage due to variable/atypical presentation, lack of awareness and difficulty in interpretation of findings. So aim of this study was to assess PTH disorders using bone health screening panel.

**Methods:** We reviewed laboratory results of 534 subjects and medical records of 111 subjects tested with bone health screening panel (comprising of serum 25OHD, calcium, phosphorus, magnesium, alkaline phosphatase, creatinine, albumin and plasma PTH) from Jan 2011-Dec 2013 in identifying disorders of parathyroid gland secretion. Subjects were classified into following clinical groups, primary hyperparathyroid (PHP), Hypercalcemia with inappropriately normal PTH (HIN-PTH) ( $\text{Ca} > 10.2 \text{ mg/dL}$ ,  $\text{PTH} > 25 \text{ pg/mL}$ ,  $25\text{OHD} > 20 \text{ ng/mL}$ ), Normocalcemic hyperparathyroidism (NCHP) ( $\text{Ca} > 10.2$ ,  $\text{PTH} > 87 \text{ pg/mL}$ ,  $25\text{OHD} > 20 \text{ ng/mL}$ ), Secondary hyperparathyroid (sHPTH), functional hypoparathyroidism (FHP) (25OHD).

**Results:** Majority of study subjects were females (65%) with mean age  $44.5 \pm 17$  years. Means of iPTH of 534 subjects was high, vitamin D was insufficient, and other markers were in normal range. High creatinine was found in 7% subjects. PTH disorders were classified after excluding high creatinine ( $n=497$ ). The compensatory response of parathyroid gland (sHPTH) to vitamin D deficient group was seen in 17.7% while 39%, 8%, 1% and 0.4% had FHP, NCHP, PHP and HPP respectively. Symptoms of generalized myalgia, bone and joint pains were predominant findings in 111 cases reviewed. Parathyroid adenoma, osteopenia/osteoporosis, fractures proximal myopathy and renal stones were seen with deranged parathyroid hormone levels. All subjects with NCHP had higher PTH levels than calculated maxPTH. In subjects of HIN-PTH, 6 had low, 2 had equal and 2 had high measured PTH than calculated maxPTH.

**Conclusion:** A significant number of patients presents with biochemical variables that do not fit the classic description of primary and secondary disorders of PTH secretion and may present a diagnostic dilemma. In such cases PTH-nomogram can enhance diagnostic accuracy by distinguishing between normal and disease phenotypes.