statistical significance using paired t test analysis. Part1: For patients in prediabetic, controlled & uncontrolled DM subgroups, the mean difference between A1cNow+ & standardized venous HbA1c testing was 0.68% (p= 0.004), 1.15% (p= <0.0001) and 1.36% (p= 0.0003) respectively. Part2: After standardization of test strip storage, the mean difference between A1cNow+ & venous HbA1c testing for prediabetic, controlled & uncontrolled DM patients was 0.33% (p= 0.002), 0.41% (p= 0.011) and 1.26% (p= <0.0001) respectively.
POCT HbA1c provides a unique opportunity to immediately address glycemic control. Its advantages are especially apparent in a patient population with limited resources & poor follow up, as in our clinic. Although standardizing test storage improved overall concordance between A1cNow+ HbA1c testing & venous HbA1c, there was still a statistically significant larger mean difference in uncontrolled DM patients. In prediabetic & controlled DM patients, however, POCT HbA1c was accurate within previously published reports of a 0.5% range when compared to venous HbA1c. An algorithm has since been developed to guide our clinical decision making with these findings.

Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES

Alpha and Beta Cell Dysfunction Improves With Effective Insulin Therapy in Treatment Naive Type 2 Diabetes - a Prospective Observational Study.

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Abstract: Type 2 diabetes mellitus is characterized by insulin resistance and progressive beta cell decline. Elevated glucagon levels and impaired incretin axis also contribute to the poor glycemic status. Early intensive glycemic control, reduces long-term vascular complications and may preserve β-cell function. Clinical studies of effect of early insulin therapy on combined alpha and beta cell function are lacking. **Objective:** To determine the effect of early insulin therapy on combined alpha and beta cell dysfunction (islet cell dysfunction) in newly diagnosed type 2 diabetes. **Methods:** 56 newly diagnosed type 2 diabetes patients, attending the endocrinology OPD at a tertiary teaching hospital were enrolled in this treatment related follow up study after institutional ethical committee clearance, conducted between May 2017 to December 2018. Patients with HbA1C > 8.5% to <12.5% (n=56) were included in the study. Metabolic (FPG, PPG, HbA1c), and Hormonal parameters (plasma glucagon levels,fasting and 2 hour mixed meal stimulated C peptide and levels) were assessed both at baseline and after 6 months of insulin treatment. Initiating dose of insulin was 0.5 U/kg/day and the dose was titrated according to FPG and 2 hr PPG in order to maintain glycemic goals as per ADA standards. **Results:** The study included 56 subjects with mean age of 41.24 ± 5.64 years and a mean BMI of 25.5 kg/m^2. At the end of 6 months of the study, a significant reduction in the mean FPG, PPG, HbA1C were observed,[FPG (139±14.47 mg/dl), PPG (179.89 ± 19.42mg/dl),HbA1c (7.54± 0.63%)] as compared to baseline mean FPG, (216.30 ± 42.35 mg/dl),2 hour PPG (338.44 ±62.89 mg/dl), HbA1C (10.39 ± 1.56 %) (p <0.001). Baseline glucagon levels were high (197.68± 49.09 pg/ml), and were significantly reduced at 6 months of insulin therapy (107.06±49.09 pg/ml).(p <0.001). In comparison to the baseline a significant increase in both fasting (0.73±0.27 ng/ml) and stimulated c-peptide (1.54±1.02 ng/ml) (p<0.001) levels was observed at end of the study. **Conclusion:** Combined alpha and beta cell (Islet) dysfunction prevails in newly diagnosed T2DM. And early insulin therapy significantly improves both these defects. The documentation of this novel beneficial effect on islet cell dysfunction in our study strengthens the concept of early insulin therapy in newly diagnosed Type 2 diabetes patients.

Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES

Association of NOS3 Genetic Polymorphism With the Predisposition to Diabetes and Pre-Diabetes, Retrospective Study

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Background: Endothelial nitric oxide synthetase (eNOS) encoded by NOS3 gene has an important role in modulating vascular endothelial function. Many studies reported a possible role of NOS3 in the pathogenesis of diabetes mellitus (DM). This study investigated the association of NOS3 (G>T) rs1799983 genetic polymorphism with DM, prediabetes (pre-DM), and insulin resistance (IR).
Methods: A random sample of 220 subjects (DM & pre-DM) compared with 220 healthy subjects. Sample obtained from Palestinian adults who consented to genetic and biochemical testing. All subjects genotyped for NOS3 (G > T) rs1799983 SNP using ARMS PCR. Fasting blood sugar (FBS) and triglyceride (TGA) levels were obtained for all subjects. Triglyceride glucose index (TyG) was used as a surrogate marker for IR. Regression analysis adjusted for age and body mass index (BMI) was performed to investigate the association between DM & Pre-DM status, FBS, and TyG with NOS3 genetic polymorphism.
Results: NOS3 minor allele frequency positively correlated with FBS levels after controlling for age and BMI (P-value 0.006). DM & pre-DM were more frequent in homozygous NOS3 subjects with an odds ratio of 2.04 (P = 0.05). NOS3 minor allele frequency positively correlated with TyG but not statistically significant association (P = 0.061).
Discussion: Many studies reported a potential role of NOS3 genetic polymorphism in DM and IR pathogenesis. In this study, NOS3 minor allele frequency positivity