

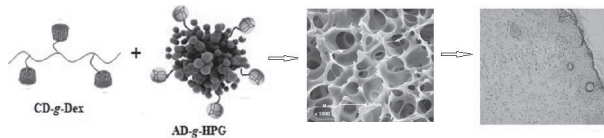
WITHDRAWN

2292-PO

The Novel Supramolecular Hydrogel-based Dextran and Hyperbranched Polyglycerol for the Treatment of Diabetic Foot Ulcers

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Diabetic foot ulcers are a prevalent and serious global health issue for diabetic subjects, galling 12-25% of patients in their lifetime. Wound dressings represent a crucial part of the management of diabetic foot ulceration, which can alleviate symptoms, protect the wound, and encourage healing. By now no single dressing fulfills all the requirements. Here, we designed and synthesized a new supramolecular hydrogel based on hyperbranched polyglycerol and dextran (AD-g-HPG/CD-g-Dex) using the association of β -cyclodextrin with adamantane. Not only provided wound protection and controlled drug release, the hydrogel containing growth factor also promoted wound healing effectively. The fabrication of supramolecular hydrogel was easily available by the host-guest interaction. For AD-g-HPG/CD-g-Dex hydrogel, the typical porous structure and ideal three-dimensional network were confirmed by scanning electron microscope. Moreover, the porous structure showed a rapid increase in equilibrium swelling capacity and made it possess excellent protein encapsulation and release. In vivo study showed that it could promote the wound healing of diabetic rats (Figure 1). Vivality, the viability of NIH3T3 cells was more than 80% after the treatment of hydrogel, indicating good biocompatibility. AD-g-HPG/CD-g-Dex hydrogel has promising and useful applications in biomedical devices.



Supported By: NSFC

DIABETES EDUCATION

2293-PO

WITHDRAWN

2295-PO

Degree of Knowledge of Therapeutic Targets for Diabetes Mellitus, Blood Pressure, and Lipids by Type 2 Diabetes Patients Treated in a Diabetes Outpatient Clinic

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Recent guidelines for the management of type 2 diabetes mellitus (T2DM) patients are emphasizing the individuation of medical treatment. The question arising is the level of knowledge of therapeutic targets giving patients the opportunity to have a more active role in diabetes management. The aim of this study is to evaluate the knowledge of therapeutic targets for T2DM, blood pressure and lipids of diabetes patients treated in a diabetes outpatient clinic.

Eighty seven type 2 diabetes patients (38 men) were enrolled for this study. Patients filled a questionnaire about the HbA1c target (<7%), fasting plasma glucose (100-130 mg/dl), postprandial plasma glucose (140-180 mg/dl), systolic blood pressure (<140 mmHg), diastolic blood pressure (<80 mmHg), LDL cholesterol (<100 mg/dl) and triglycerides (<150 mg/dl).

The patients' mean age was 65.3 ± 10.3 years and diabetes duration was 13.1 ± 9.7 years. Among these patients, 64.4% had arterial hypertension, 71.3% had dyslipidemia, 24.1% coronary artery disease, 6.9% chronic kidney disease and 8% retinopathy. Their knowledge of the therapeutic targets was as follows: 23% answered correctly on HbA1c 23% (n=20), 77% (n=67) on the fasting plasam glucose, 57.5% (n=50) on the postprandial plasma glucose, 97.7% (n=85) on the systolic blood pressure, 27.6% (n=24) on the diastolic blood pressure, 16.1% (n=14) on the LDL cholesterol and 29.9% (n=26) on triglycerides. Correct answers on three therapeutic targets were given by 10.3% (n=9) of the patients, on two targets by 48.2% (n=42), on one target by 29.9 (n=26) and no correct answers were given by 11.5% (n=10).

The majority of type 2 diabetes patients treated at a diabetes outpatient clinic are informed about the therapeutic targets for fasting, postprandial plasma glucose and systolic blood pressure, but only 10% of the study's participants gave a correct answer for all targets.

2296-PO

Understanding the Standard of Care in the Treatment of Type 2 Diabetes in China: Results from a National Survey

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The 2013 Standards of Care for Type 2 Diabetes (T2D) in China survey report compares actual clinical practice with the standards of care (SoC) identified in the third edition of the Chinese Diabetes Society's (CDS) Guidelines for the treatment of T2D. The survey report is key to identifying real world treatment and knowledge gaps by exploring its causes and effects on clinic and providing practical insights on the care of T2D patients with cardiovascular (CV) risks and complications.

The SoC survey was conducted from July 20 to September 23, 2013. A total of 1024 responses were received from more than 15,600 physicians surveyed in China. The sample is normal and representative of the population even at high levels of significance ($\alpha > 0.05$).

Fasting plasma glucose (FPG) was the most frequently used diagnostic measurement while glycated hemoglobin (HbA1c) was the least used. "Lifestyle Intervention" was the most frequently recommended regimen; "Single Oral Anti-Diabetic Drug (OAD) Combined with Lifestyle Intervention" was selected by almost half of the physicians for primary treatment; 92% of the physicians identified biguanides-metformin as the first-line OAD of choice. FPG and HbA1c were the most commonly used measurements to monitor T2D. The assessment of CV risks and related complications among T2D patients was commonly practiced by physicians. Approximately 82% of physicians perceived thiazolidinediones to have negative effects on CV risks and complications. Elevated triglyceride level and elevated low-density lipoprotein cholesterol level were the most common forms of dyslipidemia identified among T2D patients.

Understanding of the variables affecting the management of T2D in China will help CDS further identify unmet needs that can be addressed to improve and standardise the provision of healthcare services, impact the early diagnosis and treatment of T2D, and stem the diabetes epidemic.

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2297-PO

Physical Activity Assessment and Counseling in Patients with Prediabetes or Type 2 Diabetes Treated in Quebec Primary Care Groups

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Based on well-known physical activity (PA) health benefits, diabetes clinical practice guidelines recommend that healthcare professionals provide PA counseling (PAC). This study aimed to 1) quantify the assessment of PA level performed and PAC provided by primary care providers to adults with prediabetes or type 2 diabetes (T2D) and 2) describe patients' leisure PA level, primary care providers' PAC self-efficacy and PA knowledge.

A total of 40 physicians (MDs) and 25 nurses from 10 Quebec Family Medicine Groups (FMGs) were recruited. A sample of 93 patients with prediabetes and 79 with T2D having seen a participating MDs at least 4 times in the previous 2 years were studied (age=63.4±11.8 years; BMI=31.2±5.9kg/m²). Patients' leisure PA categories were determined using the Canadian Community Health questionnaire. An 18 months retrospective medical chart review was performed to obtain informations about providers' practice. One question with 100 mm visual-analog scales was used to evaluate perceived providers' self-efficacy. Providers' knowledge of PA benefits and recommendations was assessed with one multiple choice and 3 short answer questions. More than half of the patients were inactive (62%) and 56.4% had their PA level assessed during the 18 months observation period, but only 32% received PAC by one of the providers, with no significant difference between patients with prediabetes and T2D. Patients who received PAC, had a significantly higher BMI (33.1±5.7 vs. 31.0±6.0 kg/m²) and their PA level was more likely assessed (80% vs. 45.3% of subjects). Providers reported a PAC self-efficacy of 66.7±22.5% and had a low PA knowledge score (40.7±13.8%) with no significant difference between nurses and MDs. To conclude, assessment of PA and PAC is low in the Quebec FMGs, even if patients with prediabetes and T2D were inactive. MDs and nurses' PAC self-efficacy and PA knowledge could be improved to better address PAC for the prevention and treatment of T2D.

Supported By: CIHR

2298-PO

The Impact of Diabetic Training on Health Beliefs, Level of Knowledge, and Diabetes Management of Patients

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This study was designed to determine the effect of Health Belief Model-based education on the health beliefs, level of knowledge, self-efficacy and metabolic control of patients with Diabetes Mellitus. This study, which has an training design with pre-test and post-test control groups, was conducted between October 2010-January 2012. This research completed by 60 patients in training and 68 patients in control groups. The intervention tools of the survey were training booklets for diabetes management, HBM-based diabetes management training and phone calls including monthly reminders. In this study, the training program was designed to be completed in 6 interviews by allocating individuals to training groups composed of 60 patients. Patient identification form, Health Belief Model (HBM) Scale in diabetic patients, data form for diabetic patients, Diabetes management Self-Efficacy Scale and Metabolic Control Variables Form were used for data collection. Permission to undertake this study was granted by the Ataturk University Health Sciences Institute Ethics Board. The descriptive characteristics of training and control groups show similarities in terms of disease properties. Mean post-test scores for health belief and level of knowledge for diabetes were found higher in patients in experimental group than those of control group ($p < 0.01$). Differences between experimental and control groups in terms of mean post-test scores for subcomponents of diabetes management self-efficacy scale except 'special nutrition' were found significant ($p < 0.01$). HbA1c, fasting plasma glucose (FPG), total cholesterol, triglyceride and body mass index (BMI) values of patients in experimental and control groups were found similar after the education. According to the results of the study, it was concluded that diabetes education and counseling on the phone will make a positive contribution to diabetes management and quality of life.

2299-PO

Perceived Diabetes Health Care Team Support and Satisfaction with Insulin Pumps in Children with Type 1 Diabetes Mellitus

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The study objectives were to describe satisfaction of parents with children with Type 1 Diabetes Mellitus (T1DM) using insulin pumps and explore the relationship between perceived health care provider support and satisfaction with insulin pumps. The study was approved by the University IRB. Local chapters of the Juvenile Diabetes Research Foundation invited parents to participate via e-mail with a link to the electronic survey. A follow-up e-mail was sent 1 week later. Questions pertained to pump use, perceived diabetes health care team support for integrating technology, satisfaction, and barriers. SPSS 20.0 (Chicago, IL) was used to calculate descriptive statistics and correlation coefficients. Ninety-eight parents responded, with 42 having a child with T1DM using an insulin pump. Most children had been using their pump for 2 years. They identified a physician, certified diabetes educator, and insulin pump company representative as the diabetes health care team. The mean score for the physician relationship quality scale was 6.28 (on a 7-point scale), and for the perceived support from the health care team was 5.97. The satisfaction mean score was 3.83 (on a 5-point scale). They indicated benefits with respect to flexibility of meals and sleep schedule, and less benefit with respect to child's responsibility and worry. Barriers were issues with infusion sites, cost/insurance, fear of device malfunction, and body image. Insulin pump satisfaction was significantly correlated with the relationship quality ($p = 0.30$) and perceived diabetes health care team support ($p = 0.027$). The adoption of insulin pumps has clinical, psychosocial, and economic implications, and the support provided by the diabetes health care team is essential to the adoption and appropriate utilization of these technologies. It is important that all health care professionals, including pharmacists, nurses, and dieticians, be adequately trained to assist patients with insulin pumps.

2300-PO

WITHDRAWN

Association between Alcohol Consumption, Smoking, and Metabolic Parameters in Type 2 Diabetic Patients from the Korean National Diabetes Cohorts Program (KNDP): A Cross-Sectional Study

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Alcohol drinking and smoking is associated with various aspects of metabolism in type 2 diabetes. Excess alcohol intake and smoking increases the risk of diabetes and can attenuate insulin secretion. We aimed to examine current alcohol drinking and smoking status and its association with metabolic parameters in Korean type 2 diabetic cohorts.

Men with type 2 diabetes enrolled in the Korean National Diabetes cohort Program (KNDP) from March, 2006 to November, 2012. The 2832 men had finished a survey on alcohol drinking and smoking at baseline. Cross sectional and prospective analysis were done. Alcohol drinking was categorized into 3 groups: no drinking, <30g/d, and ≥30g/d and Smoking was categorized into 4 groups: never, ex, <1pack/d and ≥1pack/d. Clinical and metabolic parameters were compared between the groups.

After adjustment for age, duration, smoking and income, higher alcohol intake was associated with higher BMI, WC, FPG, PP2hr, BP, TG, HDL-C and lower LDL-C. Odds of having metabolic syndrome compared to non-drinkers was 1.09 for <30g/d and 1.45 for ≥30g/d drinkers.

After adjusting age, duration and drinking, A1c, FPG, PP2hr and TG were lower in non current smoker and higher in current smoker. HDL-C was significantly lower in smoking ≥1 pack/d. Odds of metabolic syndrome compared to non-smokers was 1.28 for ex-smoker, 1.39 for <1pack/d, 1.66 for ≥1pack/d smokers.

In type 2 diabetic men, excess alcohol drinking was associated with unhealthy eating, stress and metabolic syndrome. Since there are a significant portion of subjects with excess alcohol intake, the education program targeting for these patients will be needed. Smoking was associated with less physical activity, less intake of micronutrients and worse glycemic control and metabolic syndrome. Since there is a great number of current smokers and deleterious effects in metabolism, there is a need to guide men to quit smoking.

Supported By: Korea Healthcare Technology R&D Project

Diabetes Education Is Essential, but What Type?

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Diabetes is a complex chronic disease where social determinants of health are closely related to clinical outcomes. Patient education improves quality of life, adherence to medical treatment and outcomes. Education encompasses a wide spectrum from a casual office visit to a more formal structured and comprehensive 10-hour Diabetes Self-Management Education (DSME) workshop, often provided by Certified Diabetes Educators. We hypothesized that patients who receive education are empowered, with better knowledge of their disease and have less hospitalizations.

We individually interviewed 74 patients with diabetes, 37 outpatients and 37 hospitalized between January 2013 and December 2013 at Montefiore Medical Center using a questionnaire to assess if they received diabetes education and their knowledge of their disease. The mean age was 60.3 years, 64% were females, 60% were born in the United States and 63.5% had type 2 diabetes. Although 64 % had a high school education or greater only 20% were working full time.

Only 37% received diabetes education with a similar distribution among in-patients (38%) and outpatients (33%). The majority received a one-to-one informal education within the first five years of their disease diagnosis, only one attended a DSME workshop. When asked if they knew what a hemoglobin A1c (HbA1c) was, 52% knew, irrespective of their diabetes education status. The actual mean HbA1c levels did not differ among inpatients (8%) versus outpatients (8.4%), or among those who had received diabetes education (8.7%) versus those who had not (8.3%).

We conclude that there was no correlation between patient education, knowledge of their HbA1c, or HbA1c values, and or hospitalization. These unexpected results support the concept that education needs to be given in a more structured, team-based manner, and by qualified personnel, preferably certified diabetes educators.

Diabetes Self-Management: Deficiencies, Education, and Health Outcomes

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120 diabetic patients were enrolled into a structured Diabetes Self management Education (DSME) program developed by us after identifying the deficiencies in DSM by administration of SDSCA questionnaire. 3 months after the program self care behaviors were reassessed by SDSCA scores and health outcomes in form of Body mass Index (BMI), blood glucose control and lipid profile.

102 patients completed the program. Mean age of patients was 56 +/- 11.32, M:F = 1:1. The deficiencies identified were lack of knowledge and awareness about diet, exercise, foot care, diabetes complications, side effects of medications and Insulin administration. Notable was low input from treating physicians.

After 3 months DSME program comprising individual counseling and group therapy to address these deficiencies, there was significant improvement in self care behaviours which translated into improvement in biochemical parameters but not BMI.

Thus a well structured DSME program comprising of individual and group therapy, significantly improves health outcomes at short term follow up. It should be administered by a team and the role of diabetes educators is most important in enhancing DSM to achieve glycaemic goals.

Comparison of Physical, Biochemical, and SDSCA Parameters in Pre- and Post-Intervention Groups.

Parameters	Pre intervention (n=102)	Post Intervention (n=102)	p-value
Physical BMI kg/m2	25.4 +/- 4.5	25.3 +/- 4.3	0.9125 (NS)
Biochemical HbA1C (%)	8.41 +/- 1.4	7.99 +/- 1.1	0.0237 (NS)
Total Cholesterol mg/dl	188.3 +/- 31.7	170.4 +/- 24.2	0.0000
Triglycerides mg/dl	147.4 +/- 43.8	130.1 +/- 21.6	0.0005
Low Density Lipoprotein mg/dl	107.5 +/- 25.8	96.5 +/- 14.9	0.0003
High density Lipoprotein(mg/dl)	42.3 +/- 8.2	44.9 +/- 5.7	0.0106 (NS)
SDSCA scores Median (IQR)	22	41	0.0001
Diet, exercise, foot care, SMBG medications	8	8	0.0852 (NS)

2304-PO**Insulin Therapy: Are We Really Meeting Patient and Provider Educational Needs?**

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Unwillingness to use insulin for management of type 2 diabetes is attributed to patient reluctance and primary care provider (PCP) clinical inertia. The aim of this qualitative study was to explore patients' and PCPs' perspectives on insulin initiation processes. Trained qualitative researchers used pilot-tested scripts with questions that addressed process themes central to insulin therapy: education, experience and costs. Twelve focus groups were conducted with patient's (n=96) representing White, African American and Latino community clinics. Individual telephone interviews were conducted with 23 PCPs (8 internists; 4 family medicine; 8 nurse practitioners; 3 physician assistants) from 2 health systems. Patients in focus groups indicated a strong desire for knowledge particularly on injection logistics. While some reported receiving adequate education, those who had not expressed frustration with their PCPs. Majority of patients had little experience with tools like shorter needles but would consider injecting if presented. Those who had a self-injection experience were more willing to accept insulin therapy. Cost concerns and need for cost information were frequently reported. Barriers and needs reported were consistent across all patient groups. Although patients found giving an injection to be helpful, in-office demonstration was reported by only 1/2 of the PCPs. PCP barriers included their lack of knowledge about injections, medical systems that limited time, and shortage of personnel to provide patient education in their office. PCPs expressed need to address these issues. PCPs placed a high priority on continuing education including information on devices, needles, insulin adjustments, educational and motivational approaches and insurance coverage. These findings from patients and PCPs suggest that those providing patient and PCP education reconsider traditional education topics and tactics to include specifics on insulin delivery and access to on-site education.

2305-PO**Diabetes Education, Medication, and Champions to Reduce Hospital Re-Admissions**

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Recent data has shown that inpatient diabetes education can reduce 30 day hospital readmission rates. Hospitalizations are most common among those who are living in lower income zip codes, socioeconomically disadvantaged including African Americans and Hispanics, without private insurance and elderly. Hospital readmissions contribute significantly to total medical costs and result in a lower quality of care.

Our institution is in Queens, NY, a county in which nearly 50% of the population was born outside the U.S. Many citizens in our catchment area are African American (AA), Hispanic, or Asian Indian, socioeconomically disadvantaged, and do not have private insurance. These patients present to the Emergency Department (ED) with hyperglycemia, and/or newly diagnosed diabetes. Those with known diabetes often present because they cannot afford the costs of their diabetes medications.

We designed a diabetes champion program for physicians, Physician Assistants and nurses in the Clinical Decision Unit (CDU), a short stay unit of the ED, to provide patient education on acute diabetes complications and diabetes treatment modalities. Patients are given follow-up care appointments in the Ambulatory Care Unit (ACU) within a week of discharge and meet with a financial counselor to start a Medicaid application. Those patients who are Medicaid eligible are provided with free medications for the interval until insurance is obtained. In the initial six months of this ongoing program, we enrolled 28 patients in the free medication program. Of these 28 patients there were no hospital admissions but 2 ED visits, representing a 0% readmission rate and only 7.1% revisited the ED. Our Healthcare Association of New York State (HANYS) readmission data for 2011 showed a diabetes readmission rate of 48.4%. The average age of these individuals was 52. Ethnicity data: 35.7% were AA, 28.6% Asian Indian, 25% White, and 10.7% other.

2306-PO**The Most Common Mistakes Performed by Diabetic Patients and Health Care Providers**

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Treatment errors in diabetes can be devastating for the patients. These errors can be performed both by the patients and healthcare providers. Reasons for treatment errors can be insufficiency of patient evaluation,

diabetes education and pharmaceutical supervision. This study was planned to describe and call attention to the most common mistakes accomplished in the treatment of diabetes. Data of 100 patients (60 female, 40 male), who had been noted to have errors in the course of their treatment were retrospectively evaluated. 2/3 of the patients were maladjusted to diet. False oral antidiabetic combination (OAD) (continuing of one insulin secretagogue or dipeptidyl dipeptidase inhibitor without stopping the other one) was observed in 28 patients, overdosage of OAD and insulin (pioglitazone 3x45mg, gliclazide 240 mg, metformin 3000 mg, insulin dose more than needed) in 22 patients, false insulin and OAD combination in 16 patients, wrong choices in insulin treatment (combination of mixture and long acting insulins, using of different types of long acting insulin and analogues together, short acting insulin before breakfast and dinner, long acting insulins four times a day) in 34 patients. Also contraindications of the drugs were not taken into consideration in 12 patients. Metformin and thiazolidinedions prescribed to patients with poor renal or liver function and heart failure, insulin secretagogues prescribed in hypoglycemic, old and patients with nutrition problems. Follow-up problems; lost or over follow-up was also noted. It can be concluded that there may be great number of mistakes performed by both the patients and healthcare providers. These errors can be minimized by increasing the awareness about the medication errors, multidisciplinary approach (doctor, dietitian, diabetes training nurse, pharmacist), improving communication with the patient, reviewing the medications each visit and providing information about the most common medication errors may contribute to patient safety.

2307-PO**Combating Clinical Inertia: Using an Educational Intervention to Teach House Staff to Safely and Effectively Intensify Insulin Therapy in the Hospital Setting**

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Improving glycemic control in hospitalized patients is an ongoing challenge despite evidence to support its benefits. We have implemented and refined several strategies to streamline insulin dosing, making it easier for housestaff to safely and effectively initiate subcutaneous insulin therapy. Subsequent housestaff interviews revealed a lack of knowledge and comfort level in titrating insulin doses when glycemic targets were not met. In response to this identified learning need, we developed a simple titration algorithm based on blood glucose ranges to facilitate safe and effective titration of subcutaneous insulin. During a two-month period in 2013, the inpatient diabetes nurse practitioner met twice monthly with housestaff on one medicine unit to teach them how to use the algorithm. To reinforce the teaching, a pocket card was distributed containing the key elements. Housestaff feedback indicated that they were uncomfortable calculating the dose adjustments due to difficulty in deciding how to round a fractional dosing increment (e.g. adding a 10% dose increase to 6 units). To address this need, the intervention was modified by creating a new version of the algorithm which pre-calculated the recommended dose adjustment. The housestaff were instructed in this version and given a new reminder pocketcard. Results showed a significant decrease in hypoglycemia from 2.57% to 1.82%, $p=0.039$ and a significant increase in hyperglycemia from 31.76% to 41.33%, $p<0.0001$. Unforeseen barriers to effective utilization of the algorithms included difficulty in calculating the appropriate doses in version one and the complexity of entering the new doses into the computerized prescriber order entry (CPOE) screen in version two. Use of a CPOE insulin titration algorithm with automated calculation and order entry might reduce these barriers and foster adoption of an insulin titration algorithm.

Supported By: Weill Cornell Medical College

2308-PO**The Survey about Relationship of Personality Traits to Self-Interruption of the Treatment in Japanese Patients with Type 2 Diabetes Mellitus**

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It has been suggested that there is a relationship between personality traits and an outcome of the treatment in type 2 diabetes mellitus (T2DM). However, the effect of personality for the treatment of T2DM is not well established in Japanese. In this study, we investigated the relationship between personality traits and self-interruption of the treatment. Seventy-

nine patients with T2DM admitted our hospital, and filled out questionnaires and based on that they were assigned personality types (male 38/female 41, mean age 62 years, duration 12 years, and HbA1c 9.0%). There are four personality types, which are controller (C), promoter (P), analyzer (A), and supporter (S). As a result, there were A (35 patients), S (20 patients), C (5 patients), P (19 patients) when we did a character classification. Fifteen patients had a history of the self-interruption. The ratio of the self-interruption among each character classification showed A 29% (10/35), S 10% (2/20), P 10% (2/19). Analyzer showed most interruption. However, there were no significant difference in HbA1c between interruption group and non-interruption group in analyzer at 6 months after the education of diabetic inpatient. Three person had a history of admission for education in total 10 self-interruption and analyzer patients. The analyzer type ended up with the self-interruption of the treatment more often than other types. We think one of the reasons why there were more self-interruption of the treatment in an analyzer type group is that we did not supply enough information about the treatment to the patients at our hospital. Furthermore, it was suggested that HbA1c decreased by the education of diabetic inpatient in analyzer regardless of self-interruption carrier or not. We consider the analyzers tend to improve glycemic control if they receive enough education. These results suggested the character of the analyzer may be involved in self-interruption and the effect of education.

2309-PO

Translating Inpatient Hyperglycemia Management Guidelines into Practice: Major Deficiencies in Insulin Prescription Patterns at a Teaching Hospital

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Substantial evidence links hyperglycemia in hospitalized patients to poor outcomes. Current guidelines indicate the use of scheduled subcutaneous insulin with basal, prandial, and correction components. Prolonged use of sliding scale insulin (SSI) as mainstay of therapy is discouraged. The aim of this study was to examine insulin prescription patterns in non-intensive care unit (ICU) medicine and cardiology ward patients at a teaching hospital. A retrospective review of medical records was performed for patients consecutively admitted/transferred to the ward services during a 4 week period (November - December, 2013). Forty-eight patients with a history of diabetes mellitus or with inpatient hyperglycemia were included in this study. Patients had a mean age of 60.13 years, and were of diverse race/ethnicity; 42% were female. All but 2 patients had a known history of diabetes. Mean HbA1c on admission was 9.0%. Of the known diabetics, 50% were on insulin therapy at home and 54% on oral agents. Outpatient insulin regimen was continued in-house unchanged, despite a history of poor control in 75% of cases. On admission, no basal or prandial insulin was prescribed unless patients reported a history of previous insulin use, but SSI was ordered on all 48 patients. Hospital stay averaged 3.8 days, mean fasting glucose 199 mg/dl, and mean pre-prandial glucose was 232 mg/dl. 31 (65%) of patients did not achieve either fasting or random inpatient glucose goals, mainly because none of the patients were prescribed basal or prandial insulin on admission. Our study suggests that management of inpatient hyperglycemia is deficient in the absence of a regimen that includes basal and prandial insulin. Educational interventions aimed at end users and implementation of an electronic diabetes order-set to standardize insulin therapy in hospitalized medicine patients, may improve translation of current guidelines and impact patient outcomes.

2310-PO

Effect of a Telemedicine-based Educational Intervention on Glucose Control in Type 2 Diabetes in Arkansas

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This pilot project in the Arkansas Delta was designed to assess the impact of a combined endocrinologist educator telemedicine intervention on glucose control within subjects with type 2 diabetes in an underserved community. This project paired a rural diabetes educator, with dedicated endocrinologist and certified diabetes educator support, combining patient and provider education.

The study was planned as an eight week intervention, combining one session of group education with six fifteen minute visits to a telemedicine clinic, followed by a final visit for data collection. Biometric data collected included glucose, glycosylated hemoglobin, weight, height, body mass index, and foot sensation. Quality of life data included the Diabetes Treatment

Satisfaction Questionnaire - status version. The study recruited twenty participants from communities in the Helena Arkansas Delta region. All participants received group education at visit one, and all were offered six consecutive weekly 15 minute telemedicine education session at visits two to seven, with the endocrinologist and educator.

The mean age of participants was 54.2, with an average duration of Type 2 diabetes of 7.1 years. The mean HbA1c pre study was 8.9 % and mean BMI 33.9 kg/m². 70% of participants were taking metformin and 40% insulin at baseline. HbA1c fell from 8.9% to 7.6% (p=0.011). There was a significant improvement in a number of the quality of life measures from the DSTQs questionnaire with regards satisfaction (p=0.005), reducing high glucose levels (p=0.018), increasing convenience (p=0.007), flexibility (p=0.023), satisfaction with understanding (p=0.015), satisfaction with treatment (p=0.014).

The combination of local group education with a telemedicine clinic used over a six week period may be an effective method of improving glycemic control and treatment satisfaction.

Supported By: Sturgis Charitable Trust

2311-PO

WITHDRAWN

2312-PO

One-Year Results of Weekly Going "Diabetes Social Club" Meetings for Young Type 1 Diabetes Mellitus (T1DM) Patients

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While promoting effective educational programs for T1DM patients is a universal goal, everyday patient's life dictates limited possibilities for visiting usual educational meeting on a regular base.

A study was done at endocrinology department of academic hospital. It was offered for all T1DM patients (18-25 years old) to visit weekly going "diabetes club" meetings at evening time with possibility to communicate with other young patients and ask any question about the disease. Furthermore, the schedule of 15-minutes lectures about common diabetes topics was developed. During the year the mean amount of visitors per meeting was 22 persons. We collected data about 28 patient's characteristics (mean age 22,1±3.1 years, mean diabetes duration 6,4±4,2 years, 13 males, 12 on MDI therapy, 16 on CSII therapy), HbA1c levels, hypoglycemia frequency, SMBG frequency and correction boluses frequency in those patients, who visited more than 70% of meetings. The control group included 30 T1DM patients, who were observed in our clinic on a regular base (mean age 20,6±4,3 years, mean diabetes duration 7,2±3,8 years, 12 males, 16 on MDI therapy, 14 on CSII therapy).

EXERCISE

The mean HbA1c level was reduced at 3 months after the start of the program (from 8,8% to 7,6%), but even more pleasing was that also the long-term follow-up, after one year, confirmed the sustainability of the results (with mean HbA1c level 7,4%), without statistically significant difference in HbA1c level in control group (from 8,6% to 8,2% after one year of the study). The frequency of severe and mild hypoglycemia was also reduced, while the amount of SMBG and correction boluses was increased (from 3 to 5 per day and from 2 to 4 per day).

"Diabetes club" meetings empowers young T1DM patients in closer monitoring of their disease and the results emphasize how important it is for health professionals to continue to find the new ways for patient's education, it's structure and processing.

EXERCISE

WITHDRAWN

2313-PO

2314-PO

Effects of Moderate Intensity Exercise on Glucose Variability in Obese T2DM Adults

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We investigated the effects of a single bout of moderate-intensity aerobic exercise (treadmill walking for 30 minutes at 65% VO₂ peak) on glycemic variability (Continuous Net Glycemic Action using 1 hour intervals [CONGA1]) and oxidative stress (urinary F₂-isoprostanes) in obese subjects with T2DM and non-DM controls (n=42: African American: 24, Caucasian: 11, Hispanic: 7; females: 31; age: 44.7 ± 8.72 years). Additionally, we assessed the relationship among cardiorespiratory fitness (VO₂ peak), glycemic variability, glucose control (A1C) and inflammation (CRP). Each subject performed a single bout of aerobic exercise on one day and a period of sedentary activity on another at 0800 hours. CONGA1 values were computed and urinary F₂-isoprostanes were collected from 0700-1900 hours. Changes in CONGA1 and urinary F₂-isoprostanes between exercise and sedentary days were analyzed using repeated measures ANOVA. Relationship of CRP levels, VO₂ peak, A1C and CONGA1 was assessed with bivariate Pearson product moment correlations. There were significant within group differences for CONGA1 between exercise and sedentary days, (p= 0.031). For CONGA1 values, significant between group differences (34.94 ± 2.35 [T2DM] vs. 18.55 ± 1.51 [Controls]; p = 0.047); and an interaction between T2DM and exercise (p = 0.0015) were found. For urinary F₂-isoprostanes, significant between

group differences (1.59 ± 0.07 [T2DM] vs. 1.42 ± 0.05 [Controls]); p = 0.014) and a significant interaction between exercise and T2DM (p = 0.01) were found. Significant correlations (p < 0.05) were found between CRP levels and VO₂ peak (r=-0.41); VO₂ peak and A1C (r=-0.43); and A1C and CRP levels (r=0.43). Our findings suggest that moderate intensity exercise can improve glucose regulation for obese adults with T2DM. Additionally, improvement of glycemic control may help improve cardiorespiratory fitness. Further study on the effects of various exercise intensities on glycemic variability and oxidative stress levels in T2DM are needed.

2315-PO

Examining Cardiorespiratory Fitness in Diabetic Individuals With and Without Psychotic Illness

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Cardiorespiratory fitness (CRF) is a modifiable risk factor for Cardiovascular Disease (CVD) and Type 2 Diabetes Mellitus (T2DM) and also predicts premature mortality. Even though psychosis is associated with a 2-3 times higher prevalence of T2DM and premature mortality, few studies of CRF and T2DM have included individuals from this vulnerable group. The purpose of our study was to measure CRF in overweight and obese (Body Mass Index (BMI) > 25 kg/m²) individuals diagnosed with a psychotic illness (PI) and T2DM and compare it to CRF in people with T2DM and no PI as well as healthy control data from a published study. We also compared levels of physical activity (PA) and quality of life (QOL) in both T2DM groups. These are the preliminary results from 21 participants with T2DM and PI as well as 17 participants with T2DM and no PI, who completed the study. From the healthy control data, we identified 25 individuals, matched for age by decade, who had a BMI > 25 kg/m². CRF was assessed using the 6 Minute Walk Test and PA was assessed using the Clinical Assessment for Physical Activity and the International Physical Activity Questionnaire. QOL was evaluated using the Short Form Health Survey (SF-12). We found a significant difference for CRF among the three groups (p < 0.01). Post-hoc analyses revealed that people with PI and T2DM had a significantly lower CRF when compared to people with T2DM and no PI (p < 0.05) and healthy controls (p < 0.01). Participants with PI and T2DM had significantly lower levels of self-reported PA in comparison to people with T2DM and no PI (p < 0.01). QOL was lower in people with PI but this was not significantly different from the group with T2DM and no PI. The best predictors of CRF in the two T2DM groups were age, BMI, PA, and the physical health component of the SF-12. These results demonstrate CRF is greatly diminished in people with PI. Tailored interventions are urgently required for improving physical fitness in this population to reduce medical co-morbidity, improve QOL, and prolong lifespan.

Supported By: CDA

2316-PO

InterWalk®—Implementation Study of a Mobile App for Physical Activity Intervention

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Individualised Interval-walking training (IWT), alternated 3-min repetitions of walking at low and high intensity, is effective in type 2 diabetes (T2D) patients for improving fitness level, blood glucose and lipid regulation (Karstoft et al. *Diabetes Care* 2013).

We aimed to test if launching a mobile application (app) is effective in implementing IWT in persons with and without T2D and compare incident T2D patients who chose and did not choose to use the app with respect to their baseline activity and anthropometric measures.

We developed an app, InterWalk®, which can both guide and monitor intensity and distance of IWT, and subsequently uploads data at a server. InterWalk® was released in App Store (Apple Inc.) and promoted via newspaper articles and www.InterWalk.dk. Registration with a unique personal identification number is mandatory, allowing us to monitor the use in incident T2D patients by linkage to the DD2 diabetes database.

InterWalk® was downloaded 6545 times during the first 46 days in App Store, with 1616 unique users registered. A total of 4315 IWT sessions were uploaded, of which 1819 were sessions with ≥480 steps or ≥0.1 KM walking. Of all InterWalk® users, 92 (5.7%) had incident T2D, of which 25% uploaded ≥5 IWT sessions vs. 16% among users without T2D (RR=1.55, 95% CI 1.07-2.25). Comparing 46 app using with 4377 non-App using T2D patients, 27% vs. 21% reported regular sports activities (RR=1.26, 95% CI 0.77-2.06), and

7% vs. 18% reported only sedentary activity (RR=0.36, 95% CI 0.12-1.09). The waist to hip ratio was lower in T2D patients who used the app, 0.94 vs. 0.97 ($p=0.04$).

In conclusion, InterWalk® can implement IWT in the Danish population, but few T2D patients use the app spontaneously. App-users with T2D trained more frequent than other app-users, thus InterWalk® may be a motivating tool in T2D. T2D patients who used the app had more physical activity and less central obesity at baseline, suggesting a more active promotion of InterWalk® to the most inactive patients.

Supported By: Danish Agency for Science, Technology and Innovation

2317-PO

How Physically Active Are Adults with Newly Diagnosed Type 1 Diabetes? Early Results from the EXTOD Study

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Guidelines recommend that people with type 1 diabetes undertake a minimum of 150 minutes of moderate-intensity physical activity per week. More than 50% of adults with longstanding type 1 diabetes do not undertake this level of activity. No one has examined how active adults with newly-diagnosed with type 1 diabetes, and the impact of diagnosis on their activity. Using patients from the EXTOD study we aim to answer these questions.

The EXTOD (What are the barriers and benefits to exercise in type 1 diabetes?) study is a randomised control study to determine the effect of increasing physical activity on c-peptide in newly-diagnosed patients. Participants must be between 16-60years and within 3-months of diagnosis. At baseline, participants were asked how many hours exercise they did before and after diagnosis. Accelerometers worn for one week provided the objective measure of activity.

65 patients completed these tests, 47 male and 18 female. Mean age was 31 years.

Self-reported exercise reduced following diagnosis from two hours (0-24hours) per week to 0.9 hrs (0-7.5hours) ($n=49$, $p=0.0051$). Only 21% of patients reported more than 150minutes of exercise per week following diagnosis. In contrast, accelerometer showed that 75% of patients exceeded the recommended 150minutes with a mean of 4.3hours (0.7-11.5 hours) per week.

The majority of patients with newly-diagnosed type 1 diabetes, when measured objectively, are meeting physical activity targets. Patients report that their activity levels have fallen with diagnosis but this needs to be confirmed with objective measures.

Supported By: NIHR

2318-PO

Use of the Anaerobic Threshold to Detect Mitochondrial Dysfunction in Patients with Type 2 Diabetes Mellitus

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Purpose: The anaerobic threshold (AT) during cardiopulmonary exercise testing (CPX) possibly reflects the ability of muscle cells to switch metabolism from the oxidation of fatty acids to carbohydrate oxidation. Therefore, we hypothesized that the AT can be used to estimate mitochondrial dysfunction in patients with type 2 diabetes mellitus (T2DM). Methods: Seven healthy individuals (group H) and 9 patients with T2DM (group D), matched for age, underwent CPX. Mitochondrial function was assessed using technetium-99m sestamibi (99mTc-MIBI) imaging of both legs. Results: 99mTc-MIBI counts and the AT were lower in group D than in group H (99mTc-MIBI counts: 72.2 vs. 92.0; $p < 0.05$ and AT:12.7 vs. 17.1 ml·kg⁻¹·min⁻¹; $p < 0.05$). The AT was positively correlated with 99mTc-MIBI counts ($r = 0.82$, $p < 0.01$) but not with the ejection fraction ($r = -0.17$, not significant). Conclusions: A low AT may reflect the impaired bioenergetic capacity of skeletal muscle mitochondria in patients with T2DM.

2319-PO

WITHDRAWN

2320-PO

WITHDRAWN

NUTRITION—CLINICAL

2321-PO

Efficacy and Safety of a Very-Low-Calorie, Ketogenic Diet vs. Conventional Diet in Obese Patients with Type 2 Diabetes

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We determined the short-term efficacy and safety of a very-low-calorie, food-based, ketogenic (KETO) diet vs. a balanced, low-calorie, conventional (CONV) diet in obese adults with type 2 diabetes (T2D). A retrospective analysis was performed on 51 T2D subjects who underwent the KETO diet (500-800 kcal, high-protein, <20 g carbohydrate/day; $n=37$) or the CONV diet (1100-2000 kcal/day; $n=14$). Outcome measures included weight loss, metabolic syndrome parameters, and need for medication use. Mean

Medically Supervised Fast as a Treatment of Insulin Resistance in Type 2 Diabetes Mellitus

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Therapeutic fasting is defined as the total withdrawal of caloric intake. It has been proposed for refractory obesity but long term benefits on weight loss are controversial. In type 2 diabetes, fasting has benefits beyond the effects of weight loss. Fasting may improve hepatic reactivity, improve glucose control and allow for reduction in insulin dosing. The following case series reports the experience of a fasting program for obese type 2 diabetic patients on insulin. Fasting at home was offered as therapeutic option to improve insulin sensitivity and glycemic control. A total of 23 patients participated since 2009 to 2013. The protocol consisted of 48 to 72 hours of fasting with diet of carb free zero caloric drinks and three sticks of celery a day. During the fast, patients had strict home glucose monitoring and daily contact with providers for insulin adjustments. Patients continued a low carb diet for 4 weeks after fasting. Baseline daily insulin dose, weight and hemoglobin A1c (A1c) were measured pre fast and at 3, 6 and 12 months after the fast. Results revealed a mean weight of 263 lb. at baseline, 252 lb. at 3 months (data from 22 patients), 255 lb. at 6 months (17 patients) and 264 lb. at 12 months (13 patients). Initial mean A1c was 9.2% that dropped to mean A1c of 7.7% at 3 months (19 patients), 8.4% at 6 months (15 patients), and 8.2% at 12 months (12 patients). The average daily insulin dose was 179 units initially, 113 units at 3 months (22 patients), 105 units at 6 months (17 patients), and 119 units at 12 months (14 patients). Side effects as hypoglycemia and hypotension were observed in few patients. Most of the patients had substantial insulin dose reduction and blood glucose control improvements with some weight loss. There were no relevant complications. A short-term fast followed by low carb diet is an inexpensive and safe approach to treat insulin resistance in type 2 diabetic patients.

durations of KETO and CONV were 4.9 months and 5.1 months, respectively ($p=0.94$). At the end of intervention, mean weight loss was -13.5 kg (-10.7%) in the KETO group vs. -4.6 kg (-3.4%) in the CONV group (between-group $p<0.01$). HbA1c decreased by -0.8% in the KETO group vs. -0.7% in the CONV group. Meanwhile, the number of diabetes medications decreased by 18% in the KETO group while increasing by 27% in the CONV group. Triglycerides decreased by -39.0 mg/dL from baseline in the KETO group ($p<0.01$) and did not change in the CONV group. Hyperuricemia was noted in 8 out of 37 patients in the KETO group, but only 1 presented with gout. Though longer-term studies are needed, a very-low-calorie, ketogenic diet may have greater cardiometabolic benefits to obese, T2D patients on weight loss, glycemic control, triglycerides, and medication burden than a conventional diet.

	KETO		CONV	
	Baseline	Final	Baseline	Final
Age (Years)	51.2	—	55.3	—
Gender (Male/Female)	14/23	—	4/10	—
Weight (kg)	125.2	111.7*†	121.1	116.5
BMI (kg/m ²)	44.0	39.3*†	44.0	42.4
Fasting Glucose (mg/dL)	130.0	118.3	138.5	130.3
HbA1c (%)	7.2	6.4*	7.5	6.8
Systolic BP (mm Hg)	129.6	127.8	129.3	128.0
Diastolic BP (mm Hg)	82.4	77.9	78.7	74.2
LDL (mg/dL)	84.9	91.3	98.1	89.3
HDL (mg/dL)	51.6	52.7	48.4	45.4
Triglycerides (mg/dL)	157.6	120.4*	171.3	181.9
Number of Diabetes Medications Including Insulin Per Patient	1.6	1.3*†	1.6	2.0

Mean values. * = $p<0.01$ for within-group comparisons on change from baseline; † = $p<0.01$ for between-group comparisons on change from baseline.

2322-PO

Long-term Effects of Non-Ketogenic Low-Carbohydrate in Japanese Patients with Type 2 Diabetes

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Aims: Although American Diabetes Association has recently recognized low-carbohydrate diet (LCD) as one of acceptable eating patterns (Diabetes Care 2013), once they did not recommend LCD (Diabetes Care 2002) or recommended monitoring of lipid profiles and renal function under LCD (Diabetes Care 2008). Therefore, the aim of this study was to assess the long-term effects of a non-ketogenic LCD in Japanese patients, especially in lipid profiles and renal function.

Materials and Methods: A total of 100 patients (age; 60.3±13.1 years, BMI; 26.8±5.1 (mean±standard deviation), M/F 63/37), with type 2 diabetes who were instructed to consume non-calory-restricted, non-ketogenic LCD (carbohydrate; 70-130g/day, lipid and fat; no limitation) were sequentially registered. Patients visited our hospital every two months and were recorded glycemic control, body weight, blood pressure, lipid profiles, and renal function at baseline at 6 months after instruction. We also monitored hypoglycemic episode during 6 months.

Results: Glycemic control, body weight, blood pressure, and lipid profiles were improved significantly. As for renal function, no statistically significant change was observed. Hypoglycemic episodes were increased.

Conclusions: As previous studies (such as Santos et al. (Obes Rev 2012)), LCD improved all of metabolic syndrome components.

Patients Characteristics at Baseline and 6 Months after Instruction of LCD.

	baseline	6months	p-value
HbA1c(%)	8.2±1.6	7.2±1.0	<0.01
BodyWeight (kg)	72.6±16.1	71.2±15.6	<0.01
LDL-C(mg/dl)	114.9±35.3	108.4±34.0	<0.05
TG(mg/dl)	155.3±132.4	138.6±118.5	<0.05
HDL-C(mg/dl)	58.5±15.6	66.0±21.8	<0.01
UN(mg/dl)	15.7±5.6	17.2±5.6	<0.05
Cr(mg/dl)	0.8±0.2	0.8±0.2	n.s.

Supported By: Kitasato Institute

2324-PO

Excess Weight Gain in Nonobese North Korean Refugees Associated with Increased Risk of Impaired Fasting Glucose

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North Korea is one of the lowest-income countries in the world. On the contrary, South Korea is one of the developed countries and member of OECD. The North Korean refugees who resettled in South Korea experienced drastic change in transition from severe food shortage to abundant food.

From the NORNS (North Korean Refugee health in South Korea) study, our aim was to study the associations of weight gain in South Korea with the risk of metabolic syndrome. The study was cross-sectional study, consisted of 594 North Korean refugees. We measured waist circumference, height, weight, blood pressure, fasting glucose, insulin, lipid concentrations, and the prevalence of metabolic syndrome in 594 men and women aged above 30 years in Seoul, Korea.

North Korean refugees who were underweight or normal weight when arrived in South Korea experienced higher risk to gain excess weight ($\geq 5\%$ of initial body weight) compared with overweight subjects (overweight : 1, normal weight : odds ratio 2.63 [95% CI 1.49-4.63], underweight : odds ratio 10.91 [95% CI 4.12-28.92]). North Korean refugees who experienced excess weight gain ($\geq 5\%$ of initial body weight) in South Korea had higher risk of developing metabolic syndrome. The composition of metabolic component is different according to initial BMI in South Korea in subgroup analysis of subjects who had metabolic syndrome. Compared with overweight subjects (BMI ≥ 23), initially normal weight or underweight subjects had lower prevalence of abdominal obesity but higher prevalence of impaired fasting glucose (53% vs. 90% $p < 0.001$, 65% vs. 42% $p = 0.025$).

Underweight North Korean refugees had tendency to undergo more weight gain in South Korea. Compared metabolic components who had metabolic syndrome in South Korea, initially underweight or normal weight North Korean refugees had lower risk of abdominal obesity, but higher risk of impaired fasting glucose.

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2325-PO

A 6-Month Modest Lifestyle Modification with Increased Sunlight Exposure Improves Vitamin D Status, Lipid Profile, and Glycemic Status in Overweight and Obese Saudi Adults with Vitamin D Deficiency and Varying Glycemic Levels

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Objective: In this prospective 6-month study we aim to determine whether a self-monitoring, life-style modification program with increased sunlight exposure confer improvement in vitamin D status and health benefits among adult Saudi overweight and obese patients with varying glycemic status.

Methods: A total of 96 overweight and obese Saudi adults with varying glycemic status aged 30-60 years were included. They were divided into 3 groups: Non-T2DM (N=44), Pre-diabetes (N=26) and T2DM (N=23). Anthropometrics and blood samples were taken at baseline and after 6 months. Fasting blood glucose and lipid profile were measured routinely. Serum 25(OH)vitamin D was measured using standard assays. Within the time period they were instructed to reduce total intake of fat, increase fiber intake and sun exposure.

Results: In all groups there was a significant increase in vitamin D levels which translated into parallel improvements in LDL- and total cholesterol ($p=0.005$ and 0.009 , respectively). In the pre-diabetes group, there was a significant decrease in serum fasting glucose ($p<0.001$), with 69.2% achieving normal serum fasting glucose levels after 6 months and 30.8% remaining pre-diabetic. No improvement in BMI was observed.

Conclusion: A short-period modest lifestyle modifications with sunlight exposure provides beneficial metabolic changes among overweight and obese Saudi adults, and improves glycemic status of those with pre-diabetes. Present findings show promising and effective strategy in delaying diabetes progression in high-risk groups.

2326-PO

WITHDRAWN

2327-PO

Diet Carbohydrate Content and Glycemic Control in Type 2 Diabetes Patients Treated with Premixed Human Insulins

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Treatment with premixed human insulins (PMHI) is a popular therapy in type 2 diabetes mellitus (T2DM). However, most T2DM patients do not achieve recommended glycemic goals. Defining the optimal diet composition may be helpful in reaching therapeutic targets.

The aim of this study was to examine if the reproducible calorie/carbohydrate (CH) intake may improve glycemic control in T2DM patients treated with PMHI.

We included 8 T2DM patients. Their mean age was 68.9 years, mean T2DM duration - 9.8 years, mean BMI - 28.48 kg/m², mean HbA1c - 8.4%. All patients were treated with two injections of PMHI (30% of short acting component) with an average daily dose of 44.5 IU; in 7 cases insulin was

combined with metformin. Prospective cross-over study design was used. The subjects were exposed to two types of diet based on steady calorie/carbohydrate content: „A” - 50% calories from CH, 30% from fat (F), 20% from protein (P), „B” - 40% from CH, 30% from F, and 30% from P. The study calorie content was based on declared pre-study consumption (mean 1475 calories/day). Meals were delivered home to the patients. Each patient was exposed to diet „A” for 9 days, than after 7 days of „wash out” to 9 days of diet „B”. Glucose patterns were assessed with the continuous glucose monitoring system (iPro, Medtronic, USA).

In comparison to pre-study glucose patterns implementing diet „A” resulted in a decrease of mean glucose levels (glucometer data) from 187 to 153 mg/dL ($p=0.0001$), with the standard deviation (SD) reduction from 84mg/dL to 44 mg/dL. Switching from diet „A” to „B” resulted in a decrease of mean glucose levels (CGMS data) from 145 mg/dL to 133 mg/dL ($p=0.0001$), SD reduction from 51 to 42 mg/dL ($p=0.0429$), decrease proportion of time spent above the target of 180 mg/dL from 18% to 11% ($p=0.0006$). There were no episodes of severe hypoglycemia.

In summary, consistent and reproducible CH/calorie intake with moderate restriction of CHs allows to improve glycemic control in T2DM patients treated with PMHI.

Supported By: Bioton

2328-PO

Effects of Water-Only Fasting among Prediabetic Patients

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Background: Routine, periodic fasting is associated with lower glucose and body mass index in coronary angiography patients. In healthy people, a 24-hour water-only fasting intervention reduced glucose and weight, and increased human growth hormone (HGH), red blood cell count (RBC), and low-density lipoprotein cholesterol (LDL-C). This study evaluated the effect of fasting on glucose and weight in pre-diabetic individuals with metabolic syndrome.

Methods: Pre-diabetics engaged in 6 weeks of once-per-week 24-hour water-only fasting. Participants were 30-69 years of age with ≥ 3 features of the metabolic syndrome. Lab and clinical exam measurements were compared by paired T-test at baseline and 6 weeks at three time points: within one hour post-prandial, fasting at 12 hours, and fasting at 24 hours. Glucose and weight at the 12-hour fast were the primary outcomes. Patients completed the NCI Diet History Questionnaire II for evaluation of nutrient changes.

Results: Age averaged 58.4 ± 7.0 years (range: 40-66 years) and 75% were female. All participants were fully compliant and no adverse events were reported. Glucose was unchanged at 6 weeks compared to baseline (104.5 ± 18.8 mg/dL vs. 104.9 ± 17.7 mg/dL, $p=0.82$), but weight was significantly reduced (90.9 ± 11.1 kg vs. 92.5 ± 11.3 kg, $p=0.008$). Secondary analyses found 6-week reductions in LDL-C (87.8 ± 27.4 mg/dL vs. 100.9 ± 38.1 mg/dL, $p=0.015$), although baseline LDL-C increased during the initial 24-hour fast (post-prandial: 92.4 ± 33.8 mg/dL, 24-hour fasting: 101.6 ± 39.2 mg/dL, $p=0.008$). No 6-week changes in HGH (0.51 ± 0.53 vs. 0.69 ± 1.04 , $p=0.33$) or RBC (4.78 ± 0.35 vs. 4.82 ± 0.34 , $p=0.41$) were observed.

Conclusions: A once-weekly 24-hour water-only fasting intervention reduced weight by 1.6 kg (3 pounds) among pre-diabetics over 6 weeks but did not change glucose. LDL-C was acutely elevated by fasting (confirming a prior report in apparently healthy people), but after 6 weeks the basal LDL-C level had fallen. Further study of fasting as a pre-diabetic intervention is indicated.

2329-PO

Attaining Partial Reversal of Type 2 Diabetes Through Dietary Manipulation with Clinico-Biochemical Benefits (HALF DIET CONCEPT)

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Type 2 Diabetes is due to excess accumulation of fat in liver, pancreas and muscles and low caloric dietary intervention is known to reduce fat from these organs with reduction in Insulin resistance (IR) and improvement in Insulin sensitivity; a state which could be called partial reversal of T2D, leading to betterment in glycemia, Wt, BP, body fat% (BFP) and lipid profile.

In this study on OHA failed, Insulin requiring T2D patients with uncontrolled hypertension and lipids, diet with 50% of daily caloric need (HALF DIET) was offered for 3 weeks with aim to see impact on various clinical and biochemical parameters.

Twelve patients were enrolled for the study but only 10 completed the protocol with mean age 51 (+/-14.97) yrs, DOD 7.7 (+/-4.59) yrs, Wt 89.6 (+/-11.2) Kg, both sexes (5M, 5F), BFP 38.94 (+/-3.35)%, HOMA-IR 5.6 (+/-2.04), FBG 228.3 (+/-57.01 mg% and PPBG 339.9 (+/-56.08) mg% and dyslipidemia. All were offered HALF DIET for 3 wks. Change in Wt, BFP, BP, FBG, PPBG and lipid profile were recorded (as per table).

All patients revealed betterment in glycemia, wt, BFP, IR, BP and lipids. Need for Insulin ceased in 90% pts.

HALF DIET concept is an easy and practical approach to manage uncontrolled T2D patients.

Change in Parameters after HALF DIET.

Parameter	Mean Change	SD
Body Fat(%)	-1.97	0.98+/-0.312
Wt(Kg)	-3.3	2.26+/-0.715
HOMA-IR	-1.8	1.92+/-0.609
SBP(mmHg)	-29.2	11.74+/-3.714
DBP(mmHg)	-12.8	6.94+/-2.194
FBG(mg%)	-91.5	62.90+/-19.890
PPBG(mg%)	-149.8	71.96+/-22.757

2330-PO

Lower Plasma Vitamin D and L-Cysteine Are Positively Linked with Lower GSH, Hypertriglyceridemia and Insulin Resistance Levels in Type 2 Diabetic Patients, and Vitamin D and L-Cysteine Supplementation Cause Upregulation of Glutamate-Cysteine Ligase (GCLC) and GSH Formation in High Glucose Treated U937 Monocytes

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Background/Objective: The biochemical mechanism by which vitamin D (VD) deficiency can result in cellular dysfunction and complications in diabetes is not known. Glutathione (GSH) is a major physiological antioxidant.

This study examined the hypothesis that VD and L-cysteine (LC) correlate with GSH levels in the blood of type 2 diabetic patients (T2D), and that VD and LC upregulate glutamate-cysteine ligase (GCLC), which catalyzes GSH biosynthesis.

Subjects/Methods: Fasting blood was obtained after written informed consent from T2D (n=79) and healthy controls (n=22). Plasma levels of 25(OH) VD and GCLC protein levels determined using ELISA; GSH and LC using HPLC. U937 monocytes were pretreated with 1, 25 (OH) VD (0-25 nM) or LC (0-500 μM) for 24 hr and then high glucose (25mM, 4 hrs).

Results: Plasma levels of VD, LC, GSH and GCLC protein were lower (p<0.02) in T2D versus those in age-matched controls. There was a significant correlation between VD (r=0.24, p=0.03) and LC (r=0.81, p=0.001) with that of GSH, and between LC and VD (r=0.23, p=0.05) levels; GSH (r=-0.35, p=0.003) and LC (r=-0.81, r=0.001) significantly correlated with triglyceride (TG) levels. The insulin resistance (HOMA) showed significant positive correlation with TG (r=0.36, p=0.01) and inversely with VD (r=-0.24, p=0.03) in T2D. VD and LC supplementation significantly (p<0.01) upregulated GCLC expression and GSH formation in HG-treated monocytes.

Conclusions: Lower blood levels of VD and LC are linked to lower GSH levels, which could contribute to hypertriglyceridemia and insulin resistance associated with T2D, and that beneficial effects of VD and LC supplementation may be mediated by an improvement in the GSH and lowering of TG levels in type 2 diabetic patients.

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2331-PO

Association of Vitamin D Deficiency with Insulin Resistance in Newly Detected Diabetics and with Cardiovascular Risk Factors in All Diabetics in South India

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Vitamin D deficiency has been associated with diabetes in recent times. The study was performed on subjects with type 2 diabetes mellitus in Karnataka, India. Vitamin D modulates beta cell function through the vitamin D receptors. It is stored in adipose tissue and thus obesity is associated with hypovitaminosis D. The study was done on 122 diabetics of whom 23 were newly detected cases. Comorbidities of the patient were noted. Body mass index (BMI) and waist circumference (WC) were noted. Fasting plasma glucose (FPG), fasting lipid profile, vitamin D in all subjects and fasting insulin in newly detected diabetics were measured. Data was analyzed using multi regression analysis. Vitamin D levels were categorized as sufficient (30 Nano gram/

milliliter (ng/ml)), insufficient (20-30 ng/ml), low (<20 ng/ml). Vitamin D level was the dependent variable and various risk factors including FPG, high density lipoprotein (HDL), BMI, WC, hypertension, triglycerides and Insulin Resistance levels were considered as independent variables for the regression model. The significant variables that mainly determined vitamin D levels were FPG, hypertension, WC (p <0.01). Also correlation values between Vitamin D level and FPG, WC, hypertension are -0.44, -0.5 and -0.40. Upon closer examination of the data, it was found that 76% (35 out of 46) of patients who had high FPG, hypertension and abnormal WC had low (i.e. <20 ng/ml) Vitamin D level. Among the 23 newly detected diabetics, the correlation coefficient between their insulin resistance and Vitamin D levels was -0.32. Thus the analysis of the study data suggests that Vitamin D has a role in better management of patients with diabetes mellitus and metabolic syndrome. Thus it can indirectly help in reducing cardiovascular morbidity and mortality.

PSYCHOSOCIAL, BEHAVIORAL MEDICINE

2332-PO

Glucose Self-Monitoring in Non-Insulin-Treated Type 2 Diabetes: The Patient Perspective

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The utility of self-monitoring blood glucose (SMBG) in non-insulin treated (NIT) type 2 diabetes (T2D) is debated. Although the patient view is often not considered, stakeholders are increasingly incorporating patients' perspectives into research designs. To assess patient attitudes and practices, we invited 2000+ patients from the UNC Diabetes Care Center research registry to complete an online survey. Respondents were 62 with NIT T2D (85% age ≥50yr; 40% T2D duration ≤5yrs). Of those, 87% felt SMBG was an important part of T2D self-care; 79% said SMBG was important to medical providers; and 90% engaged in SMBG as part of their self-care. SMBG frequencies were: daily, 37.5%; several times/week, 37.5%; several times/month, 20%, and < once/month, 5%. Results were used to modify food intake (75%), physical activity (46%), and medication doses (14%). Most (59%) reported it was important for a medical provider to review values, but only 38% reported their provider always reviewed SMBG logs and provided feedback. Many (43%) tested less often than suggested by their provider.

Table 1. Response to the Question "I Would Test My Blood Sugar As Directed by my Health Care Provider If."

	Currently Performing SMBG	Not Currently Performing SMBG
Supplies were more affordable	56%	33%
It would lower my A1c	89%	50%
It would improve my quality of life	94%	67%
It would help me develop more confidence about managing my T2D	82%	50%
I would feel less distressed about living with T2D	78%	17%
I would receive immediate feedback on what the value meant and what to do about it	80%	50%

Patients regarded SMBG as an important self-care element, however there is great variation in testing and feedback by providers. Understanding patient perspectives may help providers better advise and treat patients with NIT T2D. Guided by these findings, a pragmatic trial assessing 3 SMBG testing approaches and patient-centered outcomes is underway.

Supported By: PCORI

2333-PO

Diabetic Compliance: A Qualitative Study from the Patient's Perspective in Developing Countries

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Objectives: India faces an epidemic of T2DM and is referred as a diabetic capital of Asia (WHO-2010). Compliance to therapeutic regimen in T2DM is a public health problem. Many studies have assessed the level of compliance, but the factors influencing compliance from patient perspective are remarkably absent. This paper reports about the motivating factors and barriers to therapeutic regimen from the perspectives of T2DM patients of India. Research Design and Methods: A qualitative study with in-depth interviews was conducted in 75 T2DM patients who had been diagnosed for at least 1 year prior to the study with no co-morbidities using convenient sampling method attending a Multi-specialty tertiary hospital in Chennai,

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Exploring Relationships of Lower Urinary Tract Symptoms, Sleep Quality, and Diabetes ControlYUAN-MEI LIAO, CHUN-JEN CHANG, SUE-YUEH CHENG, DEE PEI, *Taipei, Taiwan, New Taipei City, Taiwan*

Poor diabetes control may lead to many complications/disturbances. Among varied complications/disturbances related to diabetes, lower urinary tract symptoms (LUTS) are the category that is not fully studied. The major aims of this cross-sectional study ($n=257$) were to identify associated factors of LUTS and sleep quality, and to examine the relationships of LUTS, sleep quality, and diabetes control among a sample of female diabetic patients. Possible associated factors related to LUTS and sleep quality were explored by logistic regressions. Pearson correlation between LUTS and sleep quality was examined. Diabetes controls for patients who were good sleepers and for patients who were poor sleepers were compared by t test.

Most of the female diabetic patients were 51 to 65 years of age ($n = 175$, 68.1%), overweight or obesity ($n = 183$, 71.2%). Of the 257 participants, 182 (70.8%) experienced at least one type of LUTS and 197 (76.7%) experienced poor sleep quality. Participants whose parity was more than 2 ($OR = 2.4$, $p = .003$), and participants who were diagnosed with diabetes for equal or more than 2 years ($OR = 2.3$, $p = .029$) had higher odds of experiencing LUTS. Participants who experienced nocturia ($OR = 2.9$, $p = .001$) and with an AC sugar equal or more than 130 mg/dL ($OR = 2.3$, $p = .008$) had higher odds of being poor sleepers. Relationship between LUTS and sleep quality was confirmed by Pearson correlation ($r = 0.21$, $p = .001$). Significant difference of mean AC sugar ($t = -2.217$, $p = .028$) was found between participants who were good sleepers (137.9 ± 42.3) and participants who were poor sleepers (152.6 ± 45.3).

Given the improved life expectancy of female Taiwanese, the high prevalence of LUTS among this specific group (70.8%), and the possible associations of LUTS, sleep quality, and diabetes control showed in this study, health care providers should screen for LUTS, deliver individualized management/intervention of LUTS, and make appropriate referrals.

Supported By: Taipei Medical University

The Impact of Hyperglycemia on Diabetes Management, Functioning, and Resource Utilization: A 5-Country SurveyMERYL BROD, KATE PFFIEFFER, JENS KONGSØ, NANA KRAGH, *Mill Valley, CA, Søborg, Denmark*

A web-survey of people with type 1 and 2 diabetes was conducted in the U.S., UK, Canada, Germany and China. Of the 1754 respondents, 860 unintentionally forgot to take an insulin dose in the past month. Mean age was 41.93 years, diabetes duration was 11.39 years, and 58.4% experienced self-reported hyperglycemia the last time they missed an insulin dose. This study compared those who had a hyperglycemic event with those who did not (significance = minimum p value $\leq .05$).

Respondents, who experienced hyperglycemia were significantly younger (40.7 vs. 43.6), more likely to use a needle/syringe (32.7% vs. 25.4%), had more comorbidity (1.96 vs. 1.46), and were more likely to worry about hyperglycemia when deciding on corrective actions after the missed dose (6.9 vs. 6.1). Diabetes type and duration were not significantly associated with likelihood of having a hyperglycemic event.

Experiencing a hyperglycemic event was significantly associated with being more likely to measure blood glucose levels (BG), as well as measuring more frequently (1.5 vs. 1.2), taking insulin based on the BG readings (49.8% vs. 40.2%), increasing the amount of the next insulin dose (14.9% vs. 4.5%), and being more likely to visit (28.5% vs. 10.1%) or call/email (29.1% vs. 15.4%) a healthcare professional.

On a scale of 0 (no impact) - 10 (extreme impact), hyperglycemia also resulted in significantly greater negative impacts on sleep (6.0 vs. 4.8), physical (6.1 vs. 4.9) and emotional functioning (6.2 vs. 5.2), in addition to more lost work time (28.5% vs. 5.2%).

Further, those with a greater fear of experiencing hyperglycemia were significantly more likely to measure BG (56.0% vs. 33.2%), and with greater frequency compared to those with less fear (1.5 vs. 1.2).

Hyperglycemia should be considered a significant and important consequence of missing an insulin dose and has measurable negative consequences for diabetes management, patient's daily functioning and well-being, resource utilization, and cost of care.

South-India. Data collection and data analysis were conducted concurrently. The Audio-taped interviews were transcribed into verbatim. Each verbatim transcript was read several times, and the data were coded line by line. Codes were constantly compared with each other for similarity and dissimilarity and were grouped to form themes. Results: Three major themes and 9 sub-themes have emerged regarding their perspectives on the motivating factors and barriers from repeated coding. They are (1) Level of knowledge on causes, complications, treatment (2) Impact of Diabetes-psychological, social and (3) Compliance to treatment regimen-diet and nutrition, exercise, medications, self-monitoring and follow-up. They expressed acquiring knowledge, family support, lack of time and their emotions to be playing a greater role in their compliance towards therapeutic regimen.

Conclusion: Because T2DM is a chronic illness requiring a variety of self-management behaviors, a patient centered collaborative model of care recognizing patient autonomy provides a more skillful approach to improving their compliance.

The Effects of Depression on Glycaemic Control in Patients with Type 2 DiabetesJASMINE J. ZHU, DAVID L. HARE, GEORGE JERUMS, ANDREW G. STEWART, RICHARD J. MACISAAC, *Melbourne, Australia*

Depression is common in patients with diabetes, and is associated with poorer glycaemic control. The purpose of this cross-sectional study was to investigate the direct and indirect effects of depression on glycaemic control in patients with type 2 diabetes. Out of 146 consecutive patients screened for eligibility at a tertiary referral centre, 126 participants (age 64.4 ± 11.0 ; diabetes duration 11.2 ± 7.3 years; $M57.2/F42.8$; BMI 33.9 ± 7.3 ; HbA1c 61.0 ± 15.5 mmol/mol; insulin 43%; complications microvascular 44%, macrovascular 40%) were enrolled. Self-reported measures of depression, self-efficacy, self-care activities (i.e., medication compliance, physical activity and diet) and diabetes management orientation (i.e., independence, dependence on others and excuse making behaviour) were collected. Scores were analysed using path analysis, a statistical method for modelling hypothesized cause/effect relationships among a set of variables, and thus predicting strength and likelihood of relationships based on assumptions regarding their direction of association. Depression decreased self-efficacy ($p < 0.001$), increased dependency ($p < 0.001$), and increased excuse-making behaviour ($p = 0.010$). In turn, increased dependency ($p = 0.034$) and excuse-making behaviour ($p < 0.001$) decreased compliance with a healthy diet, which was related to a higher HbA1c level ($p = 0.011$). Male gender, via poorer compliance with a healthy diet ($p=0.002$), was also associated with a higher HbA1c. In addition, patients on insulin ($p<0.001$) and with vascular complications ($p=0.034$) had higher HbA1c levels. Depression did not exert a direct influence on HbA1c. This study provides a preliminary conceptual framework for understanding the interplay between psychosocial factors and glycaemic control. While not having a direct influence, depression indirectly influenced glycaemic control through measurable psychological and behavioural variables. This model now needs to be tested in a separate validation study.

WITHDRAWN

WITHDRAWN

2338-PO

2339-PO
Explanatory Model of Diabetes Mellitus and Glycemic Control among African Americans

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The purpose of this study was to examine the relationship between explanatory model of diabetes mellitus, medication adherence and glycemic control among African Americans.

The study was a hospital based cross sectional study among 216 patients with diabetes mellitus seen at Grady Memorial Hospital. Ethical approval was obtained from the Morehouse School of Medicine's Institutional Review Board and Grady's Research Oversight Committee prior to commencement of the study. Data collated include; age, sex, illness duration, educational status, diabetes explanatory model, glycemic control and medication adherence. Explanatory model of diabetes mellitus was assessed using the Illness Perception Questionnaire-Revised edition on Diabetes mellitus (IPQ-R), medication adherence was measured by Morisky's 8 point Adherence scale and hemoglobin A1c was used as a surrogate of glycemic control among this cohort. Data were analyzed using Chi square and Spearman's correlation.

A significant negative correlation was observed between glycemic control and Illness coherence, Personal control, Treatment control, Risk factor attribution, Timeline Acute/Chronic and disease Consequence. A positive correlation was found between glycemic control and medication adherence, Emotional representation, Timeline cyclical, immune attribution and Chance attribution. However, no correlation was found between patients' explanatory model, illness duration and educational levels.

Dimensions of the explanatory model such as Consequences, Personal control and Timeline Acute/Chronic had the greatest association with glycemic control. These dimensions are modifiable and are target for educational interventions to improve self-care behaviors and disease control.

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2340-PO

Card Sorting to Rank Barriers to Healthy Lifestyle Choices in Type 2 Diabetes

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Healthy lifestyle choices are both foundational and challenging in the care of type 2 diabetes (T2DM). It is unknown what hierarchy of difficulty people with T2DM assign to healthy behaviours. This study investigated the ranking of self-care barriers by a card-sorting exercise.

Outpatient clinic patients with T2DM were asked to read 3 statement sets written on file cards: sets dealt with diet; exercise and weight issues. One card from each set that most closely described their experience was put in a blinded envelope. Additional blank cards were provided allowing for expression of unique personal barriers. Subject demographics were collected.

Seventy-six people participated: 40 F and 36 M; age 62.1±13.1 yrs; weight 92.9±21.2 kg; BMI 32.9±6.7. Duration of diabetes was 14.2±10.2 years; 76% took oral agents; 58% took insulin; 83% had taken gym in school; 87% drove a car; <1% played a sport. Common barriers were ranked:

Rank	Diet issues (N)	Exercise issues (N)	Weight issues (N)
1 st	I have good intentions but they don't last (13/76)	I have good intentions but they don't last (28/76)	I have been on diets but they don't work for very long (13/76)
2 nd	I crave carbohydrates (12/76)	I can't exercise like I used to (15/76)	I have always been overweight (12/76)
3 rd	Portion control is difficult (10/76)	Exercise takes too much time (9/76)	I am sick and tired of worrying about my weight (12/76)

Ranking the difficulty of healthy behaviours by card-sorting may provide insight into individual barriers to diabetes self-care.

2341-PO

Manualizing and Feasibility Testing a Lifestyle Intervention for Underserved Minority Young Adults

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Manualization and feasibility testing are critical steps in developing lifestyle interventions. Manuals delineate core intervention elements, facilitating treatment fidelity and replicability. The purpose of this study was to develop and test the feasibility of a diabetes management intervention for young adults age 18-30 with A1C ≥8%.

An intervention manual was developed to address diabetes care needs identified through an in-depth qualitative needs assessment. The manual includes seven modular content areas derived from needs assessment findings; extant diabetes self-management research; and theory-based principles and strategies. An initial manual was reviewed by a panel of endocrinologists, diabetes educators, health behavior researchers, and occupational therapists, whose feedback was integrated into a revised manual used in the feasibility study.

To evaluate feasibility, an abbreviated intervention was delivered to 8 young adults (age 22.1 ± 1.2 yrs; duration of diabetes 9.4 ± 6.1 yrs; A1C 11.2 ± 2.0%). One participant was lost to follow-up after 1 session; the remainder completed a median of 8 sessions over a 2-month period. Participants completed baseline and post-intervention A1C and psychosocial testing, and post-test interviews to provide qualitative feedback.

Quantitatively, while the study was not powered to detect significant effects, participants increased SMBG frequency (baseline 3.6 ± 3.1 days/wk, post-test 4.0 ± 3.0 days/wk; effect size = 0.10) and had positive changes in depression (effect size = 0.32), life satisfaction (effect size = 0.21), and diabetes-related stress (effect size = 0.20). Qualitatively, participants stated that the intervention was highly acceptable and relevant to their diabetes care needs. They suggested increased flexibility of session timing and duration, and use of text messaging to augment in-person sessions. This feedback was incorporated into a revised manual to be used in an RCT evaluating intervention efficacy.

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2342-PO

Study Subject Interaction with a Diabetes Prevention Website: Initial Families Defeating Diabetes (FDD) Experience

RUTH M. MCMANUS, DAVID MILLER, LOIS DONOVAN, ISABELLE GIROUX, MICHELLE MOTTOLA, TISHA JOY, CHARLOTTE MCDONALD, PATRICIA ROSAS-ARELLANO, *London, ON, Canada, Victoria, BC, Canada, Calgary, AB, Canada, Ottawa, ON, Canada*

Women with gestational diabetes (GDM) are an identifiable cohort at risk for type 2 diabetes (T2DM). Families Defeating Diabetes (FDD) is a Canadian T2DM prevention program aiming to translate protective lifestyle messages to women with recent GDM, as well as to interested family members.

The FDD intervention has study visits at 3, 6, 12 months. Intervening contact with subjects includes a password-protected website aiming to disseminate DM prevention knowledge, encourage behavioral change and build on-line community. Interventional women and consented family member are provided (written and electronically) with individual log-ins when randomized. Twice monthly DM prevention hints are emailed to all interventional subjects, including reminders to visit the FDD website. Website contents include: a diabetes prevention seminar; times of weekly FDD walks; community page; blog; promotion of healthy food and activity choices; information on planning pregnancy, links to pertinent other websites.

Website access was provided to 100 women and 29 family members. Website accession rates were: 41/100 women (41%) and 11/29 (38%) family members. Most frequent hits were noted at the following areas: community (265); blog (111); FDD seminar (92); links (74); powerful foods (52); feeding baby (44); planning pregnancy (43). Most subjects logged on >5 times/year. Only 2 subjects in 2 years interacted with the blog.

Targeted engagement with a diabetes prevention website resulted in 38-41% of FDD participants interacting with the FDD site. Associations between knowledge/behavioral outcomes and website engagement rates remain to be determined.

Supported By: IDF

2343-PO

Participation in a Postpartum Diabetes Prevention Program for Women with Recent GDM: Initial Families Defeating Diabetes (FDD) Experience

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Women with gestational diabetes (GDM) are an identifiable cohort at risk for type 2 diabetes (T2DM). Families Defeating Diabetes (FDD) is a Canadian T2DM prevention program translating lifestyle protective messages to women with recent GDM.

Participation in FDD was offered to tertiary care clinic women whose postpartum BMI was anticipated to remain >25. Women decided on participating in FDD after the program was outlined [postpartum visits at 3, 6, 12 months to which they could bring their child(ren), and a final 24 month email/phone contact] but before knowing whether randomized to active vs. routine care.

Participation was offered to 112 women living within one hour's driving distance. Fifty-four percent declined participation. Nonparticipants were similar to participants for: age 31.9±5.5 vs. 33.2 ±5.1 yrs (mean±SD;NS); weight 97.6±18.6 vs. 94.4±21.4 kg (NS); insulin dose 33.2±39.7 vs. 29.8±28.7 units (NS); all glucose tolerance results. Nonparticipants were more likely to smoke (20% vs. 4%, p<0.001); to have a family history of DM (77% vs. 37%; p<0.001), to have a drug plan (77% vs. 65%, p<0.001), less likely to use insulin (51% vs. 70%, p<0.001). Nonparticipation reasons were: too busy; ≥one pre-school child at home; unconcerned about risk for T2DM.

Participation in a postpartum diabetes prevention program was offered to all overweight women with active GDM but accepted by < 50%. Women at particular risk due to smoking and family history of DM were less likely to participate and may represent a subgroup for particular message focus.

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