C-C2-03:

The Risk for Diabetes Mellitus Among Women with Gestational Diabetes: A Population-Based Study in Israel

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Background and Aims: to determine the incidence of postpartum diabetes mellitus (DM) in the years following a diagnosis of gestational diabetes (GDM) and to determine whether severity of GDM is associated with developing diabetes. **Methods:** a retrospective cohort study was performed among 185,340 pregnant women who had glucose challenge test (OGCT) or 3-h oral glucose tolerance test (OGTT) in a large HMO in Israel. Subsequent diagnosis of diabetes was ascertained by using an automated DM registry. **Results:** a total of 11,259 subjects were diagnosed as suffering from GDM comprising 6.07% of the cohort. During a total follow-up period of 946,978 Person-Years there were 1065 (1.74 per 100 Person-Years) and 1118 (0.12 per 100 Person-Years) diagnoses of postpartum DM among GDM and non-GDM women, respectively. After 10 years of follow-up, 16% of the GDM population developed diabetes mellitus, compared with 1% among the non-GDM population. GDM was associated with an 8-fold higher risk of postpartum DM after adjusting for important confounder such as socioeconomic status and BMI. Among women with GDM history, diabetes risk increased with number of abnormal OGCT values and among women with Type A2 GDM. **Conclusions:** GDM, and particularly severe GDM, are important predictors of future development of DM.

Keywords: Postpartum diabetes mellitus, Gestational diabetes, Development of diabetes among women

doi:10.3121/cmr.2010.943.c-c2-03

PS2-15:

Coding for Obesity in a Health Plan Claims Database

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Background and Aims: The Centers for Disease Control estimated the obesity rate in New Mexico for 2008 to be 25.2%. Sources estimate the following associations between obesity and type 2 diabetes (80%); cardiovascular disease (70%); hypertension (26 %). Yet obesity is infrequently coded as a secondary diagnosis among providers submitting claims. This study examines the frequency with which obesity is documented on claims forms, the relationship between age, gender, and obesity coding, and the relationship between obesity coding and healthcare utilization. **Methods:** Lovelace Health Plan (LHP) claims for calendar year 2008 were queried to identify a diagnosis of obesity documented with an ICD-9 code. Of 4,559,975 claims, 559,672 (12.3%), were for individuals who had a secondary diagnosis of obesity. Outpatient, inpatient, emergency, and total claims per patient were compared for patients with and without a diagnosis of obesity by age and gender. A comparison of major diagnostic categories taken from primary diagnoses for patients with and without coded obesity was also made. **Results:** Mean annual claims for patients coded for obesity equaled $10,983, compared to $5,924 for patients not coded for obesity. For males coded for obesity, the mean annual claims paid were $12,165, compared to $10,409 for females. The figures increased as the age of the patient increased for both patients coded and not coded for obesity. For three major diagnostic categories Endocrine, Metabolic Diseases, (OR=2.5), Skin Diseases (2.0), and Circulatory Diseases (2.0), the odds of having a claim submitted for patients coded for obesity were at least double. **Conclusions:** The prevalence of patients coded for obesity in LHP claims is far lower than the estimated prevalence in New Mexico. Obesity is associated with greater utilization of health care. The odds of patients being coded for obesity are at least double for endocrine, skin, and circulatory diseases. This study describes an association that is assumed to be causative, since obesity is preventable and reversible. However, further studies need to be conducted to determine accuracy of coding. Perhaps incentives for providers to code for obesity should be considered.

Keywords: Obesity coding, Healthcare utilization, Accuracy of coding

doi:10.3121/cmr.2010.943.ps2-15

PS2-17:

Diabetes Social Support Feasibility Pilot Study: Utilizing Mobile Technology and Self-Identified Supporters to Enhance Self-Monitoring of Blood Glucose

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Background and Aims: Self-monitoring of blood glucose (SMBG) is associated with improved glycemic control among patients with type 2 diabetes, however, the practice of daily self-monitoring is not optimal. Telecommunications technology may improve adherence to recommended self-management practices by remotely transmitting automated reminders to motivate patients, and utilizing social networking for peer support. The purpose of this pilot study is to demonstrate the feasibility and usability of mobile technology and the potential added value of social support to improve SMBG frequency and glycemic control among adults with type 2 diabetes. **Methods:** Adults 25-74 years of age with type 2 DM and an average HbA1c > 8.0% were recruited from Kaiser Permanente Georgia (KPGA) and Oakhurst Medical Center (OMC, a community health clinic) to participate in a 3-month study using wireless technology. Enrollment sessions with presentations on SMBG techniques, use of the wireless technology, and motivational coaching to enhance social support were conducted in November 2009. During the subsequent 3-months, both diabetes patients and their self-selected supporters will receive text messages to their cell phones summarizing a patient's SMBG frequency and levels. Participants and their supporters will attend a disenrollment session in February 2010 when feasibility and usability will be assessed in focus groups. **Results:** 6 of 161 eligible diabetes patients at KPGA and 9 of 28 eligible diabetes patients at OMC, and their self-selected supporters, consented to participate. The average age of diabetes patients was 49.3 years. 86.7% (N=13) were African-American; and 33.3% (N=5) were male. Five days after enrollment, 60% (N=9) of patients had connected their wireless transmitters and had current blood glucose data. Follow-up phone calls will be made to ensure that all participants are connected to the wireless technology within 10 days of the enrollment session. **Conclusion:** Integrating mobile telecommunications technology with chronic disease management may empower patients in their own self-care and ease the burden on health care providers. Our study will evaluate the potential for studying the use of wireless mobile technology in a larger randomized controlled trial and will obtain participant comments on what changes might improve participant compliance.

Keywords: Self-monitoring of blood glucose, Telecommunications technology and health, Self-selected supporters

doi:10.3121/cmr.2010.943.ps2-17

PS2-18:

Extreme Childhood Obesity is Associated with Increased Risk for Gastroesophageal Reflux Disease in a Large Population-Based Study

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Background and Aims: Gastroesophageal reflux disease (GERD) is associated with esophagitis and esophageal adenocarcinoma in adults and may consist from childhood. Childhood obesity may increase risk for GERD. Therefore, we investigated whether moderate and extreme obesity is related to a higher odd for GERD in children of different age groups. **Methods:** For this population-based, cross-sectional study, diagnosis of GERD, and measured weight and height were extracted from electronic medical records

of 690,321 children aged 2-19 years who were enrolled in an integrated prepaid health plan between 2007/2008. Percentile of body mass index [BMI]-for-age was calculated according to the sex-specific 2000 Centers for Disease Control and Prevention growth charts to assign weight class (normal weight, overweight, moderate and extreme obesity). **Results:** GERD was diagnosed in 1.5% of boys and 1.8% of girls (P<0.001). Moderate and extreme obesity were associated with 16% and 32% higher odds for GERD in children aged 6-11 years compared to normal weight, respectively (OR 1.16, 95%-CI 1.02-1.32 and 1.32, 95%-CI 1.13-1.56). In children aged 12-19 years, moderate and extreme obesity were associated with 16% and 40% higher odds for GERD compared to normal weight, respectively (OR 1.16, 95%-CI 1.07-1.25 and 1.40, 95%-CI 1.28-1.52). Obesity was not related to an increased odd for GERD in children aged 2-5 years of age. **Conclusions:** In conclusion, extreme obesity in youth may increase GERD risk by up to 40%. Increasing obesity epidemic among youth may further contribute to an increased incidence of other diseases associated with GERD such as esophagitis and esophageal adenocarcinoma. Early screening of obese youth and treatment of GERD symptoms may help to avoid persistence of GERD into adulthood.

Keywords: Gastroesophageal reflux disease, Childhood obesity, Early obesity screenings

doi:10.3121/cmr.2010.943.ps2-18

PS2-21:

Patient Response to a Clinical Study for Diabetes Education Interventions: Demographic Differences Between Patients Who Enrolled and Those Not Interested in Participating

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Background and Aims: The Journey for Control of Diabetes: the IDEA Study, a randomized clinical study, is evaluating the effectiveness of an interactive, group-based learning experience using Conversation Maps™. Patients with uncontrolled diabetes were sent letters describing the study and subsequently contacted to assess eligibility and interest. Recruitment, estimated to take 5 months, was extended to 11 months due to difficulties in obtaining a committed group of eligible participants. Because of these recruitment difficulties, we examined differences between the enrolled subgroup and those who indicated they were not interested in participation in an attempt to identify patient characteristics of those who enrolled. **Methods:** Of the 4197 patients sent recruitment letters, 286 enrolled, 1345 were not interested in participating, and the remaining 2567 were unable to participate for a variety of reasons. Demographic variables of interest were gender, age, ethnicity and A1C level. We used a software tool, GUESS, which utilizes surname to determine ethnicity. A logistic regression model predicting enrollment was fit to the data using a binary logit link. **Results:** The model had a strong predictive accuracy with a likelihood ratio test resulting in p<.0001. To further dissect the significance of the variables, individual maximum ratio tests were performed. Age was a very significant predictive variable (p<.0001) with older subjects less likely to enroll. Gender was not significant (p=.14). The subjects' A1C prior to recruitment was also significant (p<.0001) with the highest enrollment in the groups close to goal (A1C < 7.5) and those with very high A1C's (A1C > 9.0). Finally, ethnicity was significant (p=.0005) with white non-Hispanics more likely to enroll than Hispanics. **Conclusions:** Several demographic variables were used to assess their impact on a person's desire to participate in the IDEA Study. Of those who met the eligibility criteria, enrolled people were younger, fewer were Hispanic, and more had A1C's either almost at goal or extremely out of control. A better understanding of which potential participants may be more willing to enroll in a study could provide insight into more effective recruitment.

Keywords: IDEA study patient participation, Recruitment strategies, Effective recruitment

doi:10.3121/cmr.2010.943.ps2-21

PS2-22:

Pre-Operative Diabetes is Associated With Poor Weight Loss Outcomes Following Roux-en-Y Gastric Bypass Surgery

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Background and Aims: Identification of preoperative predictors of weight loss after Roux-en-Y gastric bypass surgery may lead to better clinical management. The purpose of this study was to identify whether any clinical variables were different in patients with the best versus worst weight loss outcomes at 24 months following RYGB. **Methods:** Patients who were recruited were enrolled in the Bariatric Surgery Program of the Geisinger Clinic Center for Nutrition and Weight Management. Only Caucasian patients with a BMI greater than 35 kg/m2 who underwent primary Roux-en-Y gastric bypass were included in the analysis. An analysis of available data on more than 200 clinical variables related to medication use, co-morbidities, and baseline laboratory and survey data was performed to determine whether any differences present between the 150 patients who lost the most weight and the 150 patients who lost the least. Chi-square tests and Wilcoxon Rank sum tests were used after a Bonferroni correction. **Results:** A total of 1001 patients (80% female) with a mean age of 46.5 years and a mean initial BMI of 50.2 mg/kg were studied. The diagnosis of diabetes was almost twice as frequent in patients who lost the least weight (p <0.0001). Initial weight, BMI, excess body weight, and waist circumference were also statistically higher in patients who lost the least weight (p <0.0001), although the differences were likely not clinically significant in patients of this BMI range. Post-operatively, the percentage of patients with pre-operative diabetes that had a hemoglobin A1c over 6.5% was approximately 2-fold higher in the group who lost the least weight. **Conclusions:** A pre-operative diagnosis of diabetes and post-operative elevation of hemoglobin A1C levels were more prevalent in those patients with the poorest weight loss outcomes following Roux-en-Y gastric bypass surgery.

Keywords: Roux-en-Y gastric bypass surgery, Pre-operative diabetes, Poor weight loss outcomes

doi:10.3121/cmr.2010.943.ps2-22

PS2-23:

Prevalence of Extreme Obesity in Southern California

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Background and Aims: Specific weight goals and treatment options for extremely obese children and adolescents have been suggested. The objective of this study is to provide current estimates of the prevalence of extreme obesity in a large multiethnic youth cohort. **Methods:** In a cross-sectional study, measured weight and height were extracted from electronic medical records of 710,949 patients aged 2-19 years (87.8 % of eligible patients) who were enrolled in an integrated prepaid health plan between January 1, 2007 and December 31, 2008. Prevalence of extreme obesity was defined as body mass index [BMI]-for-age =1.2 x 95th percentile according to the sex-specific 2000 Centers for Disease Control and Prevention growth charts or BMI =35 kg/m2. **Results:** Extreme obesity was observed in 7.3% of boys and 5.5% of girls. The prevalence first peaked at about 10 years of age with a bimodal distribution in girls (second peak at 18 years, P for sex × age interaction = 0.036). The prevalence of extreme obesity varied among ethnic/racial and age groups with highest prevalence in Hispanic boys (up to 11.2%) and Blacks girls (up to 11.9%). In 12-19 year olds, the prevalence of obesity class 3 (BMI 40-49.9 kg/m2) and class 4 (BMI =50 kg/m2) was 1.8% and 0.2%, respectively, with the highest prevalence in Blacks (3.5%) compared to Whites independent of sex (P = 0.001). **Conclusion:** Extreme obesity in