of Daily Living (ADLs) were positively associated with more advanced stages of neuropathy and accounted for 59.66% of variance. Factors two (Symptoms), four (Autonomic Neuropathy) and five (Small Fiber) did not show a significant association with neuropathy stages. Regression with all five factors had R-square of 0.28, replicated across both regression methods. CONCLUSIONS: The five resulting factors from the analysis of the German translated QOL database, matched those from the factor analysis using the original English version of the Norfolk QOL-DN in a European study. Two factors, Functional Status/Large Fiber and (ADLs) were positively associated with more advanced stages of neuropathy.

PDB42

ESTIMATING THE EFFECT OF SYMPTOMS OF DIABETIC PERIPHERAL NEUROPATHY AND DIABETIC RETINOPATHY ON QUALITY-OF-LIFE USING DATA FROM THE 2001–2002 NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY

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OBJECTIVES: To evaluate the effect of symptoms of diabetic peripheral neuropathy (SDPN), diabetic retinopathy (DR) and co-morbid SDPN & DR (COMORB) on the Healthy Days Core Module (HRQOL-4) measures of the CDC, among US adults ≥40 years old with diagnosed diabetes, using the 2001–2002 National Health and Nutrition Examination Survey (NHANES).

METHODS: Logistic and ordinary least squares (OLS) regression models were used to assess the impact of SDPN, DR and COMORB on HRQOL-4 measures. Included in the analysis were 429 NHANES respondents ≥40 years old classified as having diagnosed diabetes. Model covariates included age, gender, race, education, current smoking status, currently asthmatic, and history of cardiovascular disease, cancer, arthrits, COPD, hypertension and stroke. The conditions of interest were assessed based upon respondent self-report. All estimates were generated using Stata statistical software, and accounted for the complex survey design of NHANES. RESULTS: Using the 2001–2002 NHANES, we estimated that, among US adults ≥40 years old with diagnosed diabetes, those with SDPN (OR = 7.66; 95%CI = 2.90, 20.23), DR (3.43; 1.53, 7.69), and COMORB (5.43; 2.32, 12.73) were all more likely to report that they were currently in poor health, compared to those without the condition of interest. Additionally, OLS models suggest that those with SDPN had a significantly greater number of days during the past month in which their physical health was not good, compared to those without SDPN. SDPN was also associated with a significantly greater number of days during the past month in which poor physical or mental health limited usual activities. Regression with all five factors had R-square of 0.28, replicated across both regression methods. CONCLUSIONS: The five resulting factors from the analysis of the German translated QOL database, matched those from the factor analysis using the original English version of the Norfolk QOL-DN in a European study. Two factors, Functional Status/Large Fiber and (ADLs) were positively associated with more advanced stages of neuropathy.

PDB43

ASSOCIATIONS AMONG VISUAL IMPAIRMENT, STAGE OF DIABETIC RETINOPATHY AND QUALITY OF LIFE (EQ-5D)

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OBJECTIVES: The quality-of-life impact of diabetic retinal disease progression has not been studied using internationally standardized measures. We undertook an examination of the relationship between visual impairment, stage of diabetic retinopathy and quality of life. METHODS: In 2003, we mailed a questionnaire containing the EuroQol (EQ-5D) quality of life instrument to a random sample of Kaiser Permanente members with type-2 diabetes. Of the 2376 patients (59%) who completed the questionnaire, 155 patients had an eye exam with an ICD-9-CM diagnosis of nonproliferative or proliferative retinopathy (NPDR or PDR) during the first six-months of 2003. After visual acuity (VA) data had been removed from the text of the electronic medical record notes, one of us (CM) staged the retinopathy in these patients by applying the American Academy of Ophthalmology’s (AAO) International Diabetic Retinopathy Severity Scale to the notes. A different reviewer abstracted best-corrected VA in each eye from unmasked notes. Analysis was based on the better-seeing eye. RESULTS: We obtained complete data for VA, EQ5D, and AAO staging in 99 eyes with better acuity. Patients who suffered impaired visual acuity (VA <= 0/40) reported a generally worse quality of life than patients without impairment (VA > 20/40). For those with least severe NPDR, the median EQ5D scores were 0.73 (25th and 75th percentile 0.62, 1.0) among those with no visual impairment, compared with 0.69 (0.69, 0.8) among those with visual impairment. For those with the PDR, the median EQ5D scores were 0.66 (0.62, 0.80) among those with no visual impairment, compared with 0.52 (0.13, 0.73) among those with impaired VA. Among patients with normal visual acuity, we observed a graded negative relationship between diabetic retinopathy progression (AAO stages) and median EQ-5D scores. CONCLUSION: A generally decreasing quality of life is observed with more impaired VA and more severe stages of diabetic retinopathy.
Correlations between diabetes knowledge and ADDQoL, EQ-5D and SF-6D scores were 0.26, 0.30 and 0.21 respectively. Although none of the independent variables was associated significantly with HRQoL scores in any MLR model (p > 0.05), a trend of association was nevertheless observed. CONCLUSIONS: Our results showed diabetes knowledge to be weakly correlated with both diabetes-specific and generic health related quality of life. In addition, diabetes knowledge may be positively associated with diabetes-specific HRQoL but further studies utilizing larger sample size are required to confirm this observation.

PDB45
QUALITY OF LIFE (SF12), CLINICAL OUTCOMES, AND COMORBID CONDITIONS IN PATIENTS WITH TYPE-2 DIABETES: A POPULATION STUDY
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OBJECTIVES: Conditions comorbid with diabetes could have an impact on clinical outcomes and quality of life. This study examines relationships between the SF12, treatment options, clinical outcomes, and comorbid depression in Type-2 diabetes patients. METHODS: Participants with Type-2 diabetes in a population study at university hospital outpatient clinics completed the SF12 and the CES-D scale (16 or higher indicates depression). Patient reported data (including self-report of comorbidities) was collected by mail out questionnaire, and merged with a retrospective collection of patient clinical and utilization data via patient’s EMR. A cover letter signed by the patient’s provider was sent with the questionnaire. RESULTS: Usable response rate was 47.2% (n = 412); 46.8% respondents were female, 34.1% in 40–69 age range, 57.2% Caucasian, 43.1% on oral medications only, 32.3% oral medications and insulin, and 13.4% on insulin only. There was no significant difference in mean A1C between insulin only group and oral medications and insulin group. SF12 Physical Component Summary (PCS) scores were significantly higher in the oral medications group than in the oral medications and insulin users group (p < 0.05), while no significant differences were found in SF12 Mental Component Summary (MCS) scores. Both PCS and MCS scores significantly correlated with number of self-reported comorbidities and complications (p < 0.01), and were both also significantly lower in the depressed group (p < 0.05). There were also no significant differences in depression among the various treatment groups, although mean CES-D score was higher than 16 for each group. Although no significant difference in A1C between depressed and non-depressed groups was found, depressed patients had a significantly greater number of complications (p < 0.05). CONCLUSIONS: A generic measure like the SF12 was able to detect variations in quality of life among diabetes patients on different treatment options, and with different level of self-reported complications and comorbidities.

PDB46
WILLINGNESS-TO-PAY FOR INHALED INSULIN—A CANADIAN PERSPECTIVE
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OBJECTIVE: To assess preference and willingness-to-pay (WTP) for inhaled insulin (INI). Various INI technologies are under development and will be marketed soon. However, they are likely to be substantially more expensive than subcutaneous insulin (SCI). We previously reported Ontario diabetic patients’ WTP for INI. Whether general public accept this increased cost and the value that they would give to this new technology are important questions which can be addressed through Contingent Valuation (CV). METHODS: A previously validated self-administered questionnaire was mailed to 250 Greater Toronto Area (GTA) households, randomly chosen based on postal codes. One hundred questionnaires were returned, of which 85 were complete and used for analysis. Standardized information about diabetes and its prevalence in Ontario, INI and SCI, was provided in an informative letter based on published data. Respondents’ preference for INI, and socio-economic and health data were collected. Respondent’s WTP was elicited using “payment scale” method. The payment vehicle was out-of-pocket. RESULTS: Respondents were 30.8 ± 12.2 years old, 45 were male. Significantly more respondents preferred INI (n = 81) over SCI (n = 4, df = 1, Z = 69.75, P < 0.001). The mean monthly WTP for INI was $68.59 ± $44.65, significantly more than the current average SCI cost of $50 in Ontario (tdf95 = 3.83, CI95%: $38.87–$78.07). However, significantly less than diabetic patients WTP for INI ($153.70 ± $99.90, P < 0.001) that we previously reported. WTP for INI in subgroup of respondents with diabetes was $98.52 ± $48.57, significantly more than the WTP of general public (Mann-WhitneyU = 365.0, Z = -4.0, P < 0.001). Multiple regression analysis showed a strong association between respondents’ income and having diabetic (self or family member) and their WTP for INI (F = 32.07, df(4&80), P < 0.001). Major factors influencing the respondents preference and WTP were convenience and income. CONCLUSION: GTA general public prefer INI over SCI and will pay significantly more per month than the current SCI cost. The results could be used in a cost-benefit analysis and for future policy making.

EAR
PERI
EVALUATION OF AN OTITIS MEDIA EDUCATION INTERVENTION IN AN INTEGRATED DELIVERY SYSTEM
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OBJECTIVES: The purpose of this study was to evaluate the effectiveness of a program aimed at changing physician behavior in accordance with evidence-based guidelines. The program goals were to: improve accuracy of otitis diagnosis; prescribe antibiotics less frequently; and prescribe analgesic drops more frequently. We examined outcome differences for patients treated by intervention clinic providers vs. by control clinic providers. METHODS: Ten primary care clinics in a southwestern integrated delivery system were organized into matched pairs and assigned to either control status (mailed guidelines only) or intervention status (provider exposure to formal education, guideline tools, reinforcement messages, and feedback). The impact of the intervention on providers who participated in the intervention was measured using claims data for patients diagnosed with otitis media and a post-intervention provider survey. The outcome measures were: percentage of episodes with a primary diagnosis of either acute otitis media (AOM), or otitis media with effusion (OME) and/or otalgia, rate of antibiotic fills for the two diagnosis categories; and analgesic drop fill rate. RESULTS: Claims data analysis showed significant improvement for intervention clinic providers over control group providers in decreased diagnosis of AOM (94.0% pre- vs. 91.2% post-intervention, p = 0.0231) and increased analgesic drop fills (7.6% pre- vs. 10.4% post-intervention for AOM, 2.4% to 11.5% for OME/otalgia, p = 0.0250), but no statistical signifi-