PDB82
ADHERENCE AND PERSISTENCE IN PATIENTS INITIATING TREATMENT WITH INJECTABLE THERAPIES FOR TYPE 2 DIABETES MELLITUS (T2DM) IN SPAIN
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OBJECTIVES: Studies indicate that poor adherence and low persistence to treatment could lead in not achieving recommended glycemic goals in T2DM patients. The aim of this study was to assess the adherence and persistence of patients who initiate treatment with insulin or with glucagon-like peptides analogs (GLP-1) in Spain. **METHODS:** Observational, retrospective study based (funded by GSK) on review of medical records from patients located in Badalona sanitary area (1 hospital and 6 primary care centers). Inclusion criteria: patients ≥ 20 years old who initiated treatment with insulin or GLP-1 during 2010-2012, T2DM diagnosis at least one year before initiation of injectable treatment. Patients were followed for one year. Adherence and persistence during the follow up period were analyzed. Medication Possession Ratio (MPR) was used as a proxy of adherence. MPR is calculated as the percentage of days covered by the medication prescribed during the study period. Persistence rate is defined as percentage of patients having prescriptions of the ongoing therapy continuously renewed without a gap of more than 30 days. **RESULTS:** 1,301 patients were recruited, mean age was 67.6 years, 51.6% men, 935 initiated with insulin and 366 with GLP-1. In comparison with insulin, patients treated with GLP-1 showed higher adherence to treatment (88.1% vs 82.7%; p<0.001). Higher persistence is also achieved with GLP-1 vs insulin (62.0% vs 55.9%; p=0.046). After 3 months treatment persistence rate start to diverge and differences are maintained during the study period (6 months, persistence rate 86.1% for GLP-1 vs 79.4% for insulin; 10 months 77.1% vs 70.8%, respectively) **CONCLUSIONS:** Adherence and persistence to treatment seems to be higher with GLP-1 than insulin in T2DM patients in Spain. Further studies are needed to identify reasons for those differences between treatments. The overall management of T2DM should address adherence and persistence as key drivers for achieving therapeutic goals.

PDB83
MEDICATION ADHERANCE AND SATISFACTION WITH TREATMENT IN PATIENTS WITH DIABETES MELLITUS RECEIVING ORAL COMBINATION THERAPY: DATA OF A REAL-WORLD STUDY
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OBJECTIVES: Medication adherence and satisfaction with treatment are key dimensions of healthcare quality. Large proportion of patients with type 2 diabetes mellitus (T2DM) receive oral combination therapy. We aimed to assess medication adherence and treatment satisfaction in T2DM patients receiving oral combination therapy in a real-world setting. **METHODS:** 160 T2DM patients receiving combination therapy for at least 6 months (mean 6.5 yrs, 0.6–17 yrs) were enrolled in the multicenter real-world study: cohort 1 – vildagliptin plus metformin (mean age 59.6 yrs; male/female 25/57); cohort 2 – sulfonylurea (SU) plus metformin (mean age 65.1 yrs; male/female 23/55). All the patients completed the Morisky Medication Adherence Scale (MMAS 4) and the checklist for assessment of treatment satisfaction. Statistical analysis was made using t-test and $\chi 2$ criterion. **RESULTS:** As a whole, 90% patients had good adherence with treatment; 50% in cohort 1 vs 36% in cohort 2 were completely adhered with medication. Treatment satisfaction was high-rated by the patients; there were no patients who were extremely dissatisfied with treatment. All aspects of treatment satisfaction – overall treatment satisfaction (0.82 vs 0.54), treatment efficacy (0.98 vs 0.58), treatment convenience (0.8 vs 0.54) and coping with hypoglycemia (1.06 vs 0.63) were significantly lower in cohort 2 as compared to cohort 1 (p<0.02). In addition, 59% patients in cohort 2 experienced hypoglycemia vs 28% from those in cohort 1. The proportion of patients with better coping with hypoglycemia was higher in cohort 1 than in cohort 2 (53.7% vs 31.2; p<0.006). **CONCLUSIONS:** In general, good levels of medication adherence and treatment satisfaction in T2DM patients receiving oral combination therapy were demonstrated in a real-world setting. Combination of vildagliptin plus metformin was more preferable from patients' perspective in terms of medication adherence and treatment satisfaction as compared to SU plus metformin.

PDB84
ADHERENCE TO INITIATED BASAL INSULIN ANALOG TREATMENT IN TYPE 1 AND 2 DIABETES
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OBJECTIVES: Poor medication adherence is common in diabetes potentially causing poor health outcomes and complications. The aim of this study was to analyze the discontinuation rate of initiated basal insulin analog in type 1 and type 2 diabetic patients in Finland. **METHODS:** The data was obtained from the national reimbursement registry. Study population consisted of 14 462 diabetic patients (18% had type 1 diabetes) who started basal insulin analogs (insulin glargine or insulin detemir) in 2012. Patients were followed by their insulin purchases for 18 months after the initiation. The data was analysed with $\chi 2$-test and logistic regression analysis. Logistic regression analysis was used to find out what variables (age, gender, type of diabetes, type of insulin analog) explain patient staying in the treatment. **RESULTS:** Type of insulin, gender, age and type of diabetes had statistically significant influence on patients' treatment adherence (p < 0.001 for all). Overall 47 % of patients starting insulin detemir and 39 % starting insulin glargine patients discontinued their basal insulin treatment within 18 months of the initiation. Most of the patients stopped treatment within first 6 months after the initiation. In type 1 diabetic patients, 42 % of insulin glargine patients and 57 % of insulin detemir patients stopped the initiated treatment. In type 2 diabetic patients, 35 % stopped insulin glargine and 38 % insulin detemir. In only 15% of the patients discontinuing the initiated basal insulin, death or switch to other insulin or GLP-1RA explained the discontinuation suggesting non-adherence to insulin therapy from other reasons. **CONCLUSIONS:** There is a considerable proportion of diabetic patients discontinuing their initiated basal insulin analog. Future studies are warranted to examine the detailed reasons for discontinuation.

PDB85
POTENTIAL BARRIERS TO INSULIN INTENSIFICATION AMONG PATIENTS WITH TYPE 2 DIABETES: THE PATIENT PERSPECTIVE IN GERMANY
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OBJECTIVES: Patient perceived barriers to intensifying treatment may lead to sub-optimal glycaemic control. This study assessed patient experience with insulin in Germany, preferences on insulin injection, and behaviours associated with intensification in insulin-treated type 2 diabetes mellitus (T2DM) patients. **METHODS:** Adults with T2DM diagnosed >6 months ago and receiving insulin for ≥3 months were recruited through a representative online panel in Germany. Data were collected via an online questionnaire. **RESULTS:** Of the 302 respondents, mean age was 56 years, with average 12 years since diagnosis and 7 years on insulin. Only 82% (247/302) knew their HbA1c with 37% (111/302) reporting HbA1c>8.0%. Overall, 87% (263/302) had BMI≥25kg/m2, with 56% (169/302) BMI≥30. Basal-only insulin was used by 32% (96/302), short-acting (bolus) insulin only 13% (38/302), basal-bolus 47% (142/302), premix 7% (22/302). A total of 72% (216/302) reported ever having a non-severe (self-managed) hypoglycaemic event with 19% (42/216) of these reporting events occurring once-a-week or more. Also, 19% (57/302) reported at some point having a severe (requiring help to manage) hypoglycaemic event. 67% (201/302) respondents tested blood glucose 3-6 times daily. 12% (11/96) of the basal-only respondents had previously received basal-bolus but returned to long-acting insulin due to various issues. A total of 51% (49/96) currently on basal-only would hesitate to some degree if asked by their physician about intensifying treatment (switch to basal-bolus or premix). Most frequent reason was number of daily injections (39%, 19/49), followed by dose calculation and timing (37%, both 18/49), risk of hypoglycaemia (35%, 17/49) and weight gain (33%, 16/49). **CONCLUSIONS:** Number and timing of injections, dose calculation, risk of hypoglycaemia and weight gain may present barriers to insulin intensification among T2DM patients on basal insulin in Germany, and contribute to suboptimal HbA1c control. Therapies addressing these challenges may help to achieve treatment goals.

PDB86
BARRIERS TO INTENSIFICATION OF INSULIN TREATMENT IN PATIENTS WITH TYPE 2 DIABETES IN THE NETHERLANDS: ASSESSING PATIENT PREFERENCES AND BEHAVIOURS
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OBJECTIVES: Factors other than efficacy and safety may influence choice of treatment for the patient. Barriers to intensification may lead to poor glycaemic control. This study aimed to assess patient barriers and behaviours relating to intensification of treatment in insulin-treated Type-2-diabetes (T2DM) in the Netherlands. **METHODS:** Patients diagnosed >6 months ago and receiving insulin for ≥3 months were recruited through a representative online panel in the Netherlands. Data were collected using a web-based questionnaire. **RESULTS:** The 315 respondents had mean age of 59 years, BMI 31kg/m2 and 8-years insulin treatment. Of the 179 who knew their HbA1c, 45 (25.1%) were uncontrolled (>8%) with mean HbA1c 9.7%. Overall, basal-only insulin was used by 31.1% (98/315), with 6.7% (21/315) on short-acting only (bolus), 47.9% (151/315) basal-bolus, 11.8% (37/315) premix and 2.5% (8/315) other. Of the respondents whose main contact was primary care, only 17.2% (10/58) of basal-only patients reported ever attending secondary care for treatment, compared with 32.3% (20/62) on basal-bolus. Compared to those on basal-only, more respondents on basal-bolus stated they sometimes forget to take insulin (17.3% (17/98) vs 31.1% (47/151), respectively) or were likely to forget to pack insulin when travelling or leaving home (6.1% (6/98) vs 17.9% (27/151)). If asked by their physician, 41% of basal-only patients would hesitate to intensify treatment through adding bolus/switching to premix. Most frequent reason was increased number of daily injections (45.0%, 18/40), as well as difficulty calculating mealtime dose and risk of weight gain (both 40.0%; 16/40), timing of dosing with meals (37.5%; 15/40) and hypoglycaemia risk (30.0%; 12/40). **CONCLUSIONS:** Patients on intensified regimens may require increase used of secondary care, whilst number/timing of injections, dose calculation, hypoglycaemia risk and weight gain are barriers to insulin intensification among T2DM patients on basal insulin. Therapies addressing these may help to achieve treatment goals.

PDB87
PATIENT PERSPECTIVE ON CONVENIENCE AND INTENSIFICATION OF INSULIN TREATMENT IN TYPE 2 DIABETES IN ITALY
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OBJECTIVES: The progressive nature of Type-2 diabetes mellitus (T2DM) requires periodic intensification of therapy. Understanding the potential barriers to this from patients will support appropriate treatment selection. This study aimed to assess hypoglycaemic events, treatment convenience and potential barriers to treatment intensification in Italy. **METHODS:** A web-based survey of subjects with type 2 diabetes, diagnosed >6 months previously and receiving insulin for ≥3 months, recruited via a representative online panel. **RESULTS:** 302 patients were recruited. Mean body mass index (BMI) was 27 kg/m2, with 24% (72/302) BMI>30kg/m2. Of the 218 reporting exact HbA1c, 75 (34%) had HbA1c>8.0%. Of the 72 with BMI>30kg/m2

18 had HbA1c>8.0%. A total of 42% (126/302) used basal-insulin only, 29% (88/302) bolus-insulin only, 22% (66/302) basal-bolus, 5% (16/302) premixed and 2% (6/302) other combinations. Of all respondents, 81% (246/302) had previously experienced non-severe (self-managed) hypoglycaemia (79% (59/75) in those with HbA1c>8%), with 11% (28/246) reporting 3 events per-week, 33% (80/246) once-a-week, and 29% (72/246) once-a-month. 30% (92/302) had previously experienced severe hypoglycaemia requiring help from others, with half (46/92) reporting 1-3 such events during past year. 73% (221/302) of respondents tested blood glucose 2-5 times-daily. Of 192 respondents using basal insulin, 134 (70%) injected ≤1 time-a-day, whilst 30% (58/192) injected ≥2 times-daily. When asked about intensifying by adding bolus-insulin or switching to premix, 58% (73/126) of basal-only patients would be hesitant. Most frequent reason for hesitation was increased number of daily injections (44%, 32/73), as well as pain/discomfort of injections and risk of weight gain (both 23%; 17/73), hypoglycaemia risk (22%; 16/73), difficulty calculating bolus dose with food (21%; 15/73). **CONCLUSIONS:** Number and timing of injections, dose calculation, risk of hypoglycaemia and weight gain are barriers to insulin intensification among T2DM patients on basal insulin in Italy. Therapies addressing these may help to achieve treatment goals.

PDB88

ASSOCIATION BETWEEN KNOWLEDGE AND MEDICATION ADHERENCE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS IN PAKISTAN

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OBJECTIVES: Diabetes mellitus is a serious health problem. Medication adherence is a key determinant of therapeutic success in patients with diabetes mellitus. The purpose of this study was to assess medication adherence and its potential association with diabetes related knowledge in patients with type 2 diabetes mellitus. **METHODS:** This study was carried out at the outpatient clinics of a public sector teaching hospital in Sargodha, Pakistan. Besides demographic and disease-related questions, previously validated questionnaires, Morisky Medication Adherence Scale and Michigan diabetes knowledge test was used to assess the medication adherence and diabetes related knowledge, respectively. Descriptive statistics were used to determine the demographic and disease characteristics of the patients while Spearman rank correlation was employed to measure the association between medication adherence and knowledge. **RESULTS:** Three hundred and ninety two patients were interviewed. Out of 392 patients, 245 (62.5%) of the patients had average knowledge about diabetes while 282 (71.9 %) were categorized as poor adherent. Only 13 patients (3.3 %) were considered as good adherent in the study. The correlation coefficient between total scores of knowledge and total medication adherence score was 0.036 ($p< 0.05$), indicating a weak correlation between knowledge scores and adherence level. **CONCLUSIONS:** Knowledge of diabetes mellitus among these patients was average; however, adherence to drug therapy was also poor. Patients' knowledge about diabetes had positive association with medication adherence. Improving diabetes knowledge of people can result in better adherence, which may result in better control of diabetes.

PDB89

DOES TREATMENT ADHERENCE CORRELATES WITH HEALTH-RELATED QUALITY OF LIFE: FINDINGS FROM A CROSS SECTIONAL ANALYSIS OF TYPE 2 DIABETES MELLITUS PATIENTS IN PAKISTAN

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OBJECTIVES: Patient adherence with a therapeutic regimen predicts successful treatment and reduces the severity of negative complications. The objective of this study was to explore the relationship between Health-Related Quality of Life (HRQoL) and treatment adherence among type 2 diabetes mellitus patients in Sargodha, Pakistan. **METHODS:** The study was designed as a cross-sectional descriptive survey. Type 2 diabetic patients attending a tertiary care institute in Sargodha, Pakistan were targeted for the study. The Urdu version of the Morisky Medication Adherence Scale (MMAS-Urdu) and EuroQol Quality of Life Scale (EQ-5D) was used to assess medication adherence and HRQoL, respectively. Descriptive statistics were used for the elaboration of socio-demographic characteristics. The Spearman's Rho correlation test was used to measure the association between medication adherence and HRQoL. $P < 0.05$ was taken as significant. **RESULTS:** Three hundred and ninety two patients were approached for the study. The cohort was dominated by males (n=222, 56.60 %) with 5.58± 4.09 years of history of type 2 diabetes mellitus. The majority of respondents (n=137, 34.90 %) was categorized in age group of 51 to 60 years with mean age of 50.77 ± 9.671 years. The present study highlighted that individuals with type 2 diabetes mellitus had decreased HRQoL (0.4715 ± 0.3360) and poor medication adherence (4.44± 1.8). Significant, yet weak positive correlations were observed between medication adherence and HRQoL (r= 0.217 and 0.136 for EQ-5D and EQ-VAS respectively). **CONCLUSIONS:** Although the association between adherence to therapeutic regimen and HRQoL in the present study cohort was significant, it was rated as weak, hence failed in producing an overall impression on quality of life. The study, therefore, highlights the need to identify other individual factors affecting HRQoL among type 2 diabetes mellitus patients in Pakistan.

PDB90

EXPERIENCES OF ITALIAN PATIENTS WITH DIABETES: AN ANALYSIS OF THE EU ROPER DIABETES STUDY

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OBJECTIVES: Diabetes Mellitus is best managed through a combination of HbA1c testing, self-testing of blood glucose, and close interactions with HCPs. It has been previously shown that Italian diabetes patients have a very low rate of adherence to appropriate care, compared to those in other EU countries. In this study, we examined Italian diabetes patient preferences related to education and monitoring compared to patients in other EU5 countries. **METHODS:** A total of 3,013 diabetes patients in the EU5 were sampled. Questions focused on demographic, lifestyle, treatment, access to information, and socioeconomic status. Data were compared across countries and reported behaviors compared to current patient treatment guidelines. **RESULTS:** Despite guidelines stating that all patients must receive HbA1c testing twice per year, 42.5% of Italian patients reported receiving an HbA1c test in the past 12 months compared to 70.5% in other EU5 countries. Instead, these patients are favoring blood glucose self-monitoring, which has been previously shown to be an insufficient substitute for HbA1c testing. Italian patients also claimed that they do not want their doctor or nurse managing their diabetes more so than patients in any other tested country. Italians get diabetes information from Newspapers/Magazines, Internet, TV/Radio, Relatives/Friends more than other Europeans (37% v 34%; 33% v 28%; 30% v 26%; 25% v 21% respectively). **CONCLUSIONS:** While many Italian diabetes patients are reporting low adherence to guideline driven testing and preferences for managing their own diabetes without intervention from their HCP, change is needed. This represents a major opportunity for more targeted Italian patient management solutions built on Italian patient preferences and recognition of necessary change drivers to realize more cost-effective care. This study demonstrates how local patient preferences can impact outcomes, and therefore must be built into chronic disease management solutions for meaningful change to occur.

PDB91

SYSTEMATIC LITERATURE REVIEW OF HEALTH STATE UTILITIES FOR ADULTS WITH TYPE 1 DIABETES

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OBJECTIVES: Type 1 diabetes is often associated with complications that may have a pronounced impact on health-related quality of life (HRQoL). The aim was to conduct a systematic literature review to identify studies conducted exclusively in type 1 diabetes populations reporting utility values for diabetes-related complications. **METHODS:** Literature searches of the PubMed, EMBASE and Cochrane Library databases were performed in line with PRISMA guidance; searches used Medical Subject Heading (MeSH) terms supplemented with free-text terms. For inclusion, studies were required to be conducted exclusively in adults with type 1 diabetes, published in English from 2000 onwards, and report utility values determined using either direct or indirect assessment methods. **RESULTS:** Searches identified a total of 20 studies reporting utility values for complications in type 1 diabetes, of which a total of 9 studies used the EQ-5D, 2 used the 15D, 3 used the Quality of Well-Being questionnaire and 5 used direct methods including time trade-off and standard gamble. For patients with no complications reported utility values ranged from 0.90–0.98. Complications including stroke (reported disutility range –0.105 to –0.291), neuropathy (range –0.055 to –0.358) and blindness (range –0.132 to –0.208) were associated with among the largest decrements in utility values. Poor glycemic control was also found to be associated with lower utility values. Data gaps in the literature exist, e.g. EQ-5D utility values for amputation and end-stage renal disease are lacking. **CONCLUSIONS:** Differences between type 1 and type 2 diabetes populations mean for economic evaluation it is preferable to obtain utility values from exclusively type 1 diabetes populations. In type 1 diabetes the presence of complications has a significant detrimental impact on HRQoL, but the magnitude of the impact depends on the choice of HRQoL instrument. This will have implications on cost-effectiveness models of type 1 diabetes.

PDB92

ASSESSMENT OF UNMET HEALTHCARE NEEDS IN DIABETIC PATIENTS IN BULGARIA

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OBJECTIVES: Diabetes mellitus (DM) is a chronic disease and patients have higher objective healthcare needs compared to the general population. The healthcare supportive services help the good control of diabetes, avoiding or delaying the disease complications and assuring the patient's adherence to the treatment. The objective of this study is to assess the patients reported needs of additional healthcare, psychological or family supportive care and the specific gaps in the healthcare management of the disease in Bulgaria. **METHODS:** A total of 245 adults diagnosed with DM type 1 and 2 were recruited and completed a self-report questionnaires at three hospitals - in the capital and in two main other cities. Of them 203 were complete and eligible for analysis. Unmet needs were assessed using 15-item questionnaire. The data were examined using descriptive statistics. **RESULTS:** Unmet needs were most commonly reported in the aspects of healthcare services' domains. The three most frequently endorsed items of "moderate to severe" unmet needs were: additional information about the disease from the endocrinologist (65.35%), structured information about the disease and its treatment given in the hospital from the doctor (68.81%) and needs of special foot care medical offices for patients with diabetic neuropathy (68.81%). Approximately 76% of the patients reported having unmet needs of more free test-strips for self-monitoring blood glucose, medicinal products and special healthcare services for diabetics. 73 patients (36.14%) reported high importance of the active participation of the pharmacist in community pharmacy in recognizing of probable and current drug related problems. 101 of the patients (50%) reported need of higher psychological support from their relatives