Clinical care and other categories posters: Diabetes specialist nurse

P235
Can the use of longer acting insulin Degludec and a continuous glucose monitoring (Libra) maintain the safety and stability of housebound patients with diabetes when insulin is being administered by community nursing teams while reducing the community nursing burden
J ROWNEY, M Clements and N Robinson
Community Diabetes, Sussex Community NHS Foundation Trust, Chichester, UK
Refer to Oral number A58

Clinical care and other categories posters: Diet, obesity, exercise and inflammation

P236
Early responders to liraglutide 3.0mg as adjunct to diet and exercise from the SCALE CW LE ROUX1, S Wharton2, SK Lilleøre3, CH Jepsen3 and LJ Aronne4
1Experimental Pathology, University College Dublin, Dublin, Ireland,
2Wharton Medical Clinic, Weight and Diabetes Management, Hamilton, Canada,
3GLP-1 Diabetes and Obesity, Novo Nordisk A/S, Søborg, Denmark,
4Comprehensive Weight Control Center, Weill Cornell Medical University, New York, USA
Aims: The SCALE Maintenance trial randomised adults with body mass index (BMI) ≥ 30kg/m or BMI ≥ 27kg/m with comorbidities, who lost ≥5% body weight during a 4 to 12 weeks, 12,000 to 1,400 kcal/day run-in period prerandomisation to liraglutide 3.0mg or placebo adjunct to diet + exercise. This post hoc analysis compares outcomes in liraglutide 3.0mg early responders (ERs) vs early non-responders (ENRs) (ERs vs ENRs; ≥5% vs <5% weight loss 16 weeks post randomisation) (NCT00781937).
Methods: Efficacy outcomes for liraglutide 3.0mg ERs vs ENRs are observed means/proporisions for individuals completing 56-week treatment. Safety analysis set was used for adverse events (AEs).
Results: Randomisation mean characteristics (n = 212) for participants on liraglutide 3.0mg: 46 years, 84% female, BMI 36kg/m. Of those completing 56-week treatment (n = 159), 108 (68%) were ERs to liraglutide 3.0mg and 51 (32%) ENRs. 91.7% ERs maintained their run-in weight loss (or lost further weight) during 56-week treatment vs 47.1% ENRs. Percentage regaining all weight lost during run-in period by week 56 was 0.0% ERs vs 15% ENRs. At week 56, greater mean (9.9% vs 0%) and categorical weight loss (≥5%; 73.1% vs 11.8%; >10%; 47.2% vs 0%; >15%; 20.4 vs 0%) and similar improvements in cardio metabolic risk factors were observed in ERs vs ENRs. AEs were reported in 92.7% ERs vs 91.0% ENRs. Serious AEs were 4.9% vs 0.0% and gastrointestinal AEs 78.9% vs 62.7% for ERs vs ENRs, respectively.
Conclusion: Among those completing 56-week treatment (following ≥5% weight loss), liraglutide 3.0mg ERs achieved greater weight loss than ENRs.

P237
Age no impediment to effective weight loss with liraglutide 3.0mg: Data from two randomised trials
JPH WILDING1, DM Rubino2, S Kahan3, R Kushner4, CH Jepsen5, BG Smolarz6 and H Wyatt7
1Obesity and Endocrinology Research, University of Liverpool, Liverpool, UK,
2Washington Center for Weight Management and Research, Arlington, USA,
3Johns Hopkins University, Baltimore, USA,
4Feinberg School of Medicine, Northwestern University, Chicago, USA,
5GLP-1 Obesity, Novo Nordisk A/S, Søborg, Denmark,
6GLP-1 Obesity, Novo Nordisk Inc, Plainsboro, USA,
7Anschutz Medical Campus, University of Colorado, Aurora, USA
Aims: Older people are believed to achieve less weight loss than younger people on a given therapy. Liraglutide 3.0mg, as adjunct to diet + exercise, is approved for weight management. We describe a post hoc analysis of liraglutide 3.0mg efficacy and safety in people aged ≥65 vs <65 years from two 56-week randomised, controlled, double-blind SCALE trials (NCT0127212, NCT01272232).
Methods: Individuals with body mass index (BMI) ≥30kg/m, or ≥27kg/m with hypertension or dyslipidaemia; or BMI ≥27kg/m with Type 2 diabetes were supported to follow a 500-kcal/day-deficit diet and 150-min/week exercise and randomised to once-daily subcutaneous liraglutide 3.0mg or placebo; this analysis is based on baseline subgroups: ≥65 or <65 years.
Results: No significant interaction between treatment and baseline age subgroup was seen in either trial for mean body-weight or weight-related endpoints, indicating consistent treatment effects in both subgroups: SCALE Obesity and Prediabetes:≥65 years –8.4%, liraglutide 3.0mg (n = 133) vs –4.2%, placebo (n = 68) and <65 years: –8.0%, liraglutide (n = 2,299) vs –2.5%, placebo.
n = 1,152, interaction between subgroups p = 0.38; SCALE Diabetes: ≥65 years: −7.2%, liraglutide (n = 81) vs −2.5%, placebo (n = 38) and <65 years: −5.6% liraglutide (n = 330) vs −1.9% placebo (n = 172), interaction p = 0.34. Similar effects on glycaemic endpoints were seen in each age subgroup in SCALE Diabetes. In both trials, proportions reporting adverse and serious events tended to increase with age in both treatment groups, notably gastrointestinal events (more frequent with liraglutide 3.0mg than placebo).

**Conclusion:** Liraglutide 3.0mg, as adjunct to diet + exercise, showed similar weight-loss efficacy in individuals ≥65 years, though older individuals tended to report more side-effects.

**P238**

**Dietary carbohydrate restriction as a management strategy for adults with Type 2 diabetes: Exploring the opinions of dietitians**

**RE HUNTRISS1, RC Boocock1 and PD McArdle2**

1Nutrition and Dietetics Department, Bradford Teaching Hospitals NHS Foundation Trust, Bradford, UK, 2Nutrition and Dietetics Department, Birmingham Community Healthcare NHS Foundation Trust, Birmingham, UK

**Aims:** To explore the opinions of UK-registered dietitians regarding carbohydrate restriction as a management strategy for adults with Type 2 diabetes.

**Methods:** A total of 340 dietitians were invited via the British Dietetic Association Specialist Diabetes Group mailing list to take part in the study. Thirty-three participated. Data were collected by electronic questionnaires. Summative content analysis was used to analyse the data which involves counting and comparing codes, and interpreting the underlying context of the data by developing categories and themes.

**Results:** Dietitians individualise dietary advice but most tend to advise a moderate-carbohydrate diet (130 to 225g/day). The majority of dietitians feel that the carbohydrate intake advocated by public health guidance (50% total energy intake or 267g/day of a 2,000kcal diet) is inappropriate for adults with Type 2 diabetes. Commonly reported benefits of carbohydrate restriction were improvements in glycaemic control, weight and reduction in diabetes medications. Possible disadvantages cited were lack of dietary fibre, increased fat intake and greater risk of hypoglycaemia. Most dietitians believe a low-carbohydrate diet (<130g/day) is achievable with regular dietetic support, group support or peer support alongside the provision of meal ideas and resources. However, a low-carbohydrate diet was not deemed suitable or practical for all.

**Conclusion:** Dietary carbohydrate restriction is recognised as an appropriate management strategy for adults with Type 2 diabetes and the clinical benefits are well-understood. By recognising the advantages and disadvantages of carbohydrate restriction, dietitians remain well-placed to support this dietary management strategy while ensuring a strong emphasis is placed on individualisation of treatment.

**P239**

**Diet and diet plus physical activity improves treatment satisfaction with no adverse effect on quality of life and illness perception in early Type 2 diabetes: Data from the Early ACTID trial**

**HS OLDERSHAW1, RA Oram1,2, BM Shields3 and RC Andrews1,3**

1Institute of Biomedical and Clinical Sciences, University of Exeter Medical School, Exeter, UK, 2National Institute for Health Research, Exeter Clinical Research Facility, Royal Devon and Exeter NHS Foundation Trust, Exeter, UK, 3University of Exeter Medical School, University of Exeter, Exeter, UK

**Aims:** Diet and exercise are the cornerstone of management of Type 2 diabetes but 20% to 50% of people are non-adherent, possibly due to a reduction in wellbeing. Early ACTID randomised patients to diet, diet and activity, or usual care in a 5:5:2 ratio. Patients in both intervention arms experienced improved glycaemic control. We aim to assess treatment satisfaction, quality of life (QoL) and illness perception in each arm.

**Methods:** Treatment satisfaction, quality of life, health status and illness perception were assessed using five questionnaires: Diabetes Treatment Satisfaction Questionnaire (DTSQ) (n = 517), Diener’s Satisfaction with Life Scale (n = 529), Rosenberg Self-esteem scale (n = 570), EQ-5D (n = 530) and Brief Illness Perception Questionnaire (n = 509). Analysis was performed on participants with complete data at baseline and 12 months for each questionnaire. T-tests compared mean change from baseline score.

**Results:** Baseline characteristics were similar across trial arms; 63% vs 64% vs 66% male, median age 59.5 vs 60.1 vs 60.0, median time since diagnosis (days) 185 vs 186 vs 194, mean HbA1c 6.72 vs 6.64 vs 6.69, mean BMI 32.3 vs 31.5 vs 31.6. At 12 months, there was a marked improvement in DTSQ Satisfaction in those receiving a diet only or diet and exercise programme compared to usual care (+2.81 vs +0.49, p = 0.0006 and +2.41 vs +0.49, p = 0.001) There were no differences between arms in QoL, health status or illness perception.

**Conclusions:** Diet and diet plus physical activity programmes introduced soon after diagnosis in Type 2 diabetes improve glycaemic control with increased treatment satisfaction and no adverse effect on QoL, health status and illness perception. The addition of exercise to a diet programme did not result in poorer QoL, health status or illness perception.

**Acknowledgement:** Early ACTID Study

**P240**

**Improvement in diet quality, measured by the UK Diabetes and Diet Questionnaire, is associated with improvement in weight in people with impaired glucose tolerance**

**CY ENGLAND1,2 and JL Thompson3**

1Centre for Exercise, Nutrition and Health Sciences, University of Bristol, Bristol, UK, 2National Institute for Health Research, Bristol Biomedical Research Centre, University of Bristol, Bristol, UK, 3School of Sport, Exercise and Rehabilitation Sciences, University of Birmingham, Birmingham, UK

**Aim:** To investigate whether improvements in diet quality as measured by the UK Diabetes and Diet Questionnaire (UKDDQ) are associated with improvements in weight and HbA1c in people with impaired glucose tolerance (HbA1c 42 to 47 mmol/mol) after six months participation in a community diabetes prevention programme.

**Methods:** The diabetes prevention programme was provided by a social enterprise in Birmingham in 2016. The UKDDQ, a validated
brief dietary questionnaire, was used to measure diet quality at baseline and six months (scored from 0 to 5 where a lower score indicates a healthier diet). Outcome measures were changes in weight and HbA1c at six months. Multivariate regression analysis was used to examine associations between changes in mean UKDDQ score and change in outcomes at six months, adjusting for age, sex and level of deprivation.

**Results:** Seventy-three participants (46 women) completed the UKDDQ at baseline and six months. Mean ± SD age was 56.5 ± 13.6 years; participants were recruited from areas of higher deprivation (Index of Multiple Deprivation Decile 2.0 ± 1.5). Mean ± SD body mass index at baseline was 31.4 ± 4.5 kg/m². At six months, participants lost 2.4 ± 3.6 kg (p < 0.001) and improved mean ± SD HbA1c by 1.5 ± 2.7 mmol/mol. Mean ± SD diet quality improved by 0.2 ± 0.4 (p = 0.002). An improvement of 1 point on the UKDDQ was associated with a weight reduction of 2.1kg (95% CI 0.1, 5.3; p = 0.04). There were no associations between change in UKDDQ score and change in HbA1c.

**Conclusions:** The UKDDQ is sensitive to dietary change and can be used to score diets pre- and post-diabetes prevention interventions.

**P241**

**The impact of omega-3 fatty acid intake on lipid profiles, inflammatory parameters, and blood pressure in Type 2 diabetes: Insights from a meta-analysis**

L O’MAHONEY1, J Matu1, DJ West2, K Deighton1 and MD Campbell1,2

1Institute of Sport, Physical Activity and Leisure, Leeds Beckett University, Leeds, UK, 2AGADA, Diabetes Education and Research Institute, Ljubljana, Slovenia, 3Multidisciplinary Cardiovascular Research Centre, University of Leeds, Leeds, UK, 4Bradford Institute for Health Research, Bradford Royal Infirmary, Bradford, UK, 5Department of Health Sciences, University of York, York, UK, 6Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, UK

**Background and aims:** Improved glycaemic control reduces cardiovascular disease risk in patients with Type 2 diabetes. Whether glycaemic control is influenced by omega-3 polyunsaturated fatty acids (ω-3FA) remains ambiguous however. Therefore, we conducted a meta-analysis to assess the efficacy of ω-3FA on indices of glycaemic control in patients with Type 2 diabetes.

**Methods:** Databases including PubMed and MEDLINE were searched up to 13th July 2017 for randomised controlled trials (RCTs) investigating ω-3FA interventions (in diet or capsule form) which included dosage and duration. Review and analyses were conducted in accordance with Cochrane recommendations. Data were pooled using random-effects meta-analysis on: fasting blood glucose, fasting insulin, homeostatic model assessment of insulin resistance and c-peptide, with data presented as standardised mean difference (Hedges g) with 95% confidence intervals.

**Results:** A total of 43 RCTs were included in the analyses, involving 2,096 people with Type 2 diabetes. ω-3FA was associated with significant reductions in triglycerides (effect size (ES): −0.402, 95% CI −0.557 to −0.247; p = <0.001), low-density lipoprotein (ES: −0.109, 95% CI −0.180 to −0.039; p = 0.002) and very low-density lipoprotein (ES: −0.402, 95% CI −0.742 to −0.062; p = 0.021). High-density lipoprotein, total cholesterol, apolipoprotein-A1, apolipoprotein-B, and NEFA remained unchanged. There was a significant reduction in tumour necrosis factor (TNF)-α (ES −0.592, 95% CI −1.169 to −0.014; p = 0.045). Interleukin-6, CRP, SBP, DBP, and resting HR remained unchanged.

**Conclusion:** ω-3FA intake improves lipid profiles and lowers TNF-α in patients with Type 2 diabetes; other inflammatory and blood pressure parameters remain unaffected.

**P242**

**The influence of omega-3 fatty acid intake on lipid profiles, inflammatory parameters, and blood pressure in Type 2 diabetes:**

L O’MAHONEY1, J Matu1, DJ West2, K Deighton1 and MD Campbell1,2

1Institute of Sport, Physical Activity and Leisure, Leeds Beckett University, Leeds, UK, 2AGADA, Diabetes Education and Research Institute, Ljubljana, Slovenia, 3Multidisciplinary Cardiovascular Research Centre, University of Leeds, Leeds, UK, 4Population Health Research Institute, St George’s, University of London, London, UK, 5The Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, 6Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, UK

**Background and aims:** Nonglycaemic factors including blood pressure, dyslipidaemia and inflammatory biomarkers play an important role in the prediction, prevention and treatment of cardiovascular disease in Type 2 diabetes, and are highly susceptible to dietary influence. We conducted a meta-analysis to assess the efficacy of omega-3 polyunsaturated fatty acids (ω-3FA) on lipid, inflammatory, and blood pressure parameters in patients with Type 2 diabetes.

**Methods:** Databases including PubMed and MEDLINE were searched up to 13th July 2017 for randomised controlled trials (RCTs) investigating ω-3FA interventions (in diet or capsule form) which included dosage and duration. Review and analyses were conducted in accordance with Cochrane recommendations. Data were pooled using random-effects meta-analysis on: fasting blood glucose, cholesterol, chylomicron and inflammatory parameters, as well as systolic blood pressure (SBP), diastolic blood pressure (DBP) and resting heart rate (HR). Data are presented as standardised mean difference (Hedges g) with 95% confidence intervals.

**Results:** A total of 38 RCTs were included in the analyses, involving 2,428 patients with Type 2 diabetes. ω-3FA were associated with significant reductions in HbA1c (Effect size: −0.262, 95% CI −0.464 to 0.059; p = 0.011), with a large degree of heterogeneity between RCTs (I² = 87.9%, Q = 282.0, τ² = 0.277, df = 34), independent of intervention duration (I² = 0.00), or dosage (I² = 0.00). Fasting plasma glucose, fasting insulin, homeostatic model assessment of insulin resistance, and c-peptide remained unaffected following ω-3FA supplementation (p > 0.05).

**Conclusion:** The use of ω-3FA supplementation in Type 2 diabetes is associated with improved HbA1c; however, other indices of glycaemic control remain unaffected. Whether such improvements are transferable to patients with Type 1 diabetes is unknown.
P243

Low calorie liquid diet (LCD) for weight reduction and remission of Type 2 diabetes: Single-centre group pilot project
T Aung, R ARFAN, E Dubiwa, L Lovell and I Gallen
Centre for Endocrinology & Diabetes, Royal Berkshire Hospital, Reading, UK

Background: LCD has been demonstrated to promote marked weight loss and remission of Type 2 diabetes, and is more effective than lifestyle intervention alone. Initial studies have worked with individuals but working in groups has the potential to reduce the unit costs of this intervention, while maintaining efficacy.

Aim: This first ever group pilot project aims to generate weight loss of ≥15kg at 12 months with remission of Type 2 diabetes.

Method: Patients with a body mass index (BMI) >28 with Type 2 diabetes commenced a 12-month counterweight plus structured group programme having a total diet replacement (TDR) (800 calories daily) for initial 12 weeks followed by 12-week phase of food re-introduction (FR) and finally six-month period of weight-loss maintenance.

Results: Eleven patients with Type 2 diabetes (45% females, mean weight 95.5kg, mean BMI 35.6kg/m², mean HbA1c 58.9mmol/mol) entered the programme in two groups. All patients stopped their diabetic medications on starting TDR. Results are presented in mean ± SD (p value). After TDR, the weight loss was 13.4 ± 4.13 kg (<0.00001) with reduction in BMI of 4.46 ± 1.19 (<0.00001) and fall in HbA1c of 13.9 ± 11.92 (<0.0025). After FR, weight loss was 14.3 ± 6.73 kg (<0.00004) with reduction in BMI of 4.86 ± 2.35 (<0.000052). Group work costs just under one third of cost for individual.

Conclusion: LCD group programme is cost-efficient, safe and effective as individual treatment achieving weight loss and remission of Type 2 diabetes.

Clinical care and other categories posters: Early detection and prevention

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I KHAN1, T Willis1 and M Baird2

Refer to Oral number A4

P245

Corneal endothelial damage is related to corneal nerve fibre loss in patients with diabetes
MF FERDOUSI1, STH Hammadi2, ASN Nassar2, AK Kalteniece1, SA Azmi1, IP Petropoulos3, HS Soran1, RQ Qahwaji2 and RAM Malik3
1Division of Cardiovascular Sciences, University of Manchester, Manchester, UK, 2University of Bradford, Bradford, UK, 3Weill Cornell Medicine-Qatar, Qatar, UAE

Refer to Oral number A69

Clinical care and other categories posters: Education and self-management

P246

Medway NHS foundation trust: Variable rate intravenous insulin infusion mandatory training implementation
A EPPS and R Watt
Diabetes Centre, Medway NHS Foundation Trust, Gillingham, UK

Refer to Oral number A7

P247

Revolutionising access and outcomes in Type 2 diabetes structured education programmes through remote care
L Jones, L DIAMOND, M Jenkins, S Adu and R Vallis
Diabetes, Oviva, London, UK

Refer to Oral number A8