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- Abstract booklet -

Title: Depression and sense of coherence modify food intake andcompliance with dietary recommendations in patientswith type 1 diabetes

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Aims: In type 1 diabetes, appropriate insulin dosing and compliance with dietary recommendations are important in achieving good metabolic control. As psychological disturbances are common in patients with type 1 diabetes, we aimed to study the associations between psychological and dietary factors. Additionally, we studied which factors are associated with compliance with dietary recommendations, in this patient group.

Methods and patients: A total of 422 participants (45% men, mean age 48 (range 22-84) years, diabetes duration 31 (2-63) years) in the Finnish Diabetic Nephropathy Study (FinnDiane) were included in this cross-sectional study. Beck Depression Inventory (BDI) and sense of coherence test were used to study depression and sense of coherence (SOC), respectively. Data on food consumption and dietary counselling were collected using a questionnaire.

Results: The overall rates of depression (score >16) and weak SOC (score <60) were 12% and 19%, respectively, and 9% were both depressed and had weak SOC. A total of 84% of depressed and 88% of non-depressed patients had received dietary counselling (ns). These patients did not differ in compliance with the dietary recommendations, in general (48% vs. 62%, P=0.08). However, a sub-analysis among patients without nephropathy revealed, that depressed patients were less frequently compliant than non-depressed (43% vs. 68%, P<0.05). Depressed males consumed less fish, fresh vegetables, bread and coffee, but more eggs compared to males without depression (P<0.05, all). Additionally, depressed male patients used more frequently no spread on bread than patients without depression did (27% vs. 8%, P<0.05). Female patients with depression consumed less dairy products and fish (P<0.05, both) compared to females without depression. Of patients with weak and strong SOC, 88% and 87% had received dietary counselling (ns), but of these 46% and 63%, respectively, reported adhering to the dietary recommendations often or always (P<0.05). Male patients with weak SOC consumed less coffee and rye bread, but more soft drinks and fried foods than males with strong SOC did (P<0.05, all). Additionally, they reported more frequently using no spread on bread compared with males with strong SOC (29% vs. 7%, P<0.01). Females with weak SOC consumed less fish, fresh or cooked vegetables, sour milk, fruits and berries, but more wheat bread, fatty cheese and soft drinks compared to females with strong SOC (P<0.05, all). In a logistic regression analysis, strong SOC, dietary recommendations given by a physician, longer diabetes duration and adherence to any special dietary regimen were associated with good compliance with dietary recommendations when adjusted for gender.

Conclusions/Discussion: Depression and weak SOC were associated with less prudent food choices such as infrequent consumption of fish and vegetables. Depression was associated with poor compliance only in the subgroup of patients without nephropathy, suggesting that in overt nephropathy the need to comply with recommendations overcomes the effect of depression. Strong SOC is associated with good compliance with dietary advice. Dietary advice from physicians are especially important in improving the compliance. Our results suggest that psychological well-being may play an important role in modifying dietary habits among patients with type 1 diabetes.

Title: Changes in Functional brain connectivity and neurocognitive functioning in type 1 diabetes mellitus patients: preliminary findings using magnetoencephalography (MEG)

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Aims: Type 1 diabetes mellitus (T1DM) is associated with mild cognitive deficits and structural cerebral changes. Less is known about functional brain connectivity (FC), as defined as communication between cerebral areas. It is, however, suggested that T1DM is associated with both decreased and increased brain activity. Functional brain connectivity is of major importance for higher order cognitive functions and therefore it might, in part, explain the cognitive deficits seen in T1DM.

Methods and Patients: Fifteen T1DM patients with proliferative retinopathy or previous laser-coagulation (PDPR), 27 T1DM patients without any microvascular complications (NDPR) and 26 healthy controls (HC) were included in this analysis. Functional connectivity is measured with magnetoencephalography (MEG), a derivative of electroencephalography, although more sophisticated and elaborate. MEG measures fluxes in magnetic fields at scalp level in frequency bands: delta (0.5 – 4 Hz), theta (4 – 8 Hz), lower alpha (8 – 10 Hz), upper alpha (10 – 13 Hz), beta (13 – 30 Hz), lower gamma (30 – 45 Hz) and upper gamma (55 – 80 Hz). MEG registration took about 20 minutes and a 5 minute eyes-closed condition was used for analysis of functional connectivity. Data was clustered into intra hemispheric FC (between areas within one hemisphere), inter hemispheric FC (between areas between the two hemispheres) and local hemispheric FC (within one area in one hemisphere).Furthermore, participants underwent a 2,5 hour during neuropsychological assessment covering general cognitive ability, memory, executive functions, attention, motor speed and information processing speed.

Results: PDRP group had the highest age, a longer disease duration and earlier disease onset than the NDRP. Neuropathy was more present in the PDRP group, as well as higher levels of depressive symptoms. Analyses of neuropsychological data revealed poorer performance for both PDRP and NDRP group on general cognitive ability, information processing speed and motor speed compared to healthy controls. Lower FC was found in the theta, lower alpha and upper alpha local hemispheric regions for PDRP compared to NDRP and HC and in the upper gamma intra hemispheric pathways for PDRP compared to NDRP. When comparing NDRP to HC lower FC was found in the upper gamma Intrahemispheric pathways.

Conclusion/Discussion: Our results show lower functional brain connectivity in PDRP compared to NDRP and HC and NDRP compared to HC. Neurocognitive functioning differed from HC irrespective of retinopathy status. These results indicate that alterations in FC in T1DM patients without apparent microvascular complications are evident. One can only speculate about the pathogenesis of these cerebral changes. However, earlier research has pointed into the direction of chronic hyperglycaemia as a main mechanism. If applied to the results found in this analysis, it would indicate that the human brain is more prone to the adverse effects of chronic hyperglycaemia than other organs, possible due to a lack of defence mechanisms. This would stress the importance of strict glycaemic control, also from a cognitive neurological perspective. For those with cerebral complications, developing neuropsychological rehabilitation programmes may be considered to retain and maximize cognitive performance.

Title: Measuring medication adherence and depression in a translational behavioral intervention study: a public health model

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Aims: The Improving Diabetes Outcomes Study was a randomized behavioral intervention trial, primarily focused on medication adherence, in English and Spanish. It compared a tailored telephone counseling intervention (tele) delivered by health educators to a mailed print intervention. Our aims were to improve diabetes control and self-management behaviors and to assess psychosocial, behavioral and demographic determinants of success. Brief telephonic interventions included risk communications, problem-solving and promotion of self-efficacy, guided by Protection Motivation Theory. This presentation focuses on 1) baseline associations and interactions of three measures of medication adherence with HbA1c and 2) the rationale for our assessment of depression pre- and post-intervention using a measure causing some controversy among behavioral scientists.

Methods and patients: Adult subjects (N=526) were labor union members in New York City taking oral type 2 diabetes medications. They had mean ±sd age 56±7 years, were predominantly women (67%), foreign born (77%), Black (62%) or Hispanic (23%). Annual household income was < $30K (U.S.) for 43%, but all had access to medical care and medications. Randomized groups were similar, except the telephone group had higher BMI (31.7±6.1 vs 30.4±5.8 kg/m2, p=.02). The main outcomes were HbA1c and medication adherence measured by claims data using the medication possession ratio (MPR) and 2 self-report measures. The measure of depression was the Patient Health Questionnaire-9 (PHQ-9), although the investigators opted to delete the item on suicide ideation from the survey (a PHQ-8) - a practice supported by the PHQ-9 authors for studies that are public health oriented, unconnected to primary care, and depression is not a main outcome.

Results: Mean baseline HbA1c and MPR were not statistically differrent between groups at baseline. This study had positive main outcomes which can not be formally presented here as they have been submitted to ADA for June 2009. The MPR was inversely associated with the A1c, while the Morisky medication adherence scale and a single item on medication adherence from the Summary of Diabetes Self-Care Activities were not. While the three measures were related to each other, only the MPR was related to A1c. A statistically significant interaction of MPR and A1c with continuous age was observed (p=.03) for those <56 years. Logistic regression models adjusting for age, sex, insulin use, and number of diabetes pills showed in the younger group a significant (p<.001) association of lower MPR with higher A1c (OR=3.69, CI 2.2, 6.7). The depression measure, the PHQ-8, revealed in a logistic regression model an OR=2.5, CI 1.5,4.2) for those screening positive for depression having lower medication adherence. Those with PHQ-8 scores >10 were contacted by phone and mail to discuss avenues for assessment. We were aware of no serious adverse events related to depression.

Conclusions: These data suggest that in a low-income, urban sample, the MPR for only for those < 56 years was associated with high A1c. Other self-report measures of adherence were not associated with A1c. The PHQ-8, though somewhat controversial in the diabetes behavioral research community, was simple to administer and significantly associated with low medication adherence.

Title: Eicosapentaenoic acid as an add-on treatment for co-morbid major depression in patients with diabetes mellitus: a randomized, double-blind placebo-controlled pilot study

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Background: Depression is a common, burdensome psychiatric disorder in people with diabetes. A considerable percentage diabetes patients receiving antidepressant drug therapy do not achieve remission of major depression. It has been suggested that ω-3 polyunsaturated fatty acids, in particular ethyl-eicosapentaenoic acid (E-EPA), may be an effective add-on treatment for reducing depressive symptoms in patients with major depression. The present study is the first to test the efficacy of E-EPA versus placebo in the treatment of co-morbid major depression in people with diabetes mellitus.

Methods: We conducted a 12-week, placebo-controlled, double-blind study of E-EPA (1 gram/day) versus placebo in 25 diabetes patients meeting DSM-IV criteria for major depressive disorder, in addition to ongoing use of anti-depressant medication. Depressive symptoms were assessed with the Montgomery Åsberg Depression Rating Scale (MADRS) at baseline and for 12 weeks follow-up with two-weekly intervals. Blood samples were collected at baseline and at 12 week follow-up to determine EPA levels in the erythrocyte membranes. Data were analysed with ANOVA for repeated measures.

Results: 13 participants were randomly assigned to E-EPA; 12 participants were given placebo. Patients receiving E-EPA had tripled levels of EPA in their erythrocyte membranes at 12 weeks follow-up, while this remained stable in control participants receiving placebo. In both groups, depressive symptoms significantly decreased over time ($F = 21.14$, $P < 0.001$), yet no significant differences were found between those treated with E-EPA versus placebo ($F = 1.63$, $P = 0.145$).

Conclusions: In this pilot study, no evidence was found for the efficacy of E-EPA in reducing depressive symptoms in diabetes patients with co-morbid depression.

Clinical Trials Registration: ISRCTN 30877831.

Title: A self-efficacy based intervention for nurses delivering group education for patients with type 2 diabetes

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Aims: The study aimed to increase the number of self-efficacy based techniques used by nurses when delivering group education for patients with type 2 diabetes who started insulin treatment.

Methods: A single-case, one group pre-post design was applied. Five nurses who delivered a starting insulin programme took part in the intervention study. The self-efficacy based intervention included educational training in self-efficacy and individualised feedback. During the eight hour educational training, the nurses actively learned the four sources of self-efficacy, mastery experience, role modelling, verbal persuasion and physiological and affective states, and practiced the use of self-efficacy techniques. The two hour feedback session consisted of a guided reflection on nurses' video-recorded practice and a goal setting with regard to the use of self-efficacy techniques. Five baseline, four post-intervention and three follow-up 2-hour long starting insulin programmes were recorded and evaluated with regard to the number of self-efficacy techniques using a standardised assessment tool, Analysis System for Self-Efficacy Training, ASSET.

Results: All nurses increased the number of self-efficacy techniques after the intervention. The effect decreased at 3-month follow up. These changes in nurses' behaviour corresponded to a large extent to their individual goals. The greatest improvement was observed with regard to verbal persuasion based techniques (i.e. instead of delivering information, the nurses started eliciting knowledge from the patients). The smallest change was related to role modelling based techniques (e.g. the nurses hardly used the group to solve someone's problems). The less experienced nurses, with no additional training prior to the intervention, improved more than those with additional training.

Discussion/Conclusions: The findings suggest that a self-efficacy based intervention may change nurses' behaviour in the short term. The deterioration in the number of self-efficacy techniques may support the general observation that the effects of interventions weaken if ongoing support is not provided. The intervention might have helped nurses to realise their inadequacies but did not help them to change in the long term. The nurses might have applied new techniques but their beliefs about the responsibility for patients' self-management might not have changed. Thus, the new behaviour did not become a part of everyday practice. The fact that nurses' behaviour change was related to their experience could suggest that the intervention addressed basic skills less relevant for more experienced nurses (e.g. guiding self-reflection and setting goals). Alternatively, the results could suggest that individuals who had not developed entrenched attitudes were more ready to change. The most frequent change was with regard to verbal persuasion. This confirms previous findings suggesting that verbal persuasion is the most often used and the most easily implemented technique. This could be due to the fact that verbal persuasion, unlikely mastery experience, role modelling and physiological and affective states techniques, keeps the nurses in charge. For example, the nurses can decide what information to elicit from the patients when using verbal persuasion whilst they let patients decide what topic to reflect on when using mastery experience techniques.

Title: Endocrine-metabolic and Clinical profile in Type 2 Diabetic Patients with and without Major Depressive Disorder

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Objectives: Coexistence of depression and diabetes is a serious medical situation. There is a prevalence of 15 to 20% of Depression in Diabetic Patients (DP) compared with 2 to 9% in general population. In addition, Diabetes and Depression are associated with higher morbidity and mortality. This study was designed to determine: 1) The prevalence of Major Depressive Disorder (MDD) in a population of type 2 DP and 2) To establish if there are differences in the endocrine-metabolic and clinical profile in two groups of patients (group 1: Type 2 DP with (DPD); group 2: Type 2 DP without (DP) MDD).

Methods and patients: 61 Type 2 diabetic patients aged between 18 and 70 years old were included. Those patients were attending to our Diabetes section in the last 12 months. Diagnosis of MDD was done by a psychiatric interview using the DSM-IV criteria; the Mini-International Neuropsychiatric Interview (M.I.N.I) a short structured diagnostic interview, and the Hamilton Rating Scale for Depression (HAM-D 17). Fasting blood samples were obtained for: glycemia, A1c, LDL-Col, HDL-Col, highly sensitive C-reactive protein (hs-CRP), Tumor necrosis factor alpha (TNF-alpha). Salivary 11 pm cortisol (SC) and urinary 24 hs free cortisol (UFC) were measured as well. Finally, BMI, waist circumference (WC) and blood pressure (BP) were also determined.

Results: 34.4% of patients (21/61) presented MDD; only 15% of them were taking antidepressant drugs (3/21); 38% of the DPD had a cardiovascular event (by-pass, coronary heart disease, stroke or peripheral occlusive disease) versus 17.5% in DP; 38% of DPD presented retinopathy versus 22% in PD. When compared DPD vs. DP it was observed:

Table: Comparison diabetic patients with (DPD) vs. without (DP) major depressive disorder

	DPD (N21)	DP (N40)	*p*
Clinical Features			
Age (X ± SD) (n)	62.2 ± 8.3	61.7 ± 6.4	0.2 *
Sex (% men) (n)	45.5 (10)	55 (22)	0.4 **
Duration of Diabetes (Yrs.: X ± DS)	13.6 ± 10.2	11.6 ± 6.8	0.5 *
Treated with Insulin (% pat)(n)	57.1% (12)	47.5% (19)	0.4 **
CV events (% pat) (n)	38.1% (8)	15% (6)	0.04 **
Metabolic Parameters			
Glycemia (X ± DS)mg/dl	160.4 ± 53.9	143.5 ± 37.3	0.4 *
A1C(X ± DS)%	7.4 ± 1.2	7.6 ± 1.3	0.5 *
Endocrine Parameters			
UFC (X ± DS) ug/24 hs	71.4 ± 21.3	60.6 ± 28.2	0.02 *
CS (X ± DS) nmol/l	3.0 ± 1.8	2.2 ± 1.4	0.08 *
CRP(X ± DS) ng/ml	4.8 ± 3.9	3.4 ± 3.9	0.06 *
TNF-alpha (X ± DS) pg/ml	19.6 ± 17.6	17.2 ± 15.3	0.9 *

* test de Mann Whitney; ** Test de Chi 2

Conclusions: Type 2 Diabetic Patients attending our Department had a high prevalence of Major Depressive Disorder even though a large number were not diagnosed before. In Diabetic Patients with Depression a higher incidence of cardiovascular disease and higher levels of urinary free cortisol were observed in this study. The authors hypothesize that hyperactivity of the hypothalamic-pituitary-adrenal axis in Diabetic Patients with Depression may play a roll in developing macro-vascular disease.

Title: Diabetes isn't an illness - it's a nuisance

Authors: Smith J

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Aims: One of the aims of the research was to give a voice to the women who took part in the research in terms of giving credibility to their experiential knowledge of living with diabetes, and to produce an account of this group of women's experiences. This will enable a more complete and shared understanding of the experience of diabetes to be created when this experiential knowledge is combined with the accepted biomedical body of knowledge of health care professionals. It is apparent that there was a gap in the literature relating to the lived experience of women in midlife. As a result of an initial focus group with women with diabetes, followed by a survey with a larger group of women with insulin treated diabetes, the following research questions were identified, which related to the complexity of living with diabetes and went beyond the biomedical model to incorporate psychosocial aspects.

- How do women with insulin treated diabetes interpret and manage their lives?
- What do women describe as stressful in relation to their insulin treated diabetes?
- What impact do these stressors have on women's lives?

Methods: A sequential mixed methods approach was adopted.

- Stage 1: Focus Group (n=5)
- Stage 2: Survey: Demographic questionnaire (n=59); PSS (n= 59); PAID (n=56)
- Stage 3: Face to face interviews (n=23)
- Stage 4: Journal Keeping

Patients: Twenty three women aged 40 – 60 with insulin treated diabetes.

Results: This presentation will concentrate on the data collected during the qualitative stage of the research. The two preliminary stages identified that stress was an issue for women in relation to diabetes, and the sub group of women in midlife (aged between 41 – 60) formed the largest age group within the sample population, and fulfilled a wide variety of roles within the context of their lives. An interpretative phenomenological approach (IPA) was taken to data collection and analysis, which focussed on the perceived experience of this group of 23 women.

The major overarching theme that emerged from the data analysis is illustrated in the title of the presentation – "Diabetes isn't an illness – it's a nuisance", and it is the concept of diabetes as a nuisance that is discussed and represented poetically. Four storied scenarios are presented that illustrate stress in relation to diabetes in the lives of this group of women. Control and conflict emerge as the main themes throughout the scenarios.

Conclusions/discussion: This research contributes to existing knowledge and originality regarding diabetes in taking the complexity of the combination of biomedical and psychosocial work forwards and in the understanding of cumulative effects of mid life on living with a long term condition. The final conclusions and recommendations are concerned with the application of the research findings to clinical practice, and suggestions for future research.

Title: The impact of switching insulin on Quality of Life: What mediates improvement in well-being?

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Aims: The last decades, the number of T2DM patients has increased drastically. Inherent to this, a broad arsenal of advanced and innovative treatment options have been developed to increase glycaemic control and decrease hyper and hypoglycaemia. While treatment outcomes have always been of interest to researchers and clinicians, QoL is relatively new, but nevertheless increasingly important in diabetes research and care. Many factors can contribute to QoL improvement in diabetes patients. In this longitudinal observational study, we aim to examine the relation between glycaemic control and QoL.

Research design / methods: Two observational studies in adults with T2DM to examine the relation between switching from oral medication and insulin to a long-acting insulin analog have been conducted. In the first study, 1063 patients from 363 primary care practices in the Netherlands, have been included. In the second study, 595 patients from 116 Dutch out-patient clinics have been included. Measures in both studies included, next to demographic variables (age, gender, time since diagnosis, education level BMI and co-morbidity), glycaemic variables (HbA1c, fasting blood glucose, number of mild, nocturnal and severe hypoglycaemia during the past month), the WHO-5 well-being index (WHO-5), the Diabetes Symptom Checklist (DSC-r) and in the second study the worry subscale of the Hypoglycemia Fear Survey (HFS-W).

Planned analyses: The WHO-5 will be the primary outcome variable. Longitudinal analyses to examine the association with glycaemic control, the burden and number of diabetes-related complaints (DSC-r) and changes in hypoglycaemia will be conducted using GEE analysis and zero-inflated Poisson analysis. The first analyses have been conducted using MANOVA for repeated measures. These are presented here.

Expected outcomes: In both studies, glycaemic control improved significantly during the 6-month follow-up (1.1% in the first and 1.0% in the second study; both $p<0.001$). Those with poor well-being scores (WHO-5 <50) and those with WHO-5 scores indicative for depression (WHO-5 <28) improved most during the 6-month follow-up (ranging from 20 to 33 points; $p<0.001$), while those with initial satisfactory well-being improved very little to not at all. We expect this can be partly explained by symptom relief (DSC-r) and due to an increase in energy because of the new medication.

Problems / questions:

1. Which variables would be interesting to relate to each other? and inherent to this: what would be the best way to analyse which variables mediate the relation between glycaemic control and QoL?

2. When we split the WHO-5 in three groups: satisfactory well-being (WHO-5 ≥50), suboptimal well-being (WHO-5 <50) and likely depressed (WHO-5 <28), a drastic increase in well-being is observed over 6 months for those in the latter two categories. Could we really interpret this change, contrary to most suggestions in current literature, as that the T2DM patients with poor well-being, even at risk for depression can benefit most from a better glycaemic control?

Title: E-coach for parents of teens with diabetes

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Aims: Family functioning is important for the well-being and diabetes regulation of adolescents with type 1 diabetes. The way parents and other family members react on and cope with the diagnosis of diabetes appears to be determinative for the development of family patterns of behaviour and verbal communication. These patterns shape to a great extent the family atmosphere. The relation between family atmosphere and glycemic control is complex. Adolescents' problems with the self management could easily initiate conflicts, but teenagers from non-supportive families are more at risk for regulation problems. If and how parents provide support proves to be a strong predictor of glycemic control as well as the quality of life of teenagers. Dealing with a teenager with diabetes in an appropriate way is often not easy and can put pressure on the family and the well-being of the parents. Our aim is to develop an internet course for parents of teenagers with diabetes, the e-coach. This course will provide information and support on parenting by paying attention to the relationship with the teenager, partner and other family members. This study is funded by the Dutch Diabetes Research Foundation.

Design and methods: The study consists of three phases.

Phase 1 (Jan 2009 - Jan 2010) will consist of a survey, focussing on topics of conflict, support from parents and communication patterns. Parents will be asked to complete questionnaires on the internet: Diabetes Family Conflict and Responsibility Scale, Diabetes Family Behaviour Checklist, SF-36 and the Pediatric Inventory for Parents. A selection of parents will be asked to participate in focus groups to examine the found topics more thoroughly and help to determine what should be included in the course.

In the second phase (Jan 2010 – Sept 2010), the requirements for the e-coach will be put together and a prototype will be developed and tested. The content of self-help course will be derived from the survey and focus groups and consultation of experts. If suitable, existing parenting/family interventions will be utilized (e.g. BFST, Triple-P). The e-coach will provide information on different themes, such as: diabetes and puberty, fear and worries, shared responsibility and involvement in the diabetes treatment, parenting styles, communication, school and diabetes in the family. The e-coach will consist of modules, giving the parents the opportunity to take relevant modules. Besides information, parents will be offered the possibility to reflect on themselves by means of self-tests and observation methods. The e-coach will offer exercises and advices on the different themes. Parents with questions and problems on which the e-coach has no answer will be directed to professional help. There will not be personal contact.

In the third phase (Sept 2010 – Dec 2010), the e-coach will be made available for all parents on a website. Parents who visit the website will be asked about their profile and their opinion about the website. A formal evaluation of the course is not part of this study.

Planned analyses: User evaluation will consist of socio-demographic and diabetes related data in relation to the opinion of the parents of the website.

Expected outcomes: Improved communication, more effective support, decreased parental worries and stress.

Questions:

1. Are there other suitable (parenting) programs available to your knowledge?
2. Do you have suggestions for the evaluation of the e-coach website?

Title: Development and evaluation of a diabetes specific cognitive behavioral treatment (DS-CBT) for diabetic patients with sub-threshold depression

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Aims: Depression in diabetes is rather common. The majority of depressed diabetic patients (approx. 20%) are suffering from a sub-threshold depression, defined as elevated depressive symptoms without meeting criteria for clinical depression. Although the reasons for high comorbidity of depression and diabetes are not fully understood, diabetes related distress seems to have an important impact on occurrence of sub-threshold as well as clinical depression. Both sub-threshold and clinical depression are associated with a reduced quality of life, poorer glycaemic control, and a poorer prognosis for the further course of the disease. Besides direct behavioural links between depression an poor glycaemic control like non-adherence to treatment regimes there are also putative biological mechanisms. Possible mediating mechanisms are inflammatory processes.
In spite of these facts no specific intervention tool is existing to treat diabetic patients with sub-threshold depression. Until now antidepressive therapies including CBT are only evaluated in clinically depressed diabetic patients. The overall objective of this study is to develop and evaluate the efficacy of a diabetes specific cognitive behavioural treatment (DS-CBT) to treat diabetic patients with sub-threshold depression.

Design and methods: In a randomised prospective trial the primary hypothesis is tested that a diabetes specific intervention program covering coping with diabetes related distress is more effective in reducing sub-threshold depression than standard diabetes education. The secondary hypothesis refer to significantly more reduced diabetes related distress, higher quality of life, better glycaemic control, less functional disabilities and improved self care behaviour in the DS-CBT group compared to the control group (CG). The sample should sequentially be recruited and randomized on two conditions. The CG receives diabetes education only whereas the treatment condition receives the DS-CBT. This randomised controlled trial with a follow-up period of 12 months after treatment is planned to be conducted in the Diabetes Centre Mergentheim. A total of 188 diabetic patients will be recruited and randomly assigned to the two treatment groups.

Planned analyses: The primary variable is the reduction rate of sub-threshold depression. This categorical variable will be analyzed by Pearson Chi Square test. Normally distributed and continuous secondary outcome will be analysed by a two factorial ANOVA with “treatment” as between factor and “measurement” as within factor. In case of unexpected baseline differences the analysis will be controlled for baseline differences using an ANCOVA. Rank order data will be transformed to rank-order data or analysed by corresponding non-parametric analysis (e.g. Kruskall Wallis rank analysis of variance). Categorical data will be analysed by Pearson Chi-Square. Appropriate descriptive statistics will be provided. Beside univariate analysis multivariate analysis are planned to assess the relative contribution of treatment in relation to other confounding risk factors for depression. It is planned to perform Responder and Non-responder analysis using univariate and multivariate logistic regression models.

Expected outcomes: The expected main outcome variable is the reduction of the proportion of sub-threshold depressed diabetic patients (ADS > 22) in the 12 month follow-up. Secondary variables are improvement of glycaemic control, quality of life, diabetes related distress, diabetes self management and reduction of health care costs. Diabetes related distress will be measured using the PAID questionnaire and quality of life will be measured using the WHO-5 and the EuroQol questionnaire.

Problems / questions:

1. Which diabetes specific topics should be addressed in diabetic patients with subthreshold depression?
2. To which extent should the internvention contain diabetes specific vs. depression specific topics?
3. What could be regarded as an appropriate control condition?
4. Which inflammation markers are promising to be correlated with course of depression/diabetes ?

Title: Relationship of eating disorders with psychological problems in the course of diabetes type 2: cross sectional study

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Institute: II Department of Psychiatry, Medical University of Warsaw, Warsaw, Poland

Introduction: Efficient self-management with diabetes type 2 remains a challenge for the majority of patients and their therapists. The unrecognized and untreated psychopathological conditions may be a meaningful reason for the lack of the effectiveness of the regular education dealing with diabetes. The negative impact of depression on the course of diabetes is well documented. Problems of many patients with diabetes type 2 with adherence to dietary recommendations may be related with binge eating. There are meaningful data dealing with relations of binge eating with diabetes type 1, whereas, possibly links of binge eating and diabetes type 2 are underinvestigated. However, data on the prevalence of eating disorders among persons with type 2 diabetes are unequivocal. Cultural factors, including differences in systems of values, have meaningful impact on the occurrence of bulimia, and probably binge eating. They may explain differences in their prevalence rate in different countries. There are some data indicating that higher level of binge eating is associated with lower existential and spiritual well-being. However, relations of binge eating and existential factors are not fully explained.

Aims:

1. General estimation of prevalence eating disorders among persons with type 2 diabetes in Poland
2. Assessment of psychological factors related with occurrence of eating disorders in population of persons with diabetes type 2
3. Assessment of relationship of eating disorders with demographic characteristics

Design and methods: Eventually cross sectional questionnaire survey of 5000 – 7000 patients with type 2 diabetes is planed for the Autumn 2009. It will be conducted by diabetologists in outpatients clinics all over the country. The series of preliminary studies aiming at choice and elaboration of optimal measures is ongoing.

The results of the first pilot study. It included 25 persons with diabetes of age 12 to 73 years (M = 56.7 SD = 13.6). They were an active members of the Polish Association of Diabetics.

Measures used included: Eating Attitudes Test (EAT-26) (Garner et al, 1982); Problem Areas in Diabetes Survey (PAID) (Polonsky, et al, 1995); Hospital Anxiety and Depression Scale (HADS) (Zigmond, Snaith, 1983); Brief Scale of Reasons of Hyperglycaemia (measure in progress including: coping, perception of self-influence on the diabetes course; depression; real life problems) (Kokoszka, 2009). 11 of 25 subject (44%) got scores indicating problems with eating in Polish version of EAT-26. Its results correlated moderately with depression scale of HADS (r = 0.52), with problems with eating scale of PAID (r = 0.29) and with scale of real life problems of Brief Scale of Reasons of Hyperglycaemia (r = 0.42) – for serious financial problems (r = 0. 27); for serious problems with loneliness (r = 0.32).

The second pilot study is continued until the results of 200 patients with type 2 diabetes are collected. It includes additionally: The Purpose in Life Test (Crumbaugh, Maholick, 1964), and modified Screening for Binge Eating Questionnaire (Tomalski et al, 2008).

Expected outcomes:

1. To verify hypothesis that eating disorders are meaningful problem among persons with type 2 diabetes in Poland (currently the lack of data, awareness of the problem, and therapeutic programs)
2. To verify hypothesis about relations of eating disorders with psychosocial and existential problems

Problems / questions for group discussion:

The final choice of the measures to use in the study

Title: Web-based Cognitive Behavioural Therapy programme for diabetes patients with co-morbid depression: preliminary findings

Authors: van Bastelaar K, Pouwer F, Cuijpers P, Snoek F

Institute: Department of Medical Psychology, EMGO Institute, VU University Medical Centre, Amsterdam, The Netherlands

Aims: Depression is a common co morbidity in people with diabetes and often remains untreated. We developed an online diabetes-specific version of the "coping with depression" course, which is currently tested in an ongoing randomised trial. Here, we report on the demographic and clinical characteristics of the patients who so far volunteered to participate in our online trial.

Design and methods: Advertisements and articles about our trial were placed in patient journals and diabetes websites. Information about the online intervention and aims of the study was placed on the website diabetergestemd.nl, including inclusion and exclusion criteria. If eligible, patients can sign up online for enrolment in the study. Subsequently, patients fill out questionnaires online. Exclusion criteria are checked once more and additional information is gathered on self-reported depression, diabetes-specific emotional distress, perceived health status, diabetes self-care behaviours, and self-reported episodes of hypoglycaemia and glycaemic control (HbA1c). A telephone-based diagnostic psychiatric interview (CIDI) is administered to diagnose depression.

Preliminary results: Most patients (49%) found our website via articles or announcements in patient journals, and via links on other patient websites (33%). Other ways through which patients found our website were: saw a poster at their doctor's office, or advice from their psychologist. Between the 24th of June and the 21st of January 2009, 230 participants signed up for our study via the website, of which 15 did not complete the questionnaires. N=88 patients were excluded on the following exclusion criteria: n=35 for currently taking anti-depressant medication; n=12 for a score below 16 on the CES-D; n=9 loss of significant other <6 months ago; n=5 had no diabetes or was diagnosed <3 months ago; n=2 had a history of suicide attempt(s); n=6 had current suicidal ideation; n=3 had a history of psychiatric hospital admission because of severe depression or schizophrenia. A total of n= 127 eligible patients completed the online questionnaires. Type 1 / type 2 diabetes patients were almost equally distributed: 40.9% / 52.8% (1.6% reporting MODY and LADA, 4.7% unknown); mean age 49 ± 12 years (range 21-74); 66.1% female; 89% of Dutch origin. 68.5% knew their HbA1c, self-reported mean HbA1c was 7.3% ± 1.1 (range 5.5 – 11.3%). Mean CES-D score (of participants who scored ≥16 on the CES-D) was 29.4 ± 7.8 (ranging from 16-51). Mean PAID score, indicating levels of diabetes-specific emotional distress, was 40.9± 19.2. There were no significant differences between Type 1 and Type 2 patients, except that Type 1 diabetes patients were significantly younger. The telephone administered diagnostic psychiatric interview was administered to 106 participants. 30% met no diagnostic criteria, 55% suffered from Major Depressive Disorder, of which Single episode Mild 22%, Moderate 18% and Severe 9%, and Recurrent Episodes, Mild 4%, Moderate 3%. 3% suffered from Dysthymic disorder. 35% of the participants with depressive disorder were diagnosed with a co morbid anxiety disorder. Of the total group of participants, 12% was diagnosed with anxiety disorder only.

Preliminary conclusions: There has shown to be much interest in our online intervention for depression in diabetes patients, including a small group of patients with no clear depressive symptomatology. In about half of the participants with depressive symptoms the diagnosis of depression (DSM-IV) was confirmed. An important reason for exclusion was anti-depressant use. This suggests a need for additional psychological therapy for those patients and future research could test the effects of our intervention in diabetes patients on anti-depressant medication. Participants did not report elevated HbA1c levels, contradictory to in the literature suggested poor diabetes regulation in depressed diabetes patients. Possibly, selection bias may explain this difference. Also, self-reported HbA1c's may not represent true values. As expected, depression scores and diabetes-related distress were strongly elevated in our sample of patients. This underlines the need for an intervention which focuses on both depression and diabetes-related issues which cause emotional distress.

Title: Does treating subsyndromal depression improve depression- and diabetes-related outcomes? A randomised controlled comparison of psycho-education, physical exercise and treatment as usual.

Authors: Ajdukovic D [1], Pibernik-Okanovic M [1], Begic D [2], Prasek M [1], Metelko Z [1]

Institute: [1] Vuk Vrhovac University Clinic for Diabetes, Endocrinology and Metablic Diseases;

[2] Psychiatric Clinic, Rebro University Hospital, University of Zagreb

Aims:

Our preliminary findings suggest that psychoeducation on managing depression in diabetes has favourable results for depression-related outcomes, which are comparable to those in patients in treatment as usual accompanied by multiple depression screenings. This study is aimed at:

(I) exploring the effects of a psycho-educational intervention as compared with physical activity intervention and treatment as usual, in mildly to moderately depressed type 2 diabetic patients;

(II) determining long-term effects of psycho-educational and physical activity intervention on depressive symptoms, diabetes self-management, glycemic control, diabetes-related distress, and health-related quality of life.

Design and methods:

A three-arm randomised controlled trial will be employed to compare two non-pharmacological interventions with depression screening followed by treatment as usual in the approach to subsyndromal depression in patients with type 2 diabetes. Patients will be screened for depression during their regular medical check-ups. Those with scores of 10-14 points on the PHQ, which indicate mild to moderate depression, will be considered eligible for the trial. Exclusion criteria will be poor literacy, mobility difficulties, visual impairment; drinking problems, co-morbid organic psychiatric disorders, or psychosis in personal medical history; medical contraindications for physical exercise; major depressive disorder (assessed by SCID-I). After the written consent to participate has been obtained, patients will be randomly allocated to: a) psycho-educational intervention; b) physical activity intervention and c) diabetes treatment as usual. The following psychological and psychosocial data will be collected at baseline: psychological anamnesis and information about present psychosocial situation (semi-structured interview); diabetes distress (PAID); health-related quality of life (SF-12); and diabetes self-care activities (SDSCA). Psychological variables will be measured at baseline, and at 6- and 12-month follow-up. Disease-related data including the presence of diabetic complications will be collected from the patients' files and additional laboratory and physical examinations.

The two interventions will be comparable in terms of the format (small group work) and approach (interactive learning; supporting the participants' active roles), and number of contacts during the intervention. The group treated as usual will be informed about their screening result, and about the importance and possibilities of treatment for depression.

The psycho-educational intervention will comprise 4 interactive small group meetings, each lasting for 90 minutes, on the interaction between diabetes and depressive symptoms, alleviating depression through activities and problem solving, thoughts, beliefs and attitudes that induce and maintain depression, and developing a personal plan for managing problems in a future. The participants will be supplied with a self-help manual for overcoming depressive disturbances. Patients will be contacted by telephone once a week between psycho-educational sessions in order to receive support in adhering to the regimen of the intervention.

The physical activity intervention will comprise sixteen 30-minute sessions held twice a week during 8 weeks. The offered activity will be callanetics, a non-impact exercise regime considered suitable for previously inactive and elderly persons, and will be lead by a qualified trainer. Exercise intensity will be controlled by heart rate monitors, blood lactate measurements and exercise tests performed on a motor-driven treadmill. The volume of physical activity will be controlled by a pedometer during one day of usual daily activity every two weeks.

Qualitative data on the patients' satisfaction with the treatment will be collected through semi-structured interviews at the end of the interventions.

Planned analyses:

Power analysis has indicated that the two intervention groups and the control group should comprise 85 patients to enable detection of clinically meaningful differences in depressive symptoms with a power of 90% and alpha=0.05. The mixed-effect linear model will be used to compare the outcome variables.

Expected outcomes:

Primary outcomes will be depressive symptoms. Secondary outcomes will be glycemic control, diabetes-related distress, self-management of diabetes and health-related quality of life. It is hypothesized that those patients who have been included into treatment they were satisfied with will experience more favourable outcomes in terms of depression and diabetes.

Problems / questions for group discussion:

1. Which factors in the research design and methodology may be improved to set up conditions that are more motivating for the patients to enrol in and continue participating in the interventions?
2. Which criteria (other than those we specified) may be relevant for the inclusion or exclusion of patients in the study?
3. What are the most relevant topics to be covered in the qualitative data collection, to assess patients' satisfaction with the treatment?

Title: Depression in diabetes: rates and predictors in primary care patients.

Authors: Ruggiero L, Choi Y, Hernandez R on behalf of the UIC Diabetes Self-Care Study Team

Institute: School of Public Health, Institute for Health Research and Policy, University of Illinois at Chicago, United States of America

Aims:

The rates of depression in people with diabetes have been estimated to be double that of patients without diabetes (Anderson, et al., 2001). Depression can interfere with self-care (Ciechanowski, Katon, & Russo, 2000) and has been associated with poorer glycemic control (Gary, Crum, Cooper-Patrick, Ford, & Brancati, 2000) and increased complications (de Groot, Anderson, Freedland, Clouse, & Lustman, 2001). Furthermore, depression is often not identified and therefore not treated, even though effective treatments are available (Rubin, Ciechanowski, Egede, Lin, & Lustman, 2004).

The primary aim of this study is to examine the rates and predictors of depression in low income individuals with type 2 diabetes receiving care at primary care clinics in Chicago. The secondary aim is to support primary care clinic staff in identifying depression in their diabetes patients and linking them with treatment services.

Design/Method:

Participants/Setting: The data collection is ongoing. Participants include patients with type 2 diabetes receiving care from primary care clinics in Chicago. This abstract will focus on a sample of 79 African American patients with type 2 diabetes who have enrolled in the study to date. The characteristics of this subsample include: mean age of 52 years, 70.9% female; 24% married; 66% with incomes below $25,000; 44.3% with education levels below high school; 25.3% completed high school; 30.4% attended college; 37.7% employed; 15.2% unemployed; 9% homemakers; 48.1% retired/student/disabled; and 30% uninsured.

Procedure: Participants are enrolled in an ongoing randomized clinical trial examining the impact of medical assistant self-care coaches on diabetes self-care in primary care patients. Eligible patients are enrolled and randomized to either a self-care coaching group or a “treatment as usual” group. The data described in this abstract is from the baseline assessment of all African American participants enrolled in the RCT to date.

Depression Screening and Other Measures: The Patient Health Questionnaire-9 (PHQ-9) was used to screen for depression (Kroenke, Spitzer, & Williams, 2001). In addition to sociodemographic characteristics, the scores from the Diabetes Empowerment Scale-Short Form and the Diabetes Distress Scale were included in regression analyses.

Planned Analyses/Preliminary Results:

Preliminary examination of the data collected to date indicates a mean PHQ-9 score of 6.96 (SD = 5.72). Based on recommended cut-offs (Kroenke, Spitzer, & Williams, 2001), 43.59% did not endorse depressive symptoms; 24.36% endorsed mild symptoms; 21.79% endorsed moderate symptoms; 6.41% endorsed moderately severe symptoms; and 3.85% endorsed severe symptoms. Multiple linear regression analysis with stepwise model selection was utilized to find the subset of independent variables that best explain the response variable of depression. The regression results indicated that the following variables best explained the dependent variable: income ($p=0.0004$), marital status ($p=0.0096$), employment status (out of work, $p=0.0028$; unable to work, $p=0.0392$), insurance status ($p=0.0052$), quality of life ($p=0.0348$), emotional burden ($p=0.0026$), and regime-related distress ($p=0.0041$).

Expected Outcomes:

Regression analyses will be repeated with a larger sample size when the baseline data collection is complete. The expected outcome is the identification of the patterns and predictors of depression in this priority population to help guide the development of screening and treatment strategies.

Conclusions/discussion:

The preliminary findings of this study indicate depression rates of 56.4% in patients with type 2 diabetes. These rates are consistent with the rates (range 30-70%) found in other US studies that used the PHQ-9 to screen for depression in diabetes patients receiving care in primary care settings.

Problems / questions for group discussion:

1. What models and resources are available to integrate screening and treatment of depression into busy primary care practices?
2. What models and resources are available to train and support primary care staff in screening and treatment of depression in diabetes patients?

Title: Relationship between depression and irrational beliefs about glycaemic values

Authors: Mocan A

Institute: Clinical Center of Diabetes, Nutrition & Metabolic Diseases, University of Medicine & Pharmacy, Cluj-Napoca, Romania

Aims:

The aim of this study is to analyze the relationship between irrational beliefs about glycaemic values recommended by the physicians and their influence regarding depression and diabetes outcomes. I want to see the way a patient thinks about his glycaemic value and not his physical symptoms in hyper or hypoglycaemia.

Research design and methods:

An 8-item Linkert scale was elaborated based on A. Ellis's rational-emotional model. From this 8 items, 4 of them refer to irrational beliefs (global evaluation, low frustration tolerance, self downing and awfulising) and 4 of them refer to rational beliefs. For the validation of this scale we used an irrational beliefs questionnaire which was also applied.

The subjects, 45 of them, so far, were selected from outpatient department and inpatient department of Diabetes, Nutrition and Metabolic Clinic in Cluj-Napoca. We used demographical and personal data like the frequency of glycaemic recording, last glycemia and HbA1c, type of diabetes (typer I or type II), type of treatment (insulin therapy or oral therapy), family members with diabetes, number of diabetes complication, social status, profession, education, monthly income. After the written consent, each patient was ask to fill out the questionnaire regarding automatic beliefs, depression and beliefs about glycaemia.

Statistical data analysis:

For the statistical analysis was used Pearson Correlation and the Cronbach's alpha. I used the Pearson Correlation for the correlation analysis between irrational beliefs about glaycaemic value and depression, between irrational beliefs and glycaemic value, irrational beliefs and HbA1c. Cronbach's alpha among with Pearson Correlation was used for the validation of the scale developed for this study.

The data analysis is expected to reveal a correlation between depression and irrational beliefs. Also a positive correlation between depression and glycaemic value, glycaemic value and irrational beliefs is expected.

Problems / questions for group discussion:

Can glycaemic value, depression and an irrational way of thinking about glycaemic value be intercorrelated? If so, can we have better diabetes outcomes and less depression symptoms by changing the way of thinking.

Title: The DDD Initiative: a work in progress

Authors: Lloyd CE [1], Underwood L [2], Nouwen A [3], Hermanns N [4], Pouwer F [5], Winkley K [6]

Institute: [1] The Open University, UK
[2] CRRMH, New South Wales
[3] University of Birmingham, UK
[4] Research Institute of the Diabetes Academy Mergentheim, Germany
[5] Tilburg University, The Netherlands
[6] Kings College London, UK

Aims:

The aim of this presentation is primarily to serve as a point of information; to describe the Dialogue on Depression and Diabetes (DDD), and bring PSAD members up to date with the events surrounding this initiative.

Design:

In November 2007 a meeting took place in Geneva, supported by the WHO Association for the Improvement in Mental Health Programme, where representatives from a wide range of organisations met to discuss the problem of co-morbidity, or diabetes and depression. Organisations represented included PSAD, EASD, The World Psychiatric Association, American Diabetes Association, Asociacion Latinamericana de Diabetes, Global Alliance of Mental Illness Advocacy Networks, International Council of Nurses, International Society for Affective Disorders, International Society of Behavioural Medicine, World Federation for Mental Health, and the World Organisation of Family Doctors.

At this meeting it was agreed to commence working together to address the world-wide problem of co-morbidity of diabetes and depression, to examine what is known so far about the problem, identify gaps in research, and propose a way forward to develop research protocols to address those gaps in our knowledge.

This 'work in progress' is slowly gathering pace, involving key organisations in both diabetes and mental health from across the world as well as other stakeholders. Particular foci for knowledge gathering and research have been identified and are organised into eight different working groups, the participants of which include researchers, clinicians, academics and service-users. These groups are: Epidemiology, Pathogenesis, Treatment, Delivery of Health Care, Public Health Implications of Co-Morbidity, Economic Issues, Communication Strategies, and Conceptual Issues.

Expected Outcomes:

These include the development of a working document by a core group of experts which will inform the discussions planned to take place at a conference late in 2009. At this conference each track will conduct a series of workshops based on the preliminary findings contained within the working document. It is expected that plans for research proposals will be developed during the conference which will give the participants opportunities to collaborate nationally and internationally with a range of 'experts' in the field. It is also expected that the working documents will be submitted for publication in key journals.

Problems / questions for group discussion:

How can we ensure equal representation of interests from around the world, from a full range of 'experts' – including service users – rather than going along with the usual principles of a) he who shouts loudest, and b) its not what you know but who you know!

Title: Type 2 Diabetes Mellitus as a risk factor for the onset of depression: a systematic review and meta-analysis

Authors: Nouwen A [1], Twisk J [2], Lloyd CE [3], Pouwer F [2,4], Winkley K [5], Ismail K [5], Peyrot M [6], for the European Depression in Diabetes (EDID) Research Consortium

Institute: [1] School of Psychology, The University of Birmingham, United Kingdom
[2] Diabetes Psychology Research Group, EMGO Institute, VU University Medical Center, Amsterdam, The Netherlands
[3] Faculty of Health & Social Care, The Open University, Milton Keynes, United Kingdom
[4] CoRPS - Center of Research on Psychology in Somatic Disease, Tilburg University
[5] Kings College London, United Kingdom
[6] Department of Sociology, Loyola College and the Department of Medicine, John Hopkins University, Baltimore, United States of America

Aims:

A recent meta-analysis showed that depression is a risk factor for the onset of type 2 diabetes, yet depression may also occur as a consequence of having diabetes and/or its complications. This study examined the latter association by reviewing the literature and conducting a meta-analysis of longitudinal studies on this topic.

Methods:

EMBASE, Medline and PsycInfo were searched for articles published up to July 2008. All studies that examined the relationship between type 2 diabetes and the onset of depression were included. Pooled relative risks were calculated using fixed and random effects models.

Planned analysis:

So far only eight studies have met our inclusion criteria for this meta-analysis. Based on the pooled data, including 35,008 cases of type 2 diabetes without depression at baseline, the pooled relative risk was 1.16 (95% CI 1.01 – 1.23) for the fixed effects model and 1.20 (95% CI 1.08 – 1.34) for the random effects model.

These preliminary results suggest that patients with type 2 diabetes have a 20% increased risk of developing depression. Heterogeneity was low, suggesting that there was little variation in study outcomes between studies. However there are limitations to this research including differences in the criteria used to measure depression, and importantly whether or not studies excluded previous history of depression. The mechanisms underlying this relationship are still unclear and warrant further research.

Problems / questions for group discussion:

A key problem with existing studies is that assessment for depression was carried out over two discrete time points often years apart. Therefore, excluding people at baseline who are depressed does not help in teasing out the relationship between diabetes and depression as it is not known whether someone may have had a depressive episode before the baseline measurement or indeed will have one between the baseline and post-measurement assessment.

Title: Expectations and experiences of transplant: a qualitative study of people with Type 1 diabetes undergoing pancreatic islet transplantation

Authors: Speight J [1], Woodcock AJ [2], Reaney MD [1], Amiel SA [3], Johnson P [4], Parrott N [5], Senior P [6], Shaw JAM [7]

Institute: [1] AHP Research, Brunel Science Park, Uxbridge, UK
[2] Department of Psychology, Royal Holloway, University of London, Egham, UK
[3] Diabetes Research Group, King's College London, London, UK
[4] Nuffield Department of Surgery, University of Oxford, Oxford, UK
[5] Renal Transplant Unit, Manchester Royal Infirmary, Manchester, UK
[6] Division of Endocrinology, University of Alberta, Canada
[7] Diabetes Research Group, Institute of Cellular Medicine, University of Newcastle, Newcastle, UK

Aims:

For selected individuals with Type 1 diabetes, islet transplantation (IT) offers the potential of excellent glycaemic control with restoration of hypoglycaemic awareness, although ongoing systemic immunosuppression is required. We explored expectations of patients awaiting IT and experiences of others who have undergone the procedure.

Methods and patients:

Using a novel interview method, semi-structured interviews were conducted with 10 people pre-transplant (9 listed for islet alone, 1 islet after kidney) and 9 post-transplant (all islet alone), from 4 UK and one Canadian centre. Participants nominated elements of their quality of life (QoL) as spokes on a 'wheel of life'. They described how diabetes/IT affected each element, as well as their expectations/experiences of IT and care received from their transplant teams.

Results:

Intervieweers were: 13(68%) women; aged 51±10 years (range:30-64); diabetes duration 35±8years (range:21-56). Pre-transplant, all considered that diabetes had a negative impact on many elements of life important for their QoL (e.g. work, family, leisure activities) and that transplantation would benefit these. Independence and spontaneity emerged as strong themes. Post-transplant, benefits for QoL were perceived by everyone. They generally viewed treatment and care positively, but sources of dissatisfaction included insufficient information about what to expect during and immediately following transplant.

Problems / questions for group discussion:

There is considerable consensus concerning elements of life important to people undergoing IT and several common themes in their descriptions of the treatment and its impact. These themes will inform new measures of IT-specific QoL, perceptions of transplant and satisfaction, to enable robust and holistic evaluation of IT.

Title: Treatment quality of diabetes mellitus in geriatric patients

Authors: Braun A, Abel A, Wittmann-Jennewein C, Zieschang T, Oster P

Institute: Bethanien Hospital Heidelberg, Department of Geriatrics at the University of Heidelberg, Heidelberg, Germany

Aims:

For elderly people with diabetes mellitus maintenance of autonomy is an important therapeutic goal influencing quality of life. Objective: Systematic assessment of the diabetes treatment quality and perceptions of elderly patients admitted to an acute geriatric hospital from different home environments (nursing home residents, home care, family carer, autosufficient).

Research design and methods:

Quality of diabetes treatment, metabolic control (HbA1c), nutrition, patients perceptions, treatment satisfaction and level of dependency (Barthel activities of daily living) were assessed in 94 patients with diabetes (age 80.6±6.2y., HbA1c 7.5±1.6%, diabetes duration 10.2 (0.01-51.7)y., body-mass-index 25.7±5.1 kg/m2, waist-Hip-Ratio 0.99±0.09). 33 patients were on diet therapy, 27 received oral antidiabetics (OAD), 26 insulin therapy and 8 insulin+ OAD therapy.

Results:

Seventy-six out of 94 patients (71.3%) showed an HbA1c ≤8% according to the guidelines for ageing people with diabetes of the German Diabetes Association (DDG). Compared to patients living independently at home, the metabolic control in nursing home residents (HbA1c 7.6±1.7 vs. 7.7±1.9, n.s.) and their treatment satisfaction (26.1±6.9 vs. 30.6±5.6 points, n.s.) were as good. They had a higher degree of dependency though (Barthel 22.1±25.1 vs. 61.9±28.9 points, $p<0.01$), more strongly impaired mobility (Tinetti 2(0-17) vs.13(0-27) points, $p<0.01$), less knowledge about diabetes knowledge (1.9±2.6 vs. 6.3±2.7 points, $p<0.01$), inferior cognitive performance (MMSE, SPMSQ, $p<0.01$) and a higher prevalence of depression (GDS) ($p<0.05$). Better cognitive function correlated with better diabetes knowledge ($r=0.49$; $p<0.001$), but not with better metabolic control.

Conclusion:

Metabolic control of nursing home residents seems to be as good as that of patients caring for themselves at home. 64% of the nursing home residents showed HbA1c≤8% according to the national guidelines.

Title: Cognitive functions and self-management in type 2 diabetic patients

Authors: Primožič S [1], Ravnik-Oblak M [2], Tavčar R [1], Zvezdana Dernovšek M [1], Tamše J [1]

Institute: [1] University Psychiatric Hospital Ljubljana, Ljubljana, Slovenia
[2] Department of Endocrinology, Diabetes and Metabolic Diseases, University Medical Center Ljubljana, Ljubljana, Slovenia

Aims: There has been some evidence about cognitive dysfunctions at diabetes. Aim of our study was to examine particularities of cognitive functions in type 2 diabetic patients and cross-sectional relationship between cognitive functions, diabetes related variables (glycaemic control, diabetic complications, diabetes therapy and other features of diabetes) and self management.

Methods and patients: 102 type 2 diabetic patients (52 female, 50 male) without neurological diseases aged 42-80 (M=63.73±9.97) from diabetic outpatients clinic were included in the study. Data were assessed using Repeatable Battery for the Assessment of Neuropsychological Status, Stroop Color and Word Test, Tower of London, and The Summary of Diabetes Self-Care Activities. Data about duration and type of diabetes mellitus, presence of diabetic complications, episodes of hypoglycaemia (number of episodes in last six months), glycosylated hemoglobin (HbA1c), diabetes therapy, and BMI were gathered from patients' records and their physicians. Sociodemographic data (gender, age, type of community, education) and blood sugar levels were controlled.

Results: There were significantly declines (p<0.05) from the norms (healthy USA sample) with respect to lower general cognitive functioning (t=-7.823), immediate (t=-7.632) and delayed (t=-4.731) memory (recall of verbal material), attention (t=-8.781), language (t=-5.843), speed of cognitive processing (t=-9.855), cognitive flexibility (t=-2.493) and executive functions (t=-3.561), speed of executive functioning (t=-6.844) and initiation time (binomial test sig. = 0.00).
Women had lower scores of executive functions (t=-2.397), speed of executive functioning (t=-2.647), immediate recall of logically organized verbal material (t=-2.111), perception of spatial relations (M-W=788.50), and better scores of cognitive flexibility (t=2.241).
There was no significant association between cognitive function and presence of diabetic complications, glycaemic control, diabetes therapy, nor BMI. Number of years of having diabetes was associated with delayed memory (r=0.29), especially recall of unorganized verbal material (r=0.28) and non-verbal material (r=0.23). High number of hypoglycaemia episodes in last six months was associated with prolong initiation time on test of executive functions (r=0.17). High levels of high blood sugar before testing were associated with worse (r=0.26) and slower (r=-0.38) performance on test of executive functions.
Self-management of diabetes (especially exercise and foot care but not also nutrition) was associated with BMI (r=-0.39), blood sugar (r=-0.24), general cognitive functioning (r=0.28), visuospatial/constructional abilities (r=0.25), attention (r=0.25), and time of executive functioning (r=0.30).

Conclusions: Result showed type 2 diabetic patients have somewhat lower cognitive abilities compared to population norms and there are some important differences between sexes. Duration of diabetes seems to be associated with capacity of anterograde memory; meanwhile often hypoglycaemias result in prolonged initiation time of execution. Result partly confirmed assumption of relationship between lower cognitive abilities and poorer self-management, where less exercise and foot care is associated with slower executive functioning, attention and visuospatial/constructional abilities. The study suggests that diabetic patients have in general more problems with planning and fast pursuit of goals, which may result in poorer self-management. These findings should be considered when planning programs for improving self-care of diabetes at older diabetic patient. The limitation of the study is unavailability of national norms; meanwhile the strength is number of subjects.

Title: CSII use in early adolescents with type 1 diabetes after school camp

Authors: Colombini MI, Bonfanti R, Achutegui I, Rigamonti A, Biffi V, Piscopo MA, Frontino G, Meschi F, Chiumello G

Institute: Paediatric Department and Endocrine Unit, Scientific Institute H. S. Raffaele, Milan, Italy

Introduction: Medical follow-up after onset is planned in order to make the young diabetics more responsible towards their own health and to improve their self-management. Their metabolic control might be influenced from the bad compliance and poor self management. Since the onset, they have been informed about two alternatives of treatment: the MDI (Multiple Daily Injections), the CSII (Continuous Subcutaneous Insulin Infusion) by the use of an insulin pump. Up to now it is difficult for clinicians to understand adolescents' motivations and/or psychological barriers towards CSII. In the Paediatric Centre adolescents get in touch with CSII users and start wondering about the opportunity to adhere to CSII use, instead of MDI.
This study aims at exploring the consciousness of early adolescents with Type 1 diabetes about their motivations and worries towards CSII use.

Aims:

- to investigate possible motivations to CSII use
- to investigate psychological barriers to CSII use
- to get information about worries towards the effects of a pump on body-image

Sample and methods: 40 adolescents (20 M, 20 F, 12/40 wearing CSII) 12-14 years olds, mean age: 6,3 (years), diabetes duration: 6,1 (mean HbA1c = 7,5, DCA 2000, n.v. < 6 %) attended school camp of Marina di Massa that took place last summer.
At the beginning of the camp the patients' attitudes, needs and wishes diabetes-related, trusting in peers', parents' and doctors' support were investigated.
Adolescents were grouped by their knowledge of diabetes and their capacity in coping with: 1. Beginners, 2. Advanced, 3. CSII users. Lessons with dieticians and diabetologists were scheduled in order to give adequate suggestions, clinical support and, if requested, all information about CSII use. The psychologist conducted one session for each group and stimulated an exchange of feelings and emotions related to their condition.

Results:

a. After this camp 4 adolescents (M: 1, F: 3) started CSII. In general, they expected CSII use to remove the fatigue of the daily injections and the strict meal plans.

b. Aspects which came out as psychological barriers were the following:

- pump location during sleep and exercise
- expected difficulty of carbohydrate intake
- uncertainty about the new diabetes-related situation

c. Effects of a pump on body image didn't emerge as a significant worry of these early adolescents.

Conclusion and discussion: Wrong beliefs about CSII use may have a significant impact on self-management and influence adherence to the treatment. Due to the intimacy daily-life camp allows, adolescents take the advantage to explore each others' feelings of peers wearing CSII and query the doctors about potential benefits. After camp they wonder about possible consequences of an autonomous choice of changing diabetes management using CSII. This could ameliorate responsibility for insulin self-administration, less overall parental involvement.

Title: Young adults with type 1 diabetes – how are they doing?

Authors: Zoffmann V

Institute: Steno Diabetes Center, Gentofte, Danmark

Aims:

- To report the psycho-social well-being and glycemic control of young adults with type 1 diabetes (18-35 year-old) at Steno Diabetes Center (SDC)
- To present a flexible autonomy-supportive program designed to young adults and ready to be tested concerning its ability to help young adults improve their psycho-social well-being and/or glycemic control

Research design and methods:

As research has documented that autonomously motivated people are not only more able to reach their goals but also derive more contentment from doing so, we intend to test the effect of an autonomy-supportive approach for patients at SDC.

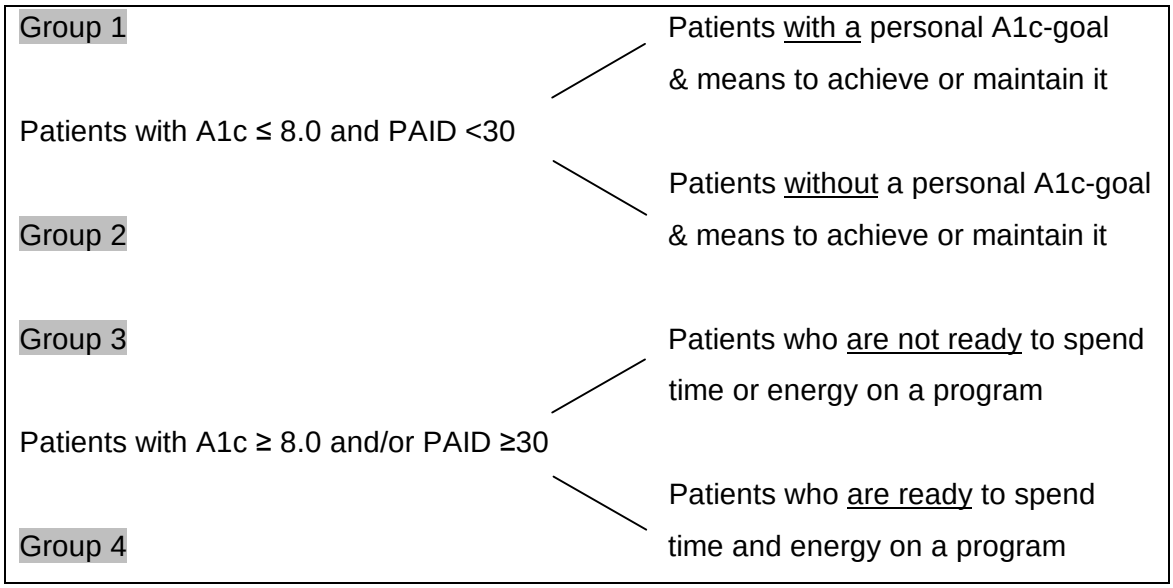
We regard the group of young adults with type 1 diabetes in special need of this approach as many of them have not yet reached a glucose level they find satisfactory or are still fighting with the many psycho-social challenges in a life with diabetes.

An autonomy-supportive intervention for young adults with type 1 diabetes at SDC is therefore prepared and ready for investigation in 2009-2010. Guided Self-Determination (GSD) is used as an autonomy supportive approach as GSD-reflection sheets filled in by patients before and between appointments have proven applicable by diabetes team members to involve patients in problem solving and decision-making concerning their diabetes self-management. An implementation has so far convinced us that the young adults with type 1 diabetes need a flexible GSD-program which takes their very diverse needs and limited time into account.

The intervention is expected to provide the nurses with a more progressive role in the diabetes team with better exploitation of their potential to help patients learn to live with a chronic illness. Consequently all nurses, but also some of the physicians and some of the dieticians at SDC are currently being trained in using GSD.

We are currently preparing baseline data to be gathered on the whole group of young adults 18-35 year-old with type 1 diabetes at Steno Diabetes Center (n=600+) comprising A1c, scales answered electronically or by post: Problem Areas In Diabetes (PAID), WHO-5, Treatment Self Regulation Questionnaire (TSRQ), Perceived Competence with Diabetes (PCD), Health Care Climate Questionnaire (HCCQ), self-rated number of self-monitored BGs. Besides we calculate the number of cancellations or failures to show-up in the out-patient clinic.

Descriptive analysis of baseline data will determine the proportions of 2 groups of patients: patients with A1c ≤ 8.0 and PAID < 30 and patients with A1c ≥ 8.0 and/or PAID ≥ 30. At status appointments nurses simply ask patients whether they have a personal A1c goal and their means to achieve or maintain it. This will divide patients into two more groups. As a consequence we have 4 groups 1, 2, 3, 4 (see below).



Patients in group 1:
PAID- and WHO-5 scores are recorded in EPJ together with each patient's personal HbA1c goal and means to maintain or achieve their goal.

Patients in group 2:
PAID- and WHO-5 scores are recorded in EPJ. Patients fill in "Your plans to change life style" and a small packet comprising reflection sheets aiming at helping them develop motivation for glucose control based on autonomy. At the end patients' personal HbA1c goal and means to maintain or achieve their goal are recorded in EPJ.

Patients in group 3:
PAID- and WHO-5 scores are recorded in EPJ. Patients fill in a sheet called "Room for diabetes in your life" and continue with the same material as the patients in group 2. At the end patients' personal HbA1c goal and means to maintain or achieve their goal are recorded in EPJ.

Patients in group 4:
PAID- and WHO-5 scores are recorded in EPJ and patients are offered a full GSD program. They can choose between 4 models: 1) group-training sessions late weekly afternoons or 2) individual training with an intensive start, 2a) either in day clinic 2b) evening clinic or 2c) in outpatient clinic.

Besides the material applied in group 3 these patients receive an explicit and detailed invitation to work together with professionals. Reflection-sheets facilitate shared decision-making and solution of person-specific difficulties in life with diabetes. At the end, patients' personal HbA1c goal and their means to maintain or achieve their goal are recorded in EPJ.

Expected outcomes:

We expect baseline data to function as a quick screening providing us with crude information we can use 1) as a starting point to offer an autonomy supportive intervention tailored each individual patient and 2) for making a stratified randomisation.

Title: Fear of Hypoglycaemia – how big of a problem in Slovenia?

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Introduction: In a person with diabetes, the experience of hypoglycaemia can result in mood change, but in addition, it may also lead to emotional responses such as fear of hypoglycaemia (FoH). FoH can cause behavioural changes that successfully enable the person to avoid hypoglycaemic episodes, but can on the other hand cause bad glycaemic regulation or even more hypoglycaemic episodes, including severe hypoglycaemia. It is likely, that the experience of more episodes of severe hypoglycaemia in the past with the development of hypoglycaemia unawareness leads to greater worry and fear of hypoglycaemic episodes to follow.

Aims: in order to set the ground for a future intervention, the aims of this study is to explore:

- to what extent is FoH present among people with insulintreated diabetes (type 1 and type 2) in Slovenia,
- is it possible to relate greater or lesser FoH to personal characteristics, diabetes regulation, experience of severe hypoglycaemic episodes, number of repeated minor hypoglycaemic episodes,
- is there a particular experience of hypoglycaemia that a person can directly link to the onset of FoH,
- feedback from important others

Design and methods: there will be a campaign about hypoglycaemia among members of local diabetes associations, along with information obtained by diabetologists and nurses at the practice/clinic visit. Then, Hypoglycaemia Fear Survey (HFS) questionnaire (Cox; Gonder-Frederick), along with questionnaire on demographic characteristics, hypoglycaemia history etc. will be distributed via mail to people treated with insulin for their diabetes, who expressed their interest in participating.

Statistical data analysis: the HFS will be analysed as advised by the authors/originators, linked with other data on patient characteristics; there is also a qualitative phase of the study (see aim 3 and 4).

Expected outcomes: we have no data on hypoglycaemia whatsoever and in particular FoH in the diabetic population in Slovenia, so we hope to get an insight into the extent of FoH. We also hope to find a link to personal characteristics and experience of hypoglycaemia (number, severity, other circumstances...).

Problems / questions for group discussion:

1. Other (which?) questionnaires to be used to address personality traits?
2. Questionnaire distribution – a need for patients visits after all, instead of mailing?
3. Analysis – any further ideas or questions ...

Application of results and future plans:

- an ideal basis for intervention, with patient-tailored education, individual or focus groups,
- negotiations with health authorities on the use of test strips,
- precious demographic data on hypoglycaemia for any further research.