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Current Awareness Bulletin - Diabetes and Endocrinology
April, May and June 2015

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Policy and Guidance

National Institute for Health and Care Excellence (NICE)

Physical activity: encouraging activity in all people in contact with the NHS
NICE quality standard [QS84] Published date: March 2015

Maintaining a healthy weight and preventing excess weight gain among adults and children
NICE guidelines [NG7] Published date: March 2015

Empagliflozin in combination therapy for treating type 2 diabetes
NICE technology appraisal guidance [TA336] Published date: March 2015

Implantation of a duodenal–jejunal bypass liner for managing type 2 diabetes
NICE interventional procedure guidance [IPG518] Published date: March 2015

New and Updated Cochrane Systematic Reviews

Updated Reviews – May 2015
Zinc supplementation for the prevention of type 2 diabetes mellitus in adults with insulin resistance

New Reviews – April 2015
Diet and exercise interventions for preventing gestational diabetes mellitus

New from UpToDate

What's new in endocrinology and diabetes mellitus?
New additions to UpToDate considered by the editors and authors to be of particular interest. You may need an Athens username and password.
Table of Contents

1. A guideline for the use of variable rate intravenous insulin infusion in medical inpatients.
2. Ability of educational interventions to restore impaired awareness of hypoglycaemia in adult patients with Type 1 diabetes: A systematic review
3. Adherence to diabetes medication: a systematic review
4. Anxiety and diabetes: A difficult combination to manage
5. Association between sugar-sweetened beverages and type 2 diabetes: A meta-analysis
6. Biphasic vs basal bolus insulin regimen in Type 2 diabetes: A systematic review and meta-analysis of randomized controlled trials
7. Carbohydrates in the treatment and prevention of Type 2 diabetes
8. Comparative cardiovascular morbidity and mortality in patients taking different insulin regimens for type 2 diabetes: A systematic review
9. Comparative efficacy and safety of antidiabetic drug regimens added to metformin monotherapy in patients with type 2 diabetes: A network meta-analysis.
10. Comparative efficacy of four treatments in patients with Graves' disease: A network meta-analysis
11. Comparison of glucose lowering effect of Metformin and acarbose in type 2 diabetes mellitus: A Meta-analysis
12. Competency frameworks in diabetes
13. Duration and impact of hypoglycaemic events in patients with Type 2 diabetes treated with insulin degludec and insulin glargine: A meta-analysis
14. Effect of GLP-1 receptor agonists on waist circumference among type 2 diabetes patients: a systematic review and network meta-analysis.
15. Effects of intensive glycemic control in ocular complications in patients with type 2 diabetes: a meta-analysis of randomized clinical trials
16. Glucagon for hypoglycemic episodes in insulin-treated diabetic patients: a systematic review and meta-analysis with a comparison of glucagon with dextrose and of different glucagon formulations
17. Glucagon-like peptide 1 receptor agonist therapy is more efficacious than insulin glargine for poorly controlled type 2 diabetes: A systematic review and meta-analysis
18. Glucose regulation, cognition, and brain MRI in type 2 diabetes: A systematic review
19. Glucose-lowering drugs or strategies and cardiovascular outcomes in patients with or at risk for type 2 diabetes: A meta-analysis of randomised controlled trials
20. Impact of cardiovascular complications among patients with Type 2 diabetes mellitus: A systematic review
21. Intensive glycaemic control and cognitive decline in patients with type 2 diabetes: A meta-analysis
22. Management of endocrine disease: Mortality remains increased in Cushing’s disease despite biochemical remission: A systematic review and meta-analysis
23. Managing diabetes in people with dementia
24. Mortality risk among sulfonylureas: A systematic review and network meta-analysis
25. Platelet mean volume, distribution width, and count in type 2 diabetes, impaired fasting glucose, and metabolic syndrome: A meta-analysis
26. Prediction of heart failure in patients with type 2 diabetes mellitus-A systematic review and meta-analysis
27. Preventing amputation in adults with diabetes: identifying the risks
28. Preventing the progression to Type 2 diabetes mellitus in adults at high risk: A systematic review and network meta-analysis of lifestyle, pharmacological and surgical interventions
29. Quantifying the effects of diuretics and beta-adrenoceptor blockers on glycaemic control in diabetes mellitus - A systematic review and meta-analysis
30. Risk of all-cause mortality and vascular events in women versus men with type 1 diabetes: A systematic review and meta-analysis
31. Self-monitoring of blood glucose versus self-monitoring of urine glucose in adults with newly diagnosed Type 2 diabetes receiving structured education: a cluster randomized controlled trial
32. Subclinical thyroid dysfunction and fracture risk a meta-analysis
33. Systematic review of the different insulin regimes for type 1 and type 2 diabetes during ramadan
34. Systematic review of the evidence for a liberalized diet in the management of diabetes mellitus in older adults
35. The experiences and impact of transition from child to adult healthcare services for young people with Type 1 diabetes: A systematic review

36. The safety and effectiveness of non-insulin glucose lowering agents in the treatment of people with Type 2 diabetes who observe Ramadan: A systematic review and metaanalysis

37. Thyroid function tests in obese women: A systematic review and meta-analysis of observational studies

38. Thyroid ultrasound features and risk of carcinoma: A systematic review and meta-analysis of observational studies

39. Understanding poor outcomes in women with type 1 diabetes and eating disorders

1. Title: A guideline for the use of variable rate intravenous insulin infusion in medical inpatients

Citation: Diabetic Medicine, Jun 2015, vol. 32, no. 6, p. 706-713, 0742-3071 (June 2015)

Author(s): George, S., Dale, J., Stanisstreet, D.

Abstract: The present paper summarizes the key recommendations in a recent publication produced by the Joint British Diabetes Societies for Inpatient Care on the use of variable rate i.v. insulin infusion in?medical? inpatients. The full guideline is available at http://www.diabetologists-abcd.org.uk/JBDS/JBDS_IP_VRIII.pdf and is designed to be a practical guide that can be used by any healthcare professional who manages medical inpatients with hyperglycaemia. Its main aim is to allow variable rate i.v. insulin infusion to be used safely, effectively and efficiently for this specific group of inpatients.

[Publication] 44 references

Source: BNI

2. Title: Ability of educational interventions to restore impaired awareness of hypoglycaemia in adult patients with Type 1 diabetes: A systematic review

Citation: Diabetic Medicine, March 2015, vol./is. 32/(23-24), 0742-3071 (March 2015)

Author(s): Yeoh E.C.K., Nwokolo M., Amiel S.A., Choudhary P.

Language: English

Abstract: Aims: Impaired awareness of hypoglycaemia (IAH) affects 30% of patients with Type 1 diabetes, increasing the risk of severe hypoglycaemia (SH) six-fold. We reviewed the ability of educational interventions to restore IAH in adult patients with Type 1 diabetes. Methods: We performed a systematic review of educational interventions on hypoglycaemia awareness (HA) status in Type 1 diabetes with >5 subjects followed for >1 month. Key outcomes were SH rates, change in HA, counter-regulatory hormone responses and glycaemic control. Results: From 1,684 abstracts retrieved, 22 studies [seven randomised controlled trials (RCTs); 15 before-after studies] met inclusion criteria. Twelve (three RCTs) recruited IAH patients; the remainder reported IAH patients’ outcomes as subsets of general Type 1 diabetes populations. Seven small (<25 patients) studies with intensive 1:1 patient contact demonstrated restoration of hypoglycaemia symptoms through strict hypoglycaemia avoidance, although HbA1c deteriorated 0.5-1.5%. In studies investigating counter-regulatory hormone responses, seven of nine studies improved, but failed to normalise, adrenaline responses to hypoglycaemia. Structured education in insulin self-management (n=4, DAFNE, DTTP, PRIMAS, Tayside; one RCT), restored awareness in ~25-40% of IAH patients whilst improving or maintaining HbA1c. Psycho-educational programmes (n=8, five RCTs; BGAT, HAAT, HyPOS) improved self-detection of low glucose by 40-50%. One (DAFNE-HART), which included psychotherapeutic techniques, restored HA in 45% of patients with IAH persisting despite DAFNE or equivalent education. All reduced SH frequency without deterioration in HbA1c. Conclusion: While research based 1:1 intensive professional support can restore awareness and impaired counter-regulation of IAH, group based educational interventions can improve HA and reduce SH rates in up to 45% of people with IAH, without deteriorating overall glycaemic control. Psychotherapeutic techniques may provide additional benefit.

Publication type: Journal: Conference Abstract

Source: EMBASE

3. Title: Adherence to diabetes medication: a systematic review

Citation: Diabetic Medicine, Jun 2015, vol. 32, no. 6, p. 725-737, 0742-3071 (June 2015)

Author(s): Krass, I., Schieback, P., Dhippayom, T.

Abstract: Aims. To investigate the extent of and factors associated with adherence to Type 2 diabetes medication. Methods. The CINAHL, Embase, International Pharmaceutical Abstracts, Medline, PubMed and PsychINFO databases were searched for the period January 2004 to July 2013. Papers were included in the present review if they reported the prevalence of adherence (the percentage of the study population that is classified as adherent) to Type 2 diabetes medication and used validated adherence measures with a defined cut-off point to indicate adherence. Reported factors were classified as potential predictors if the studies that examined that particular variable reported consistent findings. Results. Of the 27 studies included in the present review, the prevalence of adherence ranged from 38.5 to 93.1%. Only six out of 27 studies (22.2%) reported prevalence of adherence of = 80% among their study population. Depression and
medication cost were found to be consistent and potentially modifiable predictors for diabetes medication-taking behaviour. The associations between adherence and other factors were inconsistent among the reviewed studies. Conclusions. Adherence to diabetes medication remains an ongoing problem. This review has highlighted the urgent need to develop consensus about what constitutes good adherence in diabetes. Further research is needed to clarify modifiable factors, in addition to depression and medication cost, that influence adherence and may provide a focus for targeted interventions to promote adherence, optimize diabetes control and limit the progression of diabetes. [PUBLICATION] 61 references

Source: BNI

4. Title: Anxiety and diabetes: A difficult combination to manage
Citation: Journal of Diabetes Nursing, 2015, vol. 19, no. 3, p. 104-107, 1368-1109 (2015)
Author(s): Wilshire, Lyndi
Abstract: Anxiety is a common response to a challenging situation but anxiety disorders can develop when a person becomes physically, psychologically or emotionally symptomatic. Studies have shown that people with diabetes are approximately 20% more likely to experience anxiety than those without diabetes. A diagnosis of diabetes will have a significant impact on the individual, and may lead to worries about the social impact of their condition, excessive worrying about blood glucose monitoring, fear of hypoglycaemia, worries about using injectable therapies, and even diabetes denial. This article gives an overview of each of these issues and discusses the importance of working in collaboration with colleagues in the mental health services. [PUBLICATION] 20 references
Source: BNI
Full text: Available JOURNAL OF DIABETES NURSING at Salisbury District Hospital Healthcare Library

5. Title: Association between sugar-sweetened beverages and type 2 diabetes: A meta-analysis
Citation: Journal of Diabetes Investigation, May 2015, vol./is. 6/3(360-366), 2040-1116;2040-1124 (01 May 2015)
Author(s): Wang M., Yu M., Fang L., Hu R.-Y.
Language: English
Abstract: Aims/Introduction: Many studies have been carried out to examine the association between sugar-sweetened beverages and the incident of type 2 diabetes, but results are mixed. The aim of the present study was to estimate the association between sugar-sweetened beverage intake and the risk of type 2 diabetes. Materials and Methods: PubMed, Springer Link and Elsevier databases were searched up to July 2014. Prospective studies published on the association between sugar-sweetened beverage intake and the risk of type 2 diabetes were included. The pooled relative risks (RRs) and 95% confidence intervals (CIs) for highest versus lowest category of sugar-sweetened beverages were estimated using a random-effects model. Results: The pooled effect estimate of sugar-sweetened beverage intake was 1.30 (95% confidence interval [CI] 1.21-1.39) for type 2 diabetes; stratified by geographic region of the studies, the pooled effect estimates were 1.34 (95% CI 0.74-2.43), 1.30 (95% CI 1.20-1.40), 1.29 (95% CI 1.09-1.53) in Asia, the USA and Europe, respectively; the pooled effect estimates were 1.26 (95% CI 1.16-1.36) with adjusting body mass index and 1.38 (95% CI 1.23-1.56) without adjusting body mass index. Conclusions: Our findings suggested that sugar-sweetened beverage intake was associated with an increased risk of type 2 diabetes, and the association was attenuated by adjustment for body mass index. Specifically, the associations were also found to be significantly positive in the USA and Europe.
Publication type: Journal: Article
Source: EMBASE

6. Title: Biphasic vs basal bolus insulin regimen in Type 2 diabetes: A systematic review and meta-analysis of randomized controlled trials
Citation: Diabetic Medicine, May 2015, vol./is. 32/5(585-594), 0742-3071;1464-5491 (01 May 2015)
Author(s): Wang C., Mamza J., Idris I.
Language: English
Abstract: Aim: We aim to evaluate the effects of biphasic insulin compared with a basal bolus insulin regimen on glycaemic control, total daily insulin requirements, risk of hypoglycaemia, weight and quality of life in patients with diabetes mellitus. Methods: MEDLINE, EMBASE, PubMed and Scopus databases were searched for studies up to November 2013. Interventions that lasted for more than four weeks and were reported in English were considered for the review. Meta-analysis was performed on eligible studies. Results: Fifteen randomized controlled trial studies, involving 4384 patients, were included. Greater HbA1c<inf>1c</inf> reductions were seen with basal-bolus compared with biphasic insulin regimens, between-treatment weighted mean difference (WMD) for baseline-to-endpoint changes in HbA1c<inf>1c</inf> was -0.2% (95% CI: -0.36 to -0.03) [-2.2 (-3.9, -0.3) mmol/mol]. In non-insulin naive (n = 8) patients with Type 2 diabetes, HbA1c<inf>1c</inf> reduction was greater in the basal bolus group; WMD = -0.22% (95% CI: -0.42 to -0.02) [-2.4 (-4.6, -0.2) mmol/mol], but in insulin naive patients (n = 5), HbA1c<inf>1c</inf> was equivalent between the two regimens; WMD [-0.15% (95% CI: -0.52 to 0.22) [-1.6 (-5.7, 2.4) mmol/mol]. Total daily insulin requirements and weight were increased with both regimens, whereas hypoglycaemia rates were comparable between the two regimens. Greater HbA1c<inf>1c</inf>
reduction was observed in the basal bolus group compared with the biphasic regimen at the expense of higher daily insulin requirements and weight gain, but with no greater risk of hypoglycaemia. Conclusions: Biphasic and basal bolus regimens were equally effective in reducing HbA1c in insulin naive patients with Type 2 diabetes and both regimens are equally effective for initiating insulin in Type 2 diabetes.

**Publication type**: Journal: Article

**Source**: EMBASE

7. **Title**: Carbohydrates in the treatment and prevention of Type 2 diabetes

**Citation**: Diabetic Medicine, May 2015, vol. 32, no. 5, p. 572-575, 0742-3071 (May 2015)

**Author(s)**: Mann, J., Morenga, L. Te.

**Abstract**: The most appropriate amount and type of carbohydrate in diets recommended for preventing and treating Type 2 diabetes has long been a topic of debate and controversy. Much recent interest has centred around the role of dietary sugars and Diabetes UK has recently issued a Position Statement. In a review published in an early issue of Diabetic Medicine in 1987 one of us (J.M.) concluded that, despite the 'pure white and deadly' message from John Yudkin two decades earlier, there was 'no evidence relating sugar, monosaccharides, other disaccharides or indeed any other carbohydrate-containing foods to the aetiology of NIDDM [non-insulin-dependent diabetes]'. Furthermore, based on our studies in Oxford and those of Lean et al., it was suggested that sucrose in moderate quantities (up to 50 g/day) might be permitted as a component of the carbohydrate allowance of the diet for most people with diabetes and indeed that, for many, the enhanced palatability might enhance long-term compliance with a high-fibre/low-fat diet. This advice was incorporated into nutritional recommendations for people with diabetes published by the Nutrition Study Group of the European Association for the Study of Diabetes in 1988. The present commentary reflects on the evolving research relating to dietary sugars and other continuing controversies concerning carbohydrates.

**Source**: EMBASE

8. **Title**: Comparative cardiovascular morbidity and mortality in patients taking different insulin regimens for type 2 diabetes: A systematic review

**Citation**: BMJ Open, 2015, vol./s. 5/3, 2044-6055 (2015)

**Author(s)**: Price H.I., Agnew M.D., Gamble J.-M.

**Language**: English

**Abstract**: Objectives: To summarise the literature evaluating the association between different insulin regimens and the incidence of cardiovascular morbidity and mortality in adults with type 2 diabetes. Design: Systematic review. Methods: Multiple biomedical databases (The Cochrane Library, PubMed, EMBASE, and International Pharmaceutical Abstracts) were searched from their inception to February 2014. References of included studies were hand searched. Randomised controlled trials (RCTs), cohort studies or case-control studies examining adults (>18 years) with type 2 diabetes taking any type, dose and/or regimen of insulin were eligible for inclusion in this review. Outcome measures: Primary outcomes were cardiovascular morbidity and mortality including fatal and/or non-fatal myocardial infarction, fatal and/or nonfatal stroke, major adverse cardiac events and cardiovascular death. All-cause mortality was assessed as a secondary outcome. Results: Of the 3122 studies identified, 2 RCTs and 6 cohort studies were selected. No case-control studies met the inclusion criteria. The studies examined a total of 109 910 patients. Quantitative synthesis of the results from included studies was not possible due to a large amount of clinical heterogeneity. Each study evaluated cardiovascular outcomes across different insulin-exposure contrasts. RCTs did not identify any difference in cardiovascular risks among a fixed versus variable insulin regimen, or a prandial versus basal regimen, albeit clinically important risks and benefits cannot be ruled out due to wide CIs. Findings from cohort studies were variable with an increased and decreased risk of cardiovascular events and all-cause mortality being reported. Conclusions: This systematic review of randomised and non-randomised studies identifies a substantive gap in the literature surrounding the cardiovascular morbidity and mortality of patients using different regimens of insulin. There is a need for more consistent high-quality evidence investigating the impact of insulin use on cardiovascular outcomes in patients with type 2 diabetes.

**Publication type**: Journal: Article

**Source**: EMBASE

**Full text**: Available Highwire Press at BMJ Open

9. **Title**: Comparative efficacy and safety of antidiabetic drug regimens added to metformin monotherapy in patients with type 2 diabetes: A network meta-analysis

**Citation**: PLoS ONE, April 2015, vol./is. 10/4, 1932-6203 (28 Apr 2015)

**Author(s)**: Mearns E.S., Sobieraj D.M., White C.M., Saulsberry W.J., Kohn C.G., Doleh Y., Zaccaro E., Coleman C.I.

**Language**: English

**Abstract**: Introduction: When first line therapy with metformin is insufficient for patients with type 2 diabetes (T2D), the optimal adjunctive therapy is unclear. We assessed the efficacy and safety of adjunctive antidiabetic agents in patients with inadequately controlled T2D on metformin alone. Materials and Methods: A search of MEDLINE and CENTRAL, clinicaltrials.gov, regulatory websites was performed. We included randomized controlled trials of 3-12 months duration,
evaluating Food and Drug Administration or European Union approved agents (noninsulin and long acting, once daily basal insulins) in patients experiencing inadequate glycemic control with metformin monotherapy (>1500 mg daily or maximally tolerated dose for >4 weeks). Random-effects network meta-analyses were used to compare the weighted mean difference for changes from baseline in HbA1c, body weight (BW) and systolic blood pressure (SBP), and the risk of developing hypoglycemia, urinary (UTI) and genital tract infection (GTI). Results: Sixty-two trials evaluating 25 agents were included. All agents significantly reduced HbA1c vs. placebo; albeit not to the same extent (range, 0.43% for miglitol to 1.29% for glibenclamide). Glargine, sulfonylureas (SUs) and nateglinide were associated with increased hypoglycemia risk vs. placebo (range, 4.00-11.67). Sodium glucose cotransporter-2 (SGLT2) inhibitors, glucagon-like peptide-1 analogs, miglitol and empagliflozin/linagliptin significantly reduced BW(range, 1.15-2.26kg) whereas SUs, thiazolidinediones, glargine and alogliptin/pioglitazone caused weight gain (range, 1.19-2.44kg). SGLT2 inhibitors, empagliflozin/linagliptin, liraglutide and sitagliptin decreased SBP (range, 1.88-5.43mmHg). No therapy increased UTI risk vs. placebo; however, SGLT2 inhibitors were associated with an increased risk of GTI (range, 2.16-8.03). Conclusions: Adding different AHAs to metformin was associated with varying effects on HbA1c, BW, SBP, hypoglycemia, UTI and GTI which should impact clinician choice when selecting adjunctive therapy.

**Publication type:** Journal: Article  
**Source:** EMBASE  
**Full text:** Available National Library of Medicine at PLoS ONE

10. **Title:** Comparative efficacy of four treatments in patients with Graves’ disease: A network meta-analysis  
**Citation:** Experimental and Clinical Endocrinology and Diabetes, May 2015, vol./is. 123/5(317-322), 0947-7349;1439-3646 (26 May 2015)  
**Author(s):** Ren Z., Qin L., Wang J.Q., Li Y., Li J., Zhang R.-G.  
**Language:** English  
**Abstract:** Background: The question of which treatment should be preferred for the treatment of Graves’ disease is debatable, and pairwise meta-analyses could not obtain hierarchies of these treatments. Our intention was to integrate the evidence to provide hierarchies of the comparative efficacy of 4 treatments (radioiodine, radioiodine+prednisone, antithyroid drugs and surgery). Methods: We conducted a Bayesian-framework network meta-analysis of randomized controlled trials (RCTs) to compare 4 treatments in patients with Graves’ disease. The eligible RCTs were identified by searching Amed, the British Nursing Index, Embase, PubMed, the Cochrane Central Register of Controlled Trials (CENTRAL), Google scholar, SIGLE, the National Technical Information Service, the National Research Register (UK) and the Current Controlled Trials databases. The data for 2 outcomes (e.g., ophthalmopathy and recurrence) were independently extracted by 2 authors. Results: A total of 4 RCTs were ultimately included. Radioiodine+prednisone therapy showed statistical significance in reducing the incidence of new or deteriorative ophthalmopathy comparing with the other 3 therapies. Compared with radioiodine, therapy with antithyroid drugs therapy as well as surgery significantly decreased the incidence of new or deteriorative ophthalmopathy. Radioiodine therapy significantly reduced the rate of recurrence when compared to therapy with antithyroid drugs or surgery. For decreasing the incidence of new or deteriorative ophthalmopathy, the 4 treatments were ranked as follows: radioiodine+prednisone therapy, therapy with antithyroid drugs, surgery and radioiodine therapy. For reducing the rate of recurrence, 3 treatments were ranked as follows: radioiodine therapy, therapy with antithyroid drugs and surgery. Conclusions: Radioiodine+prednisone therapy might have the least probability of leading to an exacerbation or new appearance of ophthalmopathy, and radioiodine therapy might have the least probability of causing a recurrence.  
**Publication type:** Journal: Article  
**Source:** EMBASE

11. **Title:** Comparison of glucose lowering effect of Metformin and acarbose in type 2 diabetes mellitus: A Meta-analysis  
**Citation:** PLoS ONE, May 2015, vol./is. 10/5, 1932 (11 May 2015)  
**Author(s):** Gu S., Shi J., Tang Z., Sawhney M., Hu H., Shi L., Fonseca V., Dong H.  
**Language:** English  
**Abstract:** Background: Metformin is the first-line oral hypoglycemic agent for type 2 diabetes mellitus recommended by international guidelines. However, little information exists comparing it with acarbose which is also commonly used in China. This study expanded knowledge by combining direct and indirect evidence to ascertain the glucose lowering effects of both drugs. Methods: PubMed (1980-December 2013) and China National Knowledge Infrastructure databases (1994-January 2014) were systematically searched for eligible randomized controlled trials from Chinese and English literatures. Meta-analysis was conducted to estimate the glucose lowering effects of metformin vs. acarbose, or either of them vs. common comparators (placebo or sulphonylureas), using random- and fixed-effect models. Bucher method with indirect treatment comparison calculator was applied to convert the summary estimates from the meta-analyses into weighted-mean-difference (WMD) and 95% confidence intervals (CIs) to represent the comparative efficacy between metformin and acarbose. Results: A total of 75 studies were included in the analysis. In direct comparison (8 trials), metformin reduced glycosylated hemoglobin (HbA<inf>1c</inf>) by 0.06% more than acarbose, with no significant difference (WMD,-0.06%; 95% CI, -0.32 to 0.20%). In indirect comparisons (67 trials), by using placebo and sulphonylureas as common
comparators, metformin achieved significant HbA1c reduction than acarbose, by -0.38% (WMD, -0.38%, 95% CI, -0.736% to -0.024%) and -0.34% (WMD, -0.34%, 95% CI, -0.651% to -0.029%) respectively. Conclusion: The glucose lowering effects of metformin monotherapy and acarbose monotherapy are the same by direct comparison, while metformin is a little better by indirect comparison. This implies that the effect of metformin is at least as good as acarbose’s.

**Publication type:** Journal: Article  
**Source:** EMBASE  
**Full text:** Available National Library of Medicine at PLoS ONE

12. **Title:** Competency frameworks in diabetes  
**Citation:** Diabetic Medicine, May 2015, vol. 32, no. 5, p. 576-584, 0742-3071 (May 2015)  
**Author(s):** Simmons, D., Deakin, T., Walsh, N., Turner, B., Lawrence, S., Priest, L., George, S., Vanterpool, G., McArdle, J., Rylance, A., Terry, G., Little, P.  
**Abstract:** The quality, skills and attitudes of staff working in the healthcare system are central to multidisciplinary learning and working, and to the delivery of the quality of care patients expect. Patients want to know that the staff supporting them have the right knowledge and attitudes to work in partnership, particularly for conditions such as diabetes where 95% of all care is delivered by the person with diabetes themselves. With the current changes in the NHS structures in England, and the potential for greater variation in the types of 'qualified provider', along with the recent scandal at Mid Staffordshire Hospital, staff need to be shown to be competent and named/accredited or recognized as such. This will help to restore faith in an increasingly devolved delivery structure. The education and validation of competency needs to be consistently delivered and assured to ensure standards are maintained for different roles and disciplines across each UK nation. Diabetes UK recommends that all NHS organizations prioritize healthcare professional education, training and competency through the implementation of a National Diabetes Competency Framework and the phased approach to delivery to address this need. [PUBLICATION] 32 references  
**Source:** BNI

13. **Title:** Duration and impact of hypoglycaemic events in patients with Type 2 diabetes treated with insulin degludec and insulin glargine: A meta-analysis  
**Citation:** Diabetic Medicine, March 2015, vol./is. 32/(67), 0742-3071 (March 2015)  
**Author(s):** Vora J., Christensen T., Kapur R., Brod M.  
**Language:** English  
**Abstract:** Aims: To compare the duration and impact of hypoglycaemic events in insulin degludec (IDeg) vs insulin glargine (IGlar). Methods: IDeg is a basal insulin with a flat, stable pharmacokinetic profile and an ultra-long duration of action. This meta-analysis comprised three treat-to-target, open-label, non-inferiority trials (26-52 weeks' duration) comparing IDeg and IGlar in 1,925 insulin-naïve patients with Type 2 diabetes on a basal insulin-only regimen. Patients were interviewed to discuss their hypoglycaemic events at each visit; if >1 event was reported, only the last event was analysed to minimise recall bias. The interview captured time to recognise event, duration of event, recovery time, any contact with healthcare professionals (HCPs) and impact on usual activities [1]. Results: There were no statistical differences in the characteristics of a hypoglycaemic event between IDeg and IGlar for any of the parameters tested. Time to recognise was 7.2 min for both IDeg and IGlar; duration 26.4 vs 28.2 min for IDeg vs IGlar; recovery time 34.2 vs 32.4 min for IDeg vs IGlar. After an event, 9.2% (IDeg) vs 10.2% (IGlar) contacted an HCP; 35.4% (IDeg) vs 33% (IGlar) of patients reported that hypoglycaemia prevented them from performing usual activities. Conclusions: For an average hypoglycaemic event with IDeg and IGlar, there were no significant differences in recovery time, impact on daily activities or use of healthcare resources.  
**Publication type:** Journal: Conference Abstract  
**Source:** EMBASE

14. **Title:** Effect of GLP-1 receptor agonists on waist circumference among type 2 diabetes patients: a systematic review and network meta-analysis  
**Citation:** Endocrine, April 2015, vol./is. 48/3(794-803), 1355-008X;1559-0100 (01 Apr 2015)  
**Author(s):** Sun F., Wu S., Guo S., Yu K., Yang Z., Li L., Zhang Y., Ji L., Zhan S.  
**Language:** English  
**Abstract:** Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are increasingly used in patients with type 2 diabetes. However, the effect on abdominal obesity has not yet been confirmed. The study aimed to systematically evaluate the effect of GLP-1RAs on waist circumference in patients with type 2 diabetes. MEDLINE, EMBASE, the Cochrane library and www.clinicaltrial.gov were searched through October 31, 2013. Randomized controlled trials with available data were selected if they compared GLP-1 RAs with placebo and traditional anti-diabetic drugs with a duration >8 weeks. Weighted mean difference was estimated using random-effect model. Network meta-analysis was performed to supplement direct comparisons. Seventeen trials with 12 treatments were included. Overall, significant reductions on waist circumference following treatment of liraglutide-1.8 mg once daily (-5.24 cm, 95 % CI -7.68, -2.93), liraglutide-1.2 mg once daily (-4.73 cm,
95% CI -6.68, -2.65) and exenatide-10 mug twice daily (-1.34 cm, 95% CI -2.00, -0.75) were detected versus placebo. The reduction effect was more evident when compared with insulin and thiazolidinediones (range -1.71 to -8.03 cm). Compared with exenatide, liraglutide-0.6 mg once daily, taspoglutide, liraglutide-1.2 mg once daily and liraglutide-1.8 mg once daily significantly decreased waist circumference from -3.32 to -6.01 cm. Besides, liraglutide-1.8 mg once daily significantly decreased waist circumference by -1.73 cm (95% CI -3.04, -0.55) versus sitagliptin, whereas no significant difference following liraglutide-1.2-mg once-daily treatment was detected compared with liraglutide-1.8 mg once daily and sitagliptin. Reduction was observed with statistical significance for exenatide-10 mug twice daily compared with exenatide-5 mug twice daily (-1.21 cm, 95% CI -2.43, -0.06). Ranking probability analysis indicated liraglutide-1.8 mg once daily and liraglutide-1.2 mg once daily decreased waist circumference most among all 12 treatments with probability of 98.36% and 91.82%, respectively. Some GLP-1RAs, especially liraglutide-1.8 mg once daily and liraglutide-1.2 mg once daily, were associated with a significant reduction in waist circumference.

**Publication type:** Journal: Article  
**Source:** EMBASE

15.**Title:** Effects of intensive glycemic control in ocular complications in patients with type 2 diabetes: a meta-analysis of randomized clinical trials  
**Citation:** Endocrine, May 2015, vol./is. 49(1/78-89), 1355-008X;1559-0100 (01 May 2015)  
**Author(s):** Zhang X., Zhao J., Zhao T., Liu H.  
**Language:** English  
**Abstract:** Whether intensive glycemic control can reduce incidence of diabetic retinopathy or other diabetes-associated ocular complications remains undefined. In this meta-analysis, we assessed the effects of intensive versus conventional glycemic control in ocular complications in patients with type 2 diabetes. A systematic literature search of PubMed, Web of Knowledge, and Scopus (until December 12, 2013) was conducted. Randomized controlled trials which compared intensive glycemic control with conventional glycemic control in ocular events in patients with type 2 diabetes were included. Random-effects models were used to measure the pooled odds ratio (OR) with 95% confidence interval (CI). Seven trials involving 32,523 patients were included. Intensive glycemic control reduced the risks of retinal photocoagulation or vitrectomy (OR 0.86; 95% CI 0.75-0.98), macular edema (OR 0.65; 95% CI 0.43-0.99), and progression of retinopathy (OR 0.69; 95% CI 0.55-0.87). No significant risk reduction was shown in incidence of retinopathy (OR 0.67; 95% CI 0.26-1.73), cataract surgery (OR 0.88; 95% CI 0.76-1.03), or severe loss of vision or blindness (OR 0.99; 95% CI 0.86-1.13). Intensive glycemic control reduces the risk of most retinopathy-related events. But no beneficial effect was shown in ocular endpoint as severe loss of vision or blindness.  
**Publication type:** Journal: Article  
**Source:** EMBASE

16.**Title:** Glucagon for hypoglycemic episodes in insulin-treated diabetic patients: a systematic review and meta-analysis with a comparison of glucagon with dextrose and of different glucagon formulations  
**Citation:** Acta Diabetologica, April 2015, vol./is. 52/2(405-412), 0940-5429;1432-5233 (01 Apr 2015)  
**Author(s):** Boido A., Ceriani V., Pontiroli A.E.  
**Language:** English  
**Abstract:** Aims: Glucagon is used as an emergency drug in hypoglycemia, mainly when the patient is unconscious. A few studies report on ineffectiveness of glucagon in relieving hypoglycemia. The present systematic review and meta-analysis evaluate the effectiveness of glucagon alone and in comparison with dextrose and the effectiveness of intranasal glucagon in comparison with injected glucagon. Methods: Studies were grouped into three groups: (1) reports on glucagon ineffectiveness; (2) comparison of glucagon and dextrose; (3) comparison of intranasal glucagon and injected glucagon. In groups 2 and 3, only controlled studies were included in the analysis, whether randomized or non-randomized studies. Appropriate methodology (PRISMA statement) was adhered to, and publication bias was formally assessed. Sixteen studies, published in any language as full papers, were analysed to identify predictors of ineffectiveness, and they were included in a meta-analysis (random effects model) to study the effect of different strategies. Intervention effect (number of failures) was expressed as odds ratio (OR), with 95% confidence intervals. Results: Failure rate ranged from 0.0 to 2.31%, to 7.6%, to 14.4%, and to 59%. Comparing glucagon and dextrose, the OR was 0.53 (0.20-1.42); comparing intranasal and intramuscular glucagon, the OR was 1.40 (0.18-10.93). Heterogeneity was low and not statistically significant. Publication bias was absent. Conclusions: These data indicate that ineffectiveness of glucagon is unfrequent, not different from dextrose; in addition, intranasal and injected glucagon are similarly effective. In the case of failure, a second dose can be administered.  
**Publication type:** Journal: Article  
**Source:** EMBASE

17.**Title:** Glucagon-like peptide 1 receptor agonist therapy is more efficacious than insulin glargine for poorly controlled type 2 diabetes: A systematic review and meta-analysis  
**Citation:** Journal of Diabetes, May 2015, vol./is. 7/3(322-328), 1753-0393;1753-0407 (01 May 2015)
18. Title: Glucose regulation, cognition, and brain MRI in type 2 diabetes: A systematic review

Citation: The Lancet Diabetes and Endocrinology, January 2015, vol./is. 3/1(75-89), 2213-8587;2213-8595 (01 Jan 2015)

Author(s): Geijselaers S.L.C., Sep S.J.S., Stehouwer C.D.A., Biessels G.J.

Language: English

Abstract: Type 2 diabetes is associated with cognitive dysfunction and structural brain changes. Abnormalities in glucose regulation are involved in several complications related to type 2 diabetes, but their role in these cerebral complications is unclear. We systematically reviewed studies of the association between glucose regulation (glycaemia, hypoglycaemic events, insulin concentration, insulin resistance, and glucose-lowering treatment) and cognitive function and brain abnormalities on MRI in people with type 2 diabetes. The 86 papers included showed that glycaemia, particularly high HbA<sub>1c</sub> concentration and glucose variability, are negatively associated with cognitive function in people with type 2 diabetes without dementia. However, the strength of this association is weak, and HbA<sub>1c</sub> generally accounted for less than 10% of the variance in cognition. Importantly, few studies have measured long-term cerebral outcomes, such as dementia and structural brain changes on MRI, and the effect of glucose-lowering treatment on these outcomes. More randomised controlled trials are needed to establish the effect of glucose-lowering treatment on long-term cognitive function in people with type 2 diabetes.

Publication type: Journal: Review

Source: EMBASE

19. Title: Glucose-lowering drugs or strategies and cardiovascular outcomes in patients with or at risk for type 2 diabetes: A meta-analysis of randomised controlled trials

Citation: The Lancet Diabetes and Endocrinology, May 2015, vol./is. 3/5(356-366), 2213-8587;2213-8595 (01 May 2015)

Author(s): Udell J.A., Cavender M.A., Bhatt D.L., Chatterjee S., Farkouh M.E., Scirica B.M.

Language: English

Abstract: Background: Some glucose-lowering drugs or strategies adversely affect cardiovascular outcomes. We aimed to assess the extent to which glucose lowering by various drugs or strategies increases the risk of heart failure in patients with or at risk for type 2 diabetes, and to establish whether risk is associated with achieved differences in glycaemia or weight control. Methods: We searched Ovid Medline, the Cochrane Library, and meeting abstracts up to Feb 20, 2015, for large randomised controlled trials of glucose-lowering drugs or strategies that assessed cardiovascular outcomes. The primary endpoint was incidence of heart failure. We derived pooled risk ratios (RRs) with random-effects models. Findings: We included data from 14 trials, with mean duration 43 (23) years, comprising 95 502 patients, of whom 3907 (4%) patients developed a heart failure event. Glucose-lowering drugs or strategies were associated with a 050% (SD 033) reduction in HbA<sub>1c</sub> and a 17 kg (28) weight gain. Overall, glucose-lowering drugs or strategies increased the risk of heart failure compared with standard care (RR 114, 95% CI 101-130; p=0041). The magnitude of this effect varied dependent on the method of glucose lowering (p for interaction=00021). Across drug classes, risk was highest with peroxisome proliferator-activated receptor agonists (RR 142, 95% CI 115-176; six trials), intermediate with dipeptidyl peptidase-4 inhibitors (125, 108-145; two trials), and neutral with insulin glargine (090, 077-105; one trial). Target-based intensive glycaemic control strategies (RR 100, 95% CI 088-113; four trials) and intensive weight loss (080, 95% CI 062-104; one trial) were also not associated with development of heart failure. Meta-regression analysis showed that for every 10 kg of weight gain associated with glucose-lowering drugs or strategies, there was a 71% (95% CI 10-136) relative increase in the risk of heart failure compared with standard care (p=0022). Interpretation: Compared with standard care, glycaemic lowering by various drugs or strategies might increase the risk of heart failure, with the magnitude of risk dependent on the method of glucose lowering and, potentially, weight gain. Funding: None.

Publication type: Journal: Article

Source: EMBASE
20. Title: Impact of cardiovascular complications among patients with Type 2 diabetes mellitus: A systematic review  
Citation: Expert Review of Pharmacoeconomics and Outcomes Research, June 2015, vol./is. 15/3(487-497), 1473-7167;1744-8379 (01 Jun 2015)  
Author(s): Vaidya V., Gangan N., Sheehan J.  
Language: English  
Abstract: Macrovascular and microvascular complications that accompany Type 2 diabetes mellitus (T2DM) add to the burden among patients. The purpose of this systematic review is to conduct a comprehensive search of the medical literature investigating the prevalence of cardiovascular (CV) complications and assess their impact on healthcare costs, quality of life and mortality among patients with T2DM in the context of microvascular complications. A total of 76 studies and reports were used in this systematic review. Hypertension was the most prevalent complication among patients with T2DM. The additional cost burden due to CV complications was higher than any other complication except end-stage renal disease. Quality of life was much lower among patients with CV complications and T2DM, and mortality was higher than either illness alone.  
Publication type: Journal: Review  
Source: EMBASE

21. Title: Intensive glycaemic control and cognitive decline in patients with type 2 diabetes: A meta-analysis  
Citation: Endocrine Connections, February 2015, vol./is. 4/2(R16-R24), 2049-3614 (23 Feb 2015)  
Author(s): Tuligenga R.H.  
Language: English  
Abstract: The aim of this meta-analysis was to compare the effect of intensive vs standard glycaemic control on cognitive decline in type 2 diabetic patients. A systematic search of PubMed and ALOIS was conducted from inception up to October 30, 2014. Randomised controlled trials (RCTs) of type 2 diabetic patients comparing the rate of change in cognitive function among participants assigned to intensive vs standard glycaemic control were included. An inverse-variance-weighted random effects model was used to calculate standardised mean differences (SMDs) and 95% CIs. A total of 24297 patients from five RCTs were included in the meta-analysis. Follow-up ranged from 3.3 to 6.2 years. The result from the pooled analysis showed that intensive glycaemic control was not associated with a slower rate of cognitive decline in patients with type 2 diabetes, compared with standard glycaemic control (SMD=0.02; 95% CI=-0.03 to 0.08) although there was some heterogeneity across individual studies (I<sup>2</sup>=68%, P for heterogeneity=0.01). There are few diabetes control trials including cognitive endpoints and a small number of trials comparing intensive and standard treatment strategies. Currently, intensive glycaemic control should not be recommended for prevention of cognitive decline in patients with type 2 diabetes because there is no evidence of its effectiveness. Moreover, the use of intensive diabetes treatment results in an increase of risk of hypoglycaemia, which is linked to a greater risk of poor cognition.  
Publication type: Journal: Review  
Source: EMBASE  
Full text: Available Highwire Press at Endocrine Connections

22. Title: Management of endocrine disease: Mortality remains increased in Cushing’s disease despite biochemical remission: A systematic review and meta-analysis  
Citation: European Journal of Endocrinology, April 2015, vol./is. 172/4(R143-R149), 0804-4643;1479-683X (01 Apr 2015)  
Author(s): Van Haalen F.M., Broersen L.H.A., Jorgensen J.O., Pereira A.M., Dekkers O.M.  
Language: English  
Abstract: The aim of this systematic review and meta-analysis was to investigate whether mortality is increased in patients biochemically cured after initial treatment for Cushing’s disease. This is a systematic review and meta-analysis of follow-up studies in patients cured from Cushing’s disease after initial treatment was performed. Eight electronic databases were searched from 1975 to March 2014 to identify potentially relevant articles. Original articles reporting the standardized mortality ratio (SMR) for patients cured of Cushing’s disease were eligible for inclusion. SMRs were pooled in a random effects model. I<sup>2</sup>=24% statistics was used for quantification of heterogeneity. Eight cohort studies with a total of 766 patients were included. Out of eight studies, seven showed an SMR above 1.0 for cured patients. The pooled SMR was 2.5 (95% CI 1.4-4.2). The I<sup>2</sup>=24% statistics showed evidence for statistical heterogeneity (78%, Q-statistics P<0.001), which was largely explained by two outliers. This meta-analysis reveals that mortality remains increased in patients with Cushing’s disease even after initial biochemical cure remission, suggesting that cure does not directly reverse the metabolic consequences of long-term overexposure to cortisol. Other conditions such as hypopituitarism, including persistent adrenocortical insufficiency after surgery, may also contribute to the increased mortality risk.  
Publication type: Journal: Review  
Source: EMBASE

23. Title: Managing diabetes in people with dementia  
Citation: Nursing Times, Mar 2015, vol. 111, no. 10, p. 16-19, 0954-7762 (March 4, 2015)
Author(s): Brown, Joe, Carson, Amanda, Waugh, Anna, Park, Douglas

Abstract: Diabetes and dementia may manifest simultaneously: one is potentially life threatening, the other causes severe, progressive loss of memory and cognitive function. Where they coexist, they present nurses with challenges such as administering life-saving interventions to patients who are unable to give informed consent. This article offers guidance on the clinical and ethical challenges involved in blood glucose monitoring and medicines administration in patients with dementia. [PUBLICATION] 23 references

Source: BNI

Full text: Available NURSING TIMES at Nursing Times

24. Title: Mortality risk among sulfonylureas: A systematic review and network meta-analysis

Citation: The Lancet Diabetes and Endocrinology, January 2015, vol./is. 3(1(43-51), 2213-8587;2213-8595 (01 Jan 2015)

Author(s): Simpson S.H., Lee J., Choi S., Vandermeer B., Abdelmoneim A.S., Featherstone T.R.

Language: English

Abstract: Background: Sulfonylureas are common second-line options for management of type 2 diabetes; however, they are associated with a higher risk of cardiovascular events compared with other antidiabetic drugs. Since tissue selectivity and risk of hypoglycaemia differ among sulfonylureas, we aimed to assess whether mortality and the risk of cardiovascular events also varies. Methods: We searched Medline and Embase from inception to June 11, 2014, to identify controlled studies reporting the risk of all-cause mortality, cardiovascular-related mortality, or myocardial infarction for at least two sulfonylureas. We examined differences in cardiovascular event risk among sulfonylureas with random effects models for direct pairwise comparisons and network meta-analyses to incorporate direct and indirect data. Findings: 14970 (9%) of 167327 patients in 18 studies died: 841 (4%) of 19334 gliclazide users, 5482 (11%) of 49389 glimepiride users, 2106 (15%) of 14464 glipizide users, 5296 (7%) of 77169 glibenclamide users, 1066 (17%) of 6187 tolbutamide users, and 179 (23%) of 784 chlorpropamide users. Inconsistency was low for the network meta-analysis of all-cause mortality, and the relative risk of death compared with glibenclamide was 0.65 (95% credible interval 0.53-0.79) for gliclazide, 0.83 (0.68-1.00) for glimepiride, 0.98 (0.80-1.19) for glipizide, 1.13 (0.90-1.42) for tolbutamide, and 1.34 (0.98-1.86) for chlorpropamide. Similar associations were noted for cardiovascular-related mortality: the relative risk compared with glibenclamide was 0.60 (95% credible interval 0.45-0.84) for gliclazide, 0.79 (0.57-1.11) for glimepiride, 1.01 (0.72-1.43) for glipizide, 1.11 (0.79-1.55) for tolbutamide, and 1.45 (0.88-2.44) for chlorpropamide. Interpretation: Gliclazide and glimepiride were associated with a lower risk of all-cause and cardiovascular-related mortality compared with glibenclamide. Clinicians should consider possible differences in risk of mortality when selecting a sulfonylurea. Funding: None.

Publication type: Journal: Article

Source: EMBASE

25. Title: Platelet mean volume, distribution width, and count in type 2 diabetes, impaired fasting glucose, and metabolic syndrome: A meta-analysis

Citation: Diabetes/Metabolism Research and Reviews, May 2015, vol./is. 31(4(402-410), 1520-7552;1520-7560 (01 May 2015)

Author(s): Zaccardi F., Rocca B., Pitocco D., Tanese L., Rizzi A., Ghirlanda G.

Language: English

Abstract: Background: Platelet activation contributes to cardiovascular disease (CVD), the main complication of type 2 diabetes mellitus (T2DM) and pre-diabetic conditions. Mean platelet volume is an easy-to-measure platelet parameter that has been associated with CVD. We sought to assess mean platelet volume, platelet distribution width, and platelet count in T2DM, impaired fasting glucose (IFG), impaired glucose tolerance (IGT), and metabolic syndrome. Methods: Web-based literature search (PubMed, EMBASE, and Web of Science) of studies published in English through June 2014 was performed to select case-control and cross-sectional studies that reported data on mean platelet volume, platelet distribution width, or platelet count in cases (subjects with T2DM, IFG, IGT, or metabolic syndrome) and noncases. Descriptive and quantitative information was extracted, and within-study standardized mean difference was estimated from means and standard deviations. Standardized mean differences across studies were synthesized using a random random-effects model, and subgroup analyses were performed on pre-specified study-level characteristics. Results: Thirty-nine studies were included. Compared with controls, mean platelet volume was significantly higher in T2DM (standardized mean difference, 95% confidence interval: 0.70, 0.50-0.91; N=24 245), IFG (0.14, 0.02-0.26; N=17 389) but not in metabolic syndrome (0.15, -0.24 to 0.55; N=14 990). Platelet distribution width was wider in T2DM (0.93, 0.09-1.76; N=471). Platelet count resulted higher in IFG (0.18, 0.12-0.24; N=3960) and metabolic syndrome (0.39, 0.01-0.78; N=4070). Only two studies included IGT. Conclusions: Available data suggest that T2DM subjects tend to have higher mean platelet volume and platelet distribution width values, but nondifferent platelet count as compared with subjects without T2DM. Whether and how these morphometric changes contribute to CVD of T2DM or can be used as CVD biomarker awaits further investigation.

Publication type: Journal: Article

Source: EMBASE
26. Title: Prediction of heart failure in patients with type 2 diabetes mellitus - A systematic review and meta-analysis

citation: Diabetes Research and Clinical Practice, April 2015, vol./is. 108/1(55-66), 0168-8227;1872-8227 (01 Apr 2015)

author(s): Wang Y., Negishi T., Negishi K., Marwick T.H.

language: English

abstract: Background: Heart failure (HF) is a major cause of mortality and disability in type 2 diabetes mellitus (T2DM). This study sought to improve the assessment of HF risk in patients with T2DM-a step that would be critical for effective HF screening. Methods: A systematic literature search was performed on electronic databases including MEDLINE and EMBASE, using MeSH terms 'heart failure', 'risk factor', 'T2DM', 'cardiac dysfunction', 'stage B heart failure', 'incident heart failure', 'risk assessment', 'risk impact', 'risk score', 'predictor', 'prediction' and related free text terms. The search was limited to human studies in full-length publications in English language journal from 1946 to 2014. Univariable and multivariable relative risk (RR) and hazard ratio (HR) were obtained from each study. Results: Twenty-one studies (n = 1111,569, including 507,637 subjects with T2DM) were included in this analysis with a follow-up ranging from 1 to 12 years. Associations between incident HF and risk variables described in >3 studies were reported. This association was greatest for insulin use (HR 2.48; 1.24-4.99), HbA1c 7.0-8.0% (2.41; 1.62-3.59), 5 years increase in age (1.47; 1.25-1.73), fasting glucose (1.28; 1.10-1.51 per standard deviation) and HbA1c (1.18; 1.14-1.23 each 1% increase). After adjustment for confounders, there were strong associations with coronary artery disease (1.77; 1.31, 2.39), HbA1c > 10% (1.66; 1.45-1.89), insulin use (1.43; 1.14-1.79), HbA1c 9.0-10.0% (1.31; 1.14-1.50), fasting glucose (1.27; 1.10-1.47 per standard deviation) and 5 years increase in age (1.26; 1.13-1.40). Conclusion: Among patients with T2DM, five common clinical variables are associated with significantly increased risk of incident HF.

publication type: Journal: Article

source: EMBASE

27. Title: Preventing amputation in adults with diabetes: identifying the risks


author(s): Thomas, Eleanor

abstract: Good management of diabetes can reduce the risk of complications of the disease. When not well managed, diabetes is associated with the complications of heart disease, stroke, blindness, kidney disease and amputations. Diabetes can reduce the blood supply to the feet and cause a loss of feeling. As a result, foot injuries do not heal well and the person may not realise that their foot is sore or injured. Damage to the foot may lead to the development of foot ulcers, which if left untreated may result in amputation of the limb. Preventive care is a priority, but when complications occur the next step is to halt progression. Therefore, effective foot care and timely treatment of foot ulcers are important in preserving foot function and mobility, and preventing amputation in adults with diabetes. [Continuing Professional Development, NS796] [PUBLICATION] 69 references

source: BNI

28. Title: Preventing the progression to Type 2 diabetes mellitus in adults at high risk: A systematic review and network meta-analysis of lifestyle, pharmacological and surgical interventions

citation: Diabetes Research and Clinical Practice, March 2015, vol./is. 107/3(320-331), 0168-8227;1872-8227 (01 Mar 2015)


language: English

abstract: Aims: Individuals with impaired fasting glucose (IFG) or impaired glucose tolerance (IGT) have an increased risk of progression to Type 2 diabetes mellitus. The objective of this review was to quantify the effectiveness of lifestyle, pharmacological and surgical interventions in reducing the progression to Type 2 diabetes mellitus in people with IFG or IGT. Methods: A systematic review was carried out. A network meta-analysis (NMA) of log-hazard ratios was performed. Results are presented as hazard ratios and the probabilities of treatment rankings. Results: 30 studies were included in the NMA. There was a reduced hazard of progression to Type 2 diabetes mellitus associated with all interventions versus standard lifestyle advice; glipizide, diet plus pioglitazone, diet plus exercise plus metformin plus rosiglitazone, diet plus exercise plus orlistat, diet plus exercise plus pedometer, rosiglitazone, orlistat and diet plus exercise plus voglibose produced the greatest effects. Conclusions: Lifestyle and some pharmacological interventions are beneficial in reducing the risk of progression to Type 2 diabetes mellitus. Lifestyle interventions require significant behaviour changes that may be achieved through incentives such as the use of pedometers. Adverse events and cost of pharmacological interventions should be taken into account when considering potential risks and benefits.

publication type: Journal: Review

source: EMBASE

29. Title: Quantifying the effects of diuretics and beta-adrenoceptor blockers on glycaemic control in diabetes mellitus - A systematic review and meta-analysis

citation: British Journal of Clinical Pharmacology, May 2015, vol./is. 79/5(733-743), 0306-5251;1365-2125 (01 May 2015)

Abstract: Aims Although there are reports that beta-adrenoceptor antagonists (beta-blockers) and diuretics can affect glycaemic control in people with diabetes mellitus, there is no clear information on how blood glucose concentrations may change and by how much. We report results from a systematic review to quantify the effects of these antihypertensive drugs on glycaemic control in adults with established diabetes. Methods We systematically reviewed the literature to identify randomized controlled trials in which glycaemic control was studied in adults with diabetes taking either beta-blockers or diuretics. We combined data on HbA1c<sub>1</sub>-1c<sub>1</sub> and fasting blood glucose using fixed effects meta-analysis. Results From 3864 papers retrieved, we found 10 studies of beta-blockers and 12 studies of diuretics to include in the meta-analysis. One study included both comparisons, totalling 21 included reports. Beta-blockers increased fasting blood glucose concentrations by 0.64 mmol\textsuperscript{l} <sub>-1</sub>-1<sub>-1</sub> (95% CI 0.24, 1.03) and diuretics by 0.77 mmol\textsuperscript{l} <sub>-1</sub>-1<sub>-1</sub> (95% CI 0.14, 1.39) compared with placebo. Effect sizes were largest in trials of non-selective beta-blockers (1.33, 95% CI 0.72, 1.95) and thiazide diuretics (1.69, 95% CI 0.60, 2.69). Beta-blockers increased HbA1c<sub>1</sub>-1c<sub>1</sub> concentrations by 0.75% (95% CI 0.30, 1.20) and diuretics by 0.24% (95% CI -0.17, 0.65) compared with placebo. There was no significant difference in the number of hypoglycaemic events between beta-blockers and placebo in three trials. Conclusions Randomized trials suggest that thiazide diuretics and non-selective beta-blockers increase fasting blood glucose and HbA1c concentrations in patients with diabetes by moderate amounts. These data will inform prescribing and monitoring of beta-blockers and diuretics in patients with diabetes.

Publication type: Journal: Article
Source: EMBASE

30. Title: Risk of all-cause mortality and vascular events in women versus men with type 1 diabetes: A systematic review and meta-analysis

Citation: The Lancet Diabetes and Endocrinology, March 2015, vol./is. 3/3(198-206), 2213-8587;2213-8595 (01 Mar 2015)

Author(s): Huxley R.R., Peters S.A.E., Mishra G.D., Woodward M.

Language: English

Abstract: Background: Studies have suggested sex differences in the mortality rate associated with type 1 diabetes. We did a meta-analysis to provide reliable estimates of any sex differences in the effect of type 1 diabetes on risk of all-cause mortality and cause-specific outcomes. Methods: We systematically searched PubMed for studies published between Jan 1, 1966, and Nov 26, 2014. Selected studies reported sex-specific estimates of the standardised mortality ratio (SMR) or hazard ratios associated with type 1 diabetes, either for all-cause mortality or cause-specific outcomes. We used random effects meta-analyses with inverse variance weighting to obtain sex-specific SMRs and their pooled ratio (women to men) for all-cause mortality, for mortality from cardiovascular disease, renal disease, cancer, the combined outcome of accident and suicide, and from incident coronary heart disease and stroke associated with type 1 diabetes. Findings: Data from 26 studies including 214 114 individuals and 15 273 events were included. The pooled women-to-men ratio of the SMR for all-cause mortality was 137 (95% CI 121-156), for incident stroke 137 (103-181), for fatal renal disease 144 (102-205), and for fatal cardiovascular diseases 186 (162-215). For incident coronary heart disease the sex difference was more extreme; the pooled women-to-men ratio of the SMR was 254 (95% CI 180-360). No evidence suggested a sex difference for mortality associated with type 1 diabetes from cancer, or accident and suicide. Interpretation: Women with type 1 diabetes have a roughly 40% greater excess risk of all-cause mortality, and twice the excess risk of fatal and nonfatal vascular events, compared with men with type 1 diabetes. Funding: None.

Publication type: Journal: Article
Source: EMBASE

31. Title: Self-monitoring of blood glucose versus self-monitoring of urine glucose in adults with newly diagnosed Type 2 diabetes receiving structured education: a cluster randomized controlled trial

Citation: Diabetic Medicine, Mar 2015, vol. 32, no. 3, p. 414-422, 0742-3071 (March 2015)

Author(s): Dallosso, H. M., Bodicoat, D. H., Campbell, M., Carey, M. E., Davies, M. J., Eborall, H. C., Hadjiconstantinou, M., Khunti, K., Speight, J., Heller, S.

Abstract: Aims: To compare the effectiveness and acceptability of self-monitoring of blood glucose with self-monitoring of urine glucose in adults with newly diagnosed Type 2 diabetes. Methods: We conducted a multi-site cluster randomized controlled trial with practice-level randomization. Participants attended a structured group education programme, which included a module on self-monitoring using blood glucose or urine glucose monitoring. HbA1c and other biomedical measures as well as psychosocial data were collected at 6, 12 and 18 months. A total of 292 participants with Type 2 diabetes were recruited from 75 practices. Results: HbA1c levels were significantly lower at 18 months than at baseline in both the blood monitoring group [mean (se) -12 (2) mmol/mol; -1.1 (0.2) %] and the urine monitoring group [mean (se) -13 (2) mmol/mol; -1.2 (0.2) %], with no difference between groups [mean difference adjusted for cluster effect and baseline value = -1 mmol/mol (95% CI -3, 2; -0.1% (95% CI -0.3, 0.2)]. Similar improvements were observed for the other biomedical outcomes, with no differences between groups. Both groups showed improvements in total treatment satisfaction, generic well-being, and diabetes-specific well-being, and had a less threatening view of diabetes, with no
differences between groups at 18 months. Approximately one in five participants in the urine monitoring arm switched to blood monitoring, while those in the blood monitoring arm rarely switched (18% vs 1% at 18 months; P < 0.001).

Conclusions: Participants with newly diagnosed Type 2 diabetes who attended structured education showed similar improvements in HbA1c levels at 18 months, regardless of whether they were assigned to blood or urine self-monitoring.

[-PUBLICATION-] 28 references

Source: BNI

32. Title: Subclinical thyroid dysfunction and fracture risk a meta-analysis

Citation: JAMA - Journal of the American Medical Association, May 2015, vol./is. 313/20(2055-2065), 0098-7484;1538-3598 (26 May 2015)


Language: English

Abstract: IMPORTANCE Associations between subclinical thyroid dysfunction and fractures are unclear and clinical trials are lacking. OBJECTIVE To assess the association of subclinical thyroid dysfunction with hip, nonspine, spine, or any fractures. DATA SOURCES AND STUDY SELECTION The databases of MEDLINE and EMBASE (inception to March 26, 2015) were searched without language restrictions for prospective cohort studies with thyroid function data and subsequent fractures. DATA EXTRACTION Individual participant data were obtained from 13 prospective cohorts in the United States, Europe, Australia, and Japan. Levels of thyroid function were defined as euthyroidism (thyroid-stimulating hormone [TSH], 0.45-4.49 mIU/L), subclinical hyperthyroidism (TSH <0.45 mIU/L), and subclinical hypothyroidism (TSH>4.50-19.99 mIU/L) with normal thyroid concentrations. MAIN OUTCOME AND MEASURES The primary outcome was hip fracture. Any fractures, nonspine fractures, and clinical spine fractures were secondary outcomes. RESULTS Among 70,298 participants, 4092 (5.8%) had subclinical hypothyroidism and 2219 (3.2%) had subclinical hyperthyroidism. Among 762,401 person-years of follow-up, hip fracture occurred in 2975 participants (4.6%; 12 studies), any fracture in 2528 participants (9.0%; 8 studies), and spine fracture in 296 participants (1.3%; 6 studies). In age- and sex-adjusted analyses, the hazard ratio (HR) for subclinical hyperthyroidism vs euthyroidism was 1.36 for hip fracture (95% CI, 1.13-1.64; 146 events in 2082 participants vs 2534 in 56,471); for any fracture, HR was 1.28 (95% CI, 1.06-1.53; 121 events in 888 participants vs 2203 in 25,901); for nonspine fracture, HR was 1.16 (95% CI, 0.95-1.41; 107 events in 946 participants vs 1745 in 21,722); and for spine fracture, HR was 1.51 (95% CI, 0.93-2.45; 17 events in 732 participants vs 255 in 20,328). Lower TSH was associated with higher fracture rates: for TSH of less than 0.10 mIU/L, HR was 1.61 for hip fracture (95% CI, 1.21-2.15; 47 events in 510 participants); for any fracture, HR was 1.98 (95% CI, 1.41-2.78; 44 events in 212 participants); for nonspine fracture, HR was 1.61 (95% CI, 0.96-2.71; 32 events in 185 participants); and for spine fracture, HR was 3.57 (95% CI, 1.88-6.78; 8 events in 162 participants). Risk was similar after adjustment for other fracture risk factors. Endogenous subclinical hyperthyroidism (excluding thyroid medication users) was associated with HRs of 1.52 (95% CI, 1.19-1.93) for hip fracture, 1.42 (95% CI, 1.16-1.74) for any fracture, and 1.74 (95% CI, 1.01-2.99) for spine fracture. No association was found between subclinical hypothyroidism and fracture risk. CONCLUSIONS AND RELEVANCE Subclinical hyperthyroidism was associated with an increased risk of hip and other fractures, particularly among those with TSH levels of less than 0.10 mIU/L and those with endogenous subclinical hyperthyroidism. Further study is needed to determine whether treating subclinical hyperthyroidism can prevent fractures.

Publication type: Journal: Article

Source: EMBASE

Full text: Available American Medical Association at JAMA

33. Title: Systematic review of the evidence for a liberalized diet in the management of diabetes mellitus in older adults residing in aged care facilities

Citation: Diabetes Research and Clinical Practice, April 2015, vol./is. 108/1(7-14), 0168-8227;1872-8227 (01 Apr 2015)

Author(s): Farrer O., Yaxley A., Walton K., Healy E., Miller M.

Language: English

Abstract: A systematic review of the literature was conducted to review and evaluate the evidence supporting a liberalized diet for the management of diabetes mellitus in aged care homes and examine the effect of this on glycaemia, nutritional status and diabetes comorbidity risk factors. A 3 step search of eight databases followed by independent data extraction and quality assessment by two authors was undertaken. Studies which compared therapeutic diets to a liberalized diet or observation studies reviewing the effects of therapeutic diets on glycaemia and nutritional status were included. Of the 546 studies identified, six met the inclusion criteria. Methodological quality of the studies was rated poor and the majority concluded no statistically significant change in diabetes management outcomes with a liberalized diet, but modest increases in glycaemia were observed. Inadequate data was available to determine effects of diet change on nutritional status or diabetes risk factors. Overall studies were in support of a liberalized diet but due to the low quality of the evidence and a lack of significant findings it may not be appropriate to extrapolate these conclusions to inform dietetic
34. Title: Systematic review: Metformin should not be contraindicated in patients with type 2 diabetes and mild to moderate renal impairment

Citation: Evidence-Based Medicine, June 2015, vol./is. 20/3(115), 1356-5524;1473-6810 (01 Jun 2015)

Author(s): Scheen A.J.

Language: English

Publication type: Journal: Article

Source: EMBASE

Full text: Available Highwire Press at Evidence-Based Medicine

35. Title: The experiences and impact of transition from child to adult healthcare services for young people with Type 1 diabetes: A systematic review

Citation: Diabetic Medicine, April 2015, vol./is. 32/4(440-458), 0742-3071;1464-5491 (01 Apr 2015)

Author(s): Sheehan A.M., While A.E., Coyne I.

Language: English

Abstract: Introduction: Despite the transition between child and adult services for young people with Type 1 diabetes mellitus being a high-risk period, little is known about the impact of healthcare transition upon young people. Methods: A systematic review was conducted using PubMed, PsycINFO, CINAHL and EMBASE. Papers published between January 2001 and June 2014 that examined the impact or experiences of healthcare transition in young people with Type 1 diabetes were included. Data were extracted by two independent reviewers and integrated by narrative synthesis. Results: A total of 8990 citations were reviewed and 43 studies were included in the review, 24 of which explored the impact of transition and 24 examined experiences of transition. There were mixed results in terms of the change in glycaemic control and diabetes-related hospitalizations, but all studies assessing attendance found worse attendance post-transition. Data regarding experiences reported that young people and parents experienced greater difficulty in accessing and maintaining diabetes health care. Young people were required to develop independent self-management and self-advocacy skills to navigate the transition and adult health care, but some were inadequately prepared for this. Conclusions: Although the impact of healthcare transition on outcomes for young people with Type 1 diabetes is unclear due to the paucity of high-quality studies, transition appears to be associated with decreased clinic attendance. There is some preliminary evidence of a positive impact of structured transition programmes. Experiences of healthcare transition illuminate the barriers to smooth transitions and the need for better integration and continuity of care.

Publication type: Journal: Article

Source: EMBASE

36. Title: The safety and effectiveness of non-insulin glucose lowering agents in the treatment of people with Type 2 diabetes who observe Ramadan: A systematic review and metaanalysis

Citation: Diabetic Medicine, March 2015, vol./is. 32/4(458), 0742-3071;1464-5491 (01 Apr 2015)

Author(s): Gray L.J., Dales J., Brady E.M., Khunti K., Hanif W., Davies M.J.

Language: English

Abstract: Objectives: To determine which non-insulin glucose lowering treatment regimens are most appropriate in people with Type 2 diabetes who choose to fast during Ramadan. Methods: Electronic databases were searched for randomised controlled trials (RCTs) and observational studies comparing noninsulin glucose lowering agents in people with Type 2 diabetes fasting during Ramadan reporting hypoglycaemia, weight and HbA1c change during Ramadan were included. Random effects models were used to pool data. Results: Sixteen studies included nine RCTs and seven observational studies. There was evidence that DDP-4 inhibitors led to fewer hypoglycaemic events compared to sulphonylureas. Sitagliptin significantly reduced the number of patients with >1 hypoglycaemic episode during Ramadan (RR 0.48; 95% CI 0.36, 0.64; p < 0.0001); this is not replicated in the RCTs of vildagliptin but a significant reduction is found in the observational studies (RR 0.28; 95% CI 0.10, 0.75; p=0.01) with high heterogeneity (I2=86.7%). Significant reductions in HbA1c and weight were seen in the observational studies of vildagliptin vs sulphonylureas. The use of liraglutide led to significant weight loss (-1.81kg; 95% CI -2.91, -0.71; p=0.001) compared to sulphonylureas. Pioglitazone significantly increased weight compared to placebo (3.48kg; 95% CI 2.82, 4.14; p < 0.0001). Conclusions: The analysis supports the use of DDP-4 inhibitors during Ramadan over sulphonylureas for reduction in hypoglycaemic episodes without a cost to diabetes control as measured with HbA1c and weight. The GLP-1 agonist liraglutide provides clinical benefits, but more studies are required. RCTs of DPP-4 inhibitors against GLP-1 agonists and novel therapies including the SGLT-2 and alpha-glucosidase inhibitors are needed to inform evidence based guidelines.

Publication type: Journal: Conference Abstract

Source: EMBASE
37. Title: Therapy of endocrine disease. Effects of chronic use of phosphodiesterase inhibitors on endothelial markers in type 2 diabetes mellitus: a meta-analysis

**Citation:** European journal of endocrinology / European Federation of Endocrine Societies, March 2015, vol./is. 172/3(R103-R114), 1479-683X (01 Mar 2015)

**Author(s):** Santi D., Giannetta E., Isidori A.M., Vitale C., Aversa A., Simoni M.

**Language:** English

**Abstract:** OBJECTIVE: Diabetes mellitus (DM) is associated with endothelial dysfunction, reducing nitric oxide-dependent vasodilation, and increasing production of pro-inflammatory factors, leading to an increased risk of long-term cardiovascular disease. As the effects of phosphodiesterase 5 inhibitors (PDE5i) on endothelial function have not been systematically investigated, we conducted a meta-analysis of available randomized clinical trials (RCTs). DESIGN: A thorough search of the literature was carried out. Relevant studies were considered according to RCT study design, enrollment of men with type 2 DM, chronic administration of PDE5i, and evaluation of endothelial function through both hemodynamic and endothelial inflammation-related parameters. RESULTS: Fifteen studies fulfilled the eligibility criteria but only six RCTs met the inclusion criteria and were analyzed for 476 diabetic men, 239 randomized to Sildenafil, and 237 to placebo respectively. Four RCTs evaluated flow-mediated dilation (FMD), demonstrating a weighted mean increase of 2.19% (95% CI 0.48 to 3.90). This result showed a high heterogeneity (I^2: 98%). Thus, a further sub-group meta-analysis was performed and this analysis confirmed a significant, Sildenafil-related FMD improvement. Sildenafil improved endothelin 1 and high sensitivity C-reactive protein by ~0.94 pg/ml and -0.36 mg/l, respectively, not reaching statistical significance (P=0.69 and P=0.22 respectively). Finally, Sildenafil administration significantly reduced serum levels of interleukin 6 (IL6, -0.82 pg/ml; 95% CI -1.58 to -0.07). CONCLUSION: This meta-analysis suggests a beneficial effect of chronic PDE5i administration on endothelial function. Chronic Sildenafil administration seems to improve hemodynamic (FMD) and serum pro-inflammatory makers (IL6) in diabetic men. Larger studies are needed to confirm the effects of chronic PDE5i on endothelial function.

**Publication type:** Journal: Article

**Source:** EMBASE

38. Title: Thyroid ultrasound features and risk of carcinoma: A systematic review and meta-analysis of observational studies

**Citation:** Thyroid, May 2015, vol./is. 25/5(538-550), 1050-7256;1557-9077 (01 May 2015)

**Author(s):** Remonti L.R., Kramer C.K., Leitao C.B., Pinto L.C.F., Gross J.L.

**Language:** English

**Abstract:** Background: Thyroid nodules are a common finding in the general population, and their detection is increasing with the widespread use of ultrasound (US). Thyroid cancer is found in 5-15% of cases depending on sex, age, and exposure to other risk factors. Some US parameters have been associated with increased risk of malignancy. However, no characteristic seems sufficiently reliable in isolation to diagnose malignancy. The objective of this meta-analysis was to evaluate the diagnostic performance of US features for thyroid malignancy in patients with unselected thyroid nodules and nodules with indeterminate fine-needle aspiration (FNA) cytology. Methods: Electronic databases were reviewed for studies published prior to July 2012 that evaluated US features of thyroid nodules and reported postoperative histopathologic diagnosis. A manual search of references of review and key articles, and previous meta-analyses was also performed. A separate meta-analysis was performed including only nodules with indeterminate cytology. Analyzed features were solid structure, hypochoegenicity, irregular margins, absence of halo, microcalcifications, central vascularization, solitary nodule, heterogeneity, taller than wide shape, and absence of elasticity. Results: Fifty-two observational studies (12,786 nodules) were included. Nine studies included nodules with indeterminate cytology as a separate category, comprising 1851 nodules. In unselected nodules, all US features were significantly associated with malignancy with an odds ratio varying from 3.78 to 35.7, and microcalcifications, irregular margins, and a taller than wide shape had high specificities (Sp; 87.8%, 83.1%, 96.6%) and positive likelihood ratios (LHR; 3.26, 2.99, 8.07). Absence of elasticity was the single feature with the best diagnostic performance (sensitivity 87.9%, Sp 86.2%, and positive LHR 6.39). The presence of central vascularization was the most specific US feature in nodules with indeterminate cytology (Sp 96% and positive LHR 2.13). Conclusions: US features in isolation do not provide reliable information to select nodules that should have a FNA performed. A combination of US characteristics with higher likelihood ratios and consequently with higher post-test probabilities of malignancy - microcalcifications, or a taller than wide shape, or irregular margins, or absence of elasticity - will probably identify nodules with an increased risk for malignancy. Further studies are required to standardize elastography techniques and evaluate outcomes, especially in nodules with an indeterminate cytology.

**Publication type:** Journal: Article

**Source:** EMBASE

39. Title: Understanding poor outcomes in women with type 1 diabetes and eating disorders

**Citation:** Journal of Diabetes Nursing, 2015, vol. 19, no. 3, p. 99-103, 1368-1109 (2015)

**Author(s):** Allan, Jacqueline Anne

**Abstract:** Although it has been debated for many years, there is now a general consensus that there is an increased
incidence of eating disorders in people with type 1 diabetes. With the addition of insulin omission as a clinical symptom in both anorexia nervosa and bulimia nervosa in the DSM-V (Diagnostic and Statistical Manual of Mental Disorders, fifth edition), incidence rates may increase even further. People with eating disorders and diabetes develop debilitating complications at a younger age, show a higher rate of disengagement with healthcare teams, are harder to treat and have a significantly higher mortality rate. Little is known, however, about why eating disorders are more common in this demographic or why people with eating disorders are much more difficult to treat. Using an online questionnaire, 98 people with type 1 diabetes and an eating disorder were surveyed in order to determine if they have comorbid psychiatric diagnoses and which terminology they use to describe their eating disorder. This article describes the findings of this survey and discusses the importance of having correct diagnostic terms for eating disorders in people with diabetes.

[PUBLICATION] 18 references

Source: BNI

Full text: Available JOURNAL OF DIABETES NURSING at Salisbury District Hospital Healthcare Library

News

NHS Choices

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