

Diabetes plus

061 PREDICTION SCORES TO IDENTIFY OLDER ADULTS AT HIGH RISK FOR TYPE 2 DIABETES

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Background and Aim: The greatest relative increase in type 2 diabetes (T2DM) prevalence in developed countries thought likely to occur over the next 25 years will be in the over 65 age group. The aim of this study was to examine the effectiveness of both simple strategies based on simple clinical parameters (suitable for use in primary care) and more complex scores involving blood markers to identify older individuals at high risk of developing T2DM.

Methods: A prospective study of non-diabetic men (n = 3490) and women (n = 3392) aged 60–79 years followed up for a mean period of 7 years, during which there were 298 incident cases of T2DM. Logistic regression was used to develop prediction scores to predict incident cases starting with non laboratory predictors and adding blood markers that predicted the incidence of T2DM. Receiving operating characteristics (ROC) analyses were used to assess improvement in prediction.

Results: The area under the curve (AUC) for a non laboratory score which included age, sex, family history of diabetes, smoking status, BMI, waist circumference, hypertension, and recall of doctor diagnosis of CHD was 0.765; sensitivity and specificity in the top quintile of the score was 50.3% and 81.4% respectively. Addition of simple blood markers HDL-C, triglyceride and glucose improved prediction significantly (AUC = 0.817 p < 0.0001; sensitivity 63.8%; specificity 82.0%). Addition of gamma-glutamyl-transferase increased sensitivity and specificity further to 65.8% and 82.1% respectively. Further addition of CRP made no improvement. Of those who were classified as low risk (defined as those who fell into the bottom 60% based on the non-laboratory score), the majority (88%) remained there even when routine blood markers were used and only 3% would be reclassified as high risk (defined as the cut off for the top quintile of the non-laboratory score) on the basis of blood markers. However, appreciable proportions of those in the top 40% of the non laboratory score were reclassified on the basis of blood markers into higher or lower risk categories (59%).

Conclusion: In large population settings and for cost effectiveness, simple non-laboratory measurements could be used in the first instance to identify a subgroup of older adults who could benefit from further testing with routine blood markers to identify those at highest risk for intervention.

062 RELATIVE RISK OF MORTALITY ASSOCIATED WITH DIABETES IN SCOTLAND IN 2007: A NATIONWIDE RECORD LINKAGE STUDY

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Background: People with diabetes are known to be at increased risk of mortality compared to the general population but recent data on this association are limited. Diabetes register data are

collected in Scotland in primary and secondary care for the whole population of people with diabetes and can be linked to national mortality records.

Methods: We estimated standardised mortality ratios (SMRs) for deaths from all-causes and heart disease (ICD-10 codes I00-52) identified by linkage to mortality records by type of diabetes and sex among people on the Scottish population based diabetes register in 2007 using numbers of deaths among the whole population of Scotland and 2007 mid-year population estimates for the standard.

Results: Among 209 095 people with type 1 and type 2 diabetes in Scotland in 2007 (diabetes prevalence 4.1%) there were 7803 all-cause and 2073 heart disease deaths. SMRs (95% CIs) for all-causes were 2.51 (2.24 to 2.80) and 2.79 (2.46 to 3.16) for men and women with type 1 diabetes (T1DM) and 1.27 (1.23 to 1.31) and 1.39 (1.34 to 1.43) for men and women with type 2 diabetes (T2DM) respectively. For heart disease SMRs (95% CIs) were 2.95 (2.38 to 3.65) and 4.33 (3.41 to 5.49) for men and women with T1DM and 1.52 (1.43 to 1.61) and 1.59 (1.49 to 1.71) for men and women with T2DM respectively. Further adjustment for socio-economic status made little difference to SMRs.

Conclusions: We observed similar patterns of mortality by age, sex, type of diabetes and cause of death to previous studies but lower relative mortality associated with diabetes. This latter finding may reflect differing populations and study design but might also indicate increased use of primary and secondary preventative therapies in people with diabetes. Nationwide diabetes epidemiology using routine data is now possible in Scotland.

063 QUANTIFYING THE ASSOCIATION BETWEEN TUBERCULOSIS AND DIABETES: A CASE-CONTROL ANALYSIS

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Background: Tuberculosis (TB) remains a major global health problem. A possible risk factor for TB is diabetes (DM), which is predicted to increase dramatically over the next two decades, particularly in low- and middle-income countries, where TB is widespread. This convergence of two epidemics has highlighted the need for a better understanding of the possible association between the two diseases, and its potential significance for public health. This study aimed to assess the strength of the association between TB and DM, using US data.

Methods: A case-control analysis was performed using data from the second National Health and Nutrition Examination Survey (1976–1980). Cases were respondents who had ever been diagnosed with TB (n = 166), and controls were respondents who reported never having been diagnosed with TB (n = 15 191). Exposure to diabetes and intermediate hyperglycaemia was defined using both a self-reported measure, and measures combining self-reported disease with undiagnosed disease identified via an Oral Glucose Tolerance Test (OGTT). Logistic regression analysis, taking into account survey design, was undertaken to estimate an adjusted odds ratio (OR) for the association of TB with diabetes and with intermediate hyperglycaemia, controlling for potential confounding variables – age, gender, race/ethnicity, socio-economic status, household contact with TB, smoking status and BMI.

Results: Depending on the exposure measure used, the crude odds of TB varied between 2.90 (95% CI 1.77 to 4.76) and 3.35 (95% CI 1.96 to 5.74) for people with diabetes compared to those without. Adjustment for potential confounders slightly attenuated the strength of the association; adjusted ORs varied between 2.40 (95% CI 1.43 to 4.01) and 2.60 (95% CI 1.56 to 4.33). No association

was found for intermediate levels of glucose intolerance, although the study was underpowered to assess this association.

Conclusions: Irrespective of the exposure measure and the confounders controlled for, diabetes was consistently found to be associated with an increased risk of TB. This study may underestimate the true association between the two diseases, due mainly to exposure misclassification, as only 24.8% of the sample took the OGTT. Due to the inclusion of “ever diagnosed” as opposed to incident TB cases, the direction of the association could not be reliably assessed and may operate in both directions. Some unmeasured factors may have attenuated or increased the relationship, although the majority of known confounders were controlled for. These results may be more generalisable to low TB prevalence populations than to populations where TB is endemic.

064 PREVALENCE OF CHRONIC KIDNEY DISEASE IN SOUTH ASIAN AND BLACK MINORITIES: FINDINGS FROM A POPULATION BASED SCREENING STUDY IN LONDON, UK

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Background: People of both South Asian and Black ethnic origin have 3–4 fold higher rates of acceptance onto renal replacement therapy than Caucasians in the UK. They are known to have a higher prevalence of type 2 diabetes and Blacks also have a higher prevalence of hypertension but little is known about the comparative prevalence of chronic kidney disease (CKD) in these ethnic groups.

Objective: To investigate the prevalence of CKD in Blacks and south Asians compared to Caucasians.

Methods: Cross sectional study based on screening all adults registered with over 50 general practices aged 35–74 in a multiethnic area in West London, UK from 2002–7. Baseline assessment included renal function (serum creatinine converted to estimated glomerular filtration rate using 4 variable MDRD equations) and single urinary albumin: creatinine ratio (ACR) from 2004. Logistic regression was used to model adjusted odds ratios of low eGFR (<60 and <45 ml/min/1.73 m²) indicative of stage 3–5 and stage 3b–5 CKD respectively, by ethnic group separately by gender, with Caucasians as reference group.

Results: Response rate to screening was 60%. Of 31 507 participants, 19 769 (63%) were South Asian (SA), 9222 (29%) Caucasian and 2516 (8%) Black (B). All had eGFR calculable. Age adjusted prevalence of eGFR <60 was 1.29 (1.10 to 1.51) in SA males, 0.87 (0.62 to 1.23) in B males, 0.74 (0.63 to 0.89) in SA females and 0.35 (0.23 to 0.54) in B females. Corresponding figures for eGFR <45 were SA males 1.89 (1.38 to 2.58) B males 1.64 (0.93 to 2.89) SA females 0.92 (0.56 to 1.34) and B females 0.50 (0.21 to 1.18). Full adjustment for prevalent diabetes, hypertension, vascular disease and social deprivation did not alter these patterns.

Conclusion: Despite a higher prevalence of underlying risk factors such as Type 2 diabetes, CKD prevalence of stage 3–5 (eGFR <60) was generally lower in both ethnic groups except South Asian males. However more advanced CKD (eGFR <45) in men was commoner in both ethnic groups suggesting they are more susceptible to progressive kidney damage. Urinary albumin excretion, an important marker of kidney damage, is being measured currently and data will be presented. The reasons for the gender difference in kidney function require further exploration.

Disability and capability

065 THE ASSOCIATION BETWEEN PARTICIPATION OF CHILDREN WITH CEREBRAL PALSY AND THE PHYSICAL, SOCIAL AND ATTITUDINAL ENVIRONMENT: A CROSS-SECTIONAL EUROPEAN STUDY

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Background: Both the UN Convention on the Rights of the Child and the UN Convention on the Rights of Persons with Disabilities affirm the right of children with disabilities to participate on an equal basis with others in family life, health maintenance, education, public life, recreational, leisure and sporting activities.

Objective: To assess, for children with cerebral palsy, the extent of availability of needed items in the physical, social and attitudinal environment and to evaluate how this is associated with the children's participation in life situations.

Design: Following preliminary qualitative studies, the European Child Environment Questionnaire (ECEQ) was developed to record which items in the physical, social, and attitudinal environment of home, school, and community are available to children with disabilities. The ECEQ was administered to parents of children with cerebral palsy. Children's participation was assessed using the Life-H questionnaire. The 60 items of ECEQ were grouped into domains using item response models. Structural equation modelling was used to relate the child's participation to environmental factors, allowing for impairments, pain and socio-demographic characteristics.

Setting: Eight European regions with population registers of children with cerebral palsy; one further region recruited children from multiple sources.

Participants: 1174 children with cerebral palsy aged 8–12 years randomly selected from the population registers, 743 (63%) agreed to joined in the study; the further region recruited 75 children.

Main Outcome Measures: Children's participation, assessed on 10 domains of the Life-H questionnaire.

Results: Children with pain and those with more severely impaired walking, fine motor skills, communication and intellectual abilities had lower participation across most domains, but the socio-demographic factors examined were not associated with participation. We identified nine domains describing the accessibility of the environment. All domains of both participation and environment showed significant ($p < 0.001$) variation between regions. Results of the structural equation modelling will be presented.

Conclusions: Some European regions facilitate participation of children with cerebral palsy better than others and some regions have a more accessible environment than others, implying some countries could improve provision.

066 TWENTY-YEAR SURVIVAL OF CHILDREN BORN WITH CONGENITAL ANOMALIES: A POPULATION-BASED STUDY

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Objective: To estimate the survival, up to age 20 years, for a range of congenital anomaly groups and subtypes.

Design: Population-based registry (Northern Congenital Abnormality Survey, NorCAS).

Setting: The former Northern Region of England (the area extending from North Cumbria to the Tees area and up to the