

to HbA1c measurement. Targets for control were *6.0mmol/l (fasting and pre-meal), and *8mmol/l (after-meal).

Results

The mean age of the 127 participants (76 men) was 65.5 (SD 10.8) years, mean HbA1c 7.3 (SD 0.9), and median duration of diabetes 3 (IQR 2-9) years. Sensitivity of the decision rule to detect HbA1c > 6.5% if all recorded glucose readings in the specified period were above target was 80.0% (fasting), 24.1% (pre-meal) and 29.7% (after-meal). Positive predictive values were 81.2%, 93.4% and 100% respectively (all $p < 0.001$). 8 (11.3%) of patients with all readings above target recorded blood glucose readings < 4mmol/l compared to 13 (31.7%) of those with some or all readings at or below target.

Conclusions

Use of the decision-rule to evaluate fasting SMBG results may help people with type 2 diabetes determine the likelihood of having sub-optimal glycaemic control with only a small proportion of those above target recording low blood sugars that might limit treatment. Measurements taken at other time points fail to identify a high proportion of those with sub-optimal control. This rule could form part of a structured intervention to support glycaemic self management.

048

Five year survival of patients with heart failure: the utility of B type natriuretic peptide assays in predicting mortality

Richard Hobbs

Department of Primary Care & General Practice,
Primary Care Clinical Sciences Building,
University of Birmingham, B15 2TT

Coauthors: AK Roalfe, RC Davis, R Hare

Introduction

Objective:

To assess the prognostic value of baseline B Type natriuretic peptide assays for predicting 5 year mortality in a community population with prevalent heart failure.

Introduction:

Persons with heart failure are known to have a poor prognosis. B type natriuretic peptides have shown promise as a valid tool in the diagnosis of this complex syndrome. This study examines the survival of patients with prevalent all-grades and

all-cause heart failure, identified using gold standard criteria, by varied cut-offs of the previously validated N-terminal pro-B type natriuretic peptide (NT-proBNP) and B type natriuretic peptide assays.

Methods

Mortality sub-study of the Echocardiographic Heart Of England Screening (ECHOES) study, a large community based study of 4600 randomly selected adults, which estimated the prevalence of heart failure in the general and high risk populations of central England, plus 782 with prior diagnostic label of heart failure, 928 on diuretics, and 1062 with 'risk factors' for heart failure. B type natriuretic peptides were measured for a random sub-set of patients (n=594). Patients were classified as having heart failure using the gold standard criteria (symptoms, clinical examination, echocardiography, and blinded clinical specialist panel). This analysis explores the survival of patients against best fit natriuretic peptide assay cut-offs and followed up for a minimum of 5 years. The survival patterns were compared with Kaplan Meier curves and log rank tests.

Results

Thirty-nine percent (n=233) were classified as having heart failure (sensitivity 96%, specificity 67%) on the 'best-fit' natriuretic peptide cut offs. BNP and NT pro-BNP assays performed similarly. Their 4-year survival rate was 78.5% and 79.3% respectively compared to 95% who were identified without the disease, a significant difference (Log rank test $c^2 = 41.9$, $p < 0.00001$). Natriuretic peptide levels above these cut-offs were predictive of mortality regardless of aetiology for heart failure. Newly analysed 5 year data will be presented.

Conclusions

The poor prognosis of patients with heart failure is confirmed by the ECHOES mortality data, though at lower mortality rates than prior studies largely based on hospital diagnosed prevalent cases. Both natriuretic peptides, at selected cut-offs, predict 74% of mortality outcomes.

049

Living with heart failure: qualitative study of patients in the BRUM-CHF trial of exercise rehabilitation in heart failure

Miren Jones

Department of Primary Care and General Practice

University of Birmingham

Coauthors: SM Greenfield, K Jolly, on behalf of the BRUM-CHF Collaborative Group

Introduction

Specialist heart failure nurses are becoming part of the accepted standard of care for patients with heart failure. These nurses do not currently provide structured exercise training but there is evidence that exercise-based rehabilitation has positive effects both physiologically and on the quality of life of people with heart failure. This study explored the views on exercise of patients taking part in a trial of exercise rehabilitation and how heart failure affected their daily lives.

Methods

Patients for interview were recruited from patients taking part in a randomised control trial of a predominantly home-based programme of exercise rehabilitation (BRUM-CHF). Patients in the trial were recruited from patients attending specialist heart failure clinics at three hospitals. 14 patients in the exercise group and 12 in the control group were interviewed. 10 patients who had declined to take part in the trial were also interviewed. Semi-structured interviews in the patient's home covered: biographical information, experience of heart failure, self-management of heart failure, satisfaction with health service provision, and views on exercise. Interviews were recorded, transcribed and analysed using the technique of charting.

Results

Emerging themes from the interviews reflected 4 areas each with a range of sub-categories: patients' perceptions of their health status, understanding and self-management of heart failure; lifestyle; motivation and expectations of exercise. Many patients were not aware they had a diagnosis of heart failure or did not understand the meaning of the term and had limited understanding of self-management.

Conclusions

Patients' knowledge and understanding of their condition was limited and many considered their

ability to exercise was very restricted. This can affect their motivation to self-manage and the type of strategies they feel are appropriate. It is important that healthcare professionals carefully elicit patients' understanding and health beliefs about their condition before commencing rehabilitation.

050

Trends in the prevalence of atrial fibrillation, its treatment with anticoagulation, and predictors of such treatment in UK primary care

Stephen DeWilde

St Georges Hospital Medical School, London SW17 0RE

Coauthors: I Carey, C Emmas, N Richards, D Cook

Introduction

Atrial Fibrillation (AF) is a major risk factor for stroke. Anticoagulation reduces this risk, but appears to be underused. This study examines trends in the prevalence of AF, its treatment with oral anticoagulants between 1994 and 2003 and predictors of anticoagulant treatment in 2003

Methods

Routinely collected Read coded data from 131 general practices from the Doctors' Independent Network Database were used to identify cases, co-morbidities and drugs and conditions contra-indicating warfarin. Practices were classified by region and urbanisation. A 2001 Census derived social indicator linked at postcode level allowed analysis within practices. Stroke risk was assessed using PRODIGY guidelines. Prevalence trends for current AF were recorded. Predictors of anticoagulant treatment were identified by logistic regressions.

Results

All-ages prevalence of current AF rose from 0.8% to 1.3% in men and from 0.8% to 1.2% in women.

The percentage of patients with current AF on anticoagulants (virtually all warfarin) also rose, from 25% to 53% in men and from 21% to 40% in women. Most others were receiving antiplatelet therapy.

The likelihood of warfarin was greater in males, in patients 55-74, and rose with increasing risk of stroke. Deprivation, urbanisation and region did not affect likelihood.

Only a few drugs and co-morbidities were associated with likelihood of warfarin therapy: NSAIDs, antiplatelet drugs and ulcer healing drugs were associated with a significant reduction in likelihood of warfarin prescription, as were diagnoses of peptic ulcer, chronic GIT disorders, anaemias, non-organic psychoses and poor compliance.

A range of cardiovascular co-morbidities and drugs were associated with increased likelihood of anticoagulants, possibly due to treatment initiation in secondary care.

In 2003, only 56.5% of patients with very high stroke risk were on warfarin, but 38.2% of patients at low risk were on it.

Conclusions

This study confirms previously observed trends in AF prevalence and warfarin treatment. Drugs and conditions associated with bleeding decrease the likelihood of prescription, whilst secondary care involvement increases it. Many who might benefit from warfarin do not receive it whilst some with low stroke risk do. Decision support tools in this area could be more widely used, but may need refining.

051

Randomised controlled trial comparing the clinical effectiveness of home-based (HmCR) and hospital-based rehabilitation (HpCR) after acute myocardial infarction(AMI): the Cornwall Heart Attack Rehabilitation Management Study (CHARMS)

John Campbell

Primary Care

Peninsula Medical School

Royal Devon and Exeter Hospital

Exeter EX2 5DW

Coauthors: H Dalal, P H Evans, J Campbell, A Watt, K Read, R Taylor, A Mourant, J Wingham, D Thompson and D Pereira Gray

Introduction

Comprehensive cardiac rehabilitation (CR) after (AMI) is considered to be an effective intervention. Participation in CR remains sub optimal and practical problems involved in accessing HpCR may be a contributory factor.

HmCR programmes are available in the UK but the relative effectiveness of HmCR has not been established.

Methods

Randomised controlled trial conducted in the area of two primary care trusts and one district general hospital in rural southwest England. Interventions: 6-week nurse facilitated self-help package of HmCR (the Heart Manual) or attendance at outpatient HpCR classes for 6-8 weeks. Main outcome measures: Hospital Anxiety Depression scale (HADS), Quality of Life after Myocardial Infarction (QLMI), total serum cholesterol (TC) and exercise capacity on treadmill testing (TT).

Methods: 104 patients (age 63[SD11] years, 84 males) with uncomplicated AMI and without major comorbidity were randomised to either HmCR (n=60) or HpCR (n=44). All outcomes except TT were measured at baseline, 3 and 9 months.

Results

Using an intention to treat analysis, the primary outcome measure at 9 months (HADS depression score) showed no significant difference between Hm CR and HpCR (ANCOVA adjusted mean difference 0.75, 95% CI -0.47 to 1.97; p=0.225). Statistically significant improvements in 9 month outcomes were observed in both groups: global QLMI (HmCR 1.01, 95% CI 0.62 to 1.41; p<0.0001; HpCR 0.94, 95% CI 0.58 to 1.30; p<0.0001), and in TC (HmCR -1.35, 95% CI -1.69 to -1.00; p<0.0001; HpCR -1.15, 95% CI -1.55 to -0.74; p<0.0001). The HmCR group showed significant improvement in TT (METS) from 3 to 9 months (0.87, 95% CI 0.35 to 1.39; p=0.002) compared to HpCR (0.46, 95% CI -0.31 to 1.23; p=0.23). However, the improvements in HADS, QLMI, TC and TT did not differ significantly between the two groups.

Conclusions

HmCR using the Heart Manual is as effective as HpCR for patients after AMI. Both CR interventions demonstrate improvement in quality of life and prognostic risk factors. This study supports increasing the availability of HmCR as it may help to improve overall uptake of CR especially in deprived and rural communities where access to hospital-based services can be difficult.

052

Contemporary prognosis of angina: multi-centre outcome analysis of 8802 patients attending rapid access chest pain clinics

Gene Feder

Centre for general practice and primary care
Barts and the London,
Queen Mary's School of Medicine and Dentistry
London E1 4NS

Coauthors: S Cotter, H Hemingway, C Junghans, N Sekhri, A Timmis

Introduction

Rapid access chest pain clinics have mushroomed in the UK and are now the major route to further investigation for people with non-acute chest pain in whom their GP's suspects underlying coronary artery disease. The assumption behind these clinics is that they successfully identify patients with angina whose risk of adverse events is increased. This assumption is unproven, and the prognosis of angina in this group of patients is unknown.

Methods

Five-centre cohort study of consecutive chest pain patients diagnosed with incident angina (2236) or non-cardiac chest pain (NCCP, n=6396). Patients known to have coronary disease (previous ACS, revascularization or diagnostic angiography) were excluded. Median (IQR) follow-up was for 2.57 (1.96-4.15) years. Survival curves were plotted for total mortality, coronary deaths and non-fatal myocardial infarction and events compared with the general population and participants (placebo groups) of recent randomised trials.

Results

The annual rate of coronary death and non-fatal myocardial infarction was higher among those with angina (2.3%) compared to those with NCCP (0.4%), but 35% (72/203) of events occurred in patients discharged with NCCP. Compared to the general population, coronary standardised mortality ratios were higher in men (203, 95% CI 149-256) and women (2.13, 95% CI 129-296) with angina. However, SMRs for non-cardiac causes of death (cancer, COPD) were lower than the general population, indicating "selection by fitness" of patients referred for rapid chest pain assessment. The annualised cardiovascular mortality rate of was

greater than most recent trials of angina treatment in hospital settings.

Conclusions

This study has provided the most contemporary estimate of the prognosis of incident angina in the community. Despite the conservative nature of the estimate those patients diagnosed with angina were at high cardiovascular risk compared with the general population and the participants in recent clinical trials. Rapid access chest pain divide patients into high and low risk groups via the diagnosis of angina, but only with a moderate sensitivity. We need to improve methods of rapidly identifying patients with chest pain who require further investigation and management.

053

Cardiovascular risk scoring: past, present and future

Peter Brindle

Department of Social Medicine
University of Bristol
Bristol BS8 2PR

Introduction

In primary care, cardiovascular risk scoring methods are used to identify asymptomatic but high-risk patients so they can be targeted for preventive treatment and lifestyle advice. The choice of method should be based on evidence on accuracy in a particular population and effectiveness in improving outcomes. We aim to identify risk-scoring methods and assess the evidence on their accuracy and effectiveness. Implications for future practice and research will be discussed.

Methods

Comprehensive systematic review of cardiovascular risk scores including studies examining the accuracy of predictive risk functions and their effectiveness in improving risk factors, risk behaviours, health outcomes or treatment. Articles were identified and evaluated using Cochrane Heart Group methods.

Results

Over 3300 articles were identified and nearly 1000 acquired as potentially relevant. Risk scoring methods: over 60 different methods were identified based on prediction models derived from cohort studies. Many are based on analyses of the Framingham study. More recent methods address issues relating to re-calibration according to population risk.

Accuracy: 126 studies looked at the accuracy of risk scores in different populations with 36 reported on Framingham-derived methods in 50 separate populations. Framingham methods discriminated reasonably well between high and low risk individuals in representative populations. However, methods tended to over-predict risk in populations with low observed risk, and to under-predict in high-risk populations. Evidence relating to the generalisability of other methods was limited. **Effectiveness:** Only four randomised controlled trials were found, and none of the primary outcomes found any benefit in patients treated on the basis of a risk score compared to controls. One study showed a reduction in systolic blood pressure but not absolute risk, and in a post hoc sub-group analysis, another showed benefits in a high-risk subgroup of diabetics.

Conclusions

A large number of risk scoring methods have been reported. Framingham-based cardiovascular risk scores offer reasonable ranking of individual risk but overestimate in lower-risk and underestimate in higher-risk groups. Evidence on the accuracy of other methods is limited. As with any health technology, risk-scoring methods must show benefits if they are to be used in primary prevention and trials of existing and new methods are required. These findings suggest that the evidence supporting the use of risk scoring methods from historical cohort studies and the decision aids derived from them is weak, and improvements in targeting primary prevention are needed

054

Evaluating different formats to represent medical risks in online information for people with Diabetes – a randomised controlled trial

Adrian Edwards

Cwmbran Village Surgery,
Cwmbran NP44 3JS

Coauthors: I Thomas, DDR Williams, G Elwyn

Introduction

Information must be communicated effectively to enhance peoples' understanding of their condition and treatment options. There have been few randomised trials of risk presentation formats, such as graphs and narrative

descriptions, for patients with real conditions or in actual health care contexts. We evaluated risk presentation formats addressing the pros and cons of tight control versus usual treatment approaches for diabetes.

Methods

Design: randomised controlled trial.

Setting: online. Publicity disseminated via Diabetes UK patients' organisation.

Participants: People in the UK with diabetes or their carers.

Interventions:

Control group received information based on BMJ 'Best Treatments'. Four intervention groups received enhanced information resources:- 1: detailed Numerical information (absolute / relative risk, numbers-needed-to-treat); 2: 'Anchoring' to familiar or everyday risks; 3: Graphical (bar charts, thermometer scales, crowd figure formats); 4: combination. **Outcomes:** Decision Conflict Scale (principal outcome); DCS sub-scales; satisfaction with information; further free text responses.

Results

Quantitative results

710 people visited the website and were randomised. 508 completed the questionnaire (quantitative analysis: ANOVA, Dunnett's test, multiple regression; >90% power). There were no statistically significant effects of the interventions on DCS, its sub-scales, or satisfaction with information.

Qualitative results

256 participants provided responses for qualitative 'content analysis'. Most found graphical representations helpful, specifically bar chart formats. Many found other graphic formats (thermometer type and crowd figures) and 'anchoring' information unhelpful, and indicated information overload. Many negative experiences with care indicate a challenging context for effective information provision and decision support.

No non-response biases were evident.

Conclusions

Online evaluation of different risk representation formats was feasible. The lack of intervention effects on quantitative outcomes may reflect already well-informed participants from the Diabetes UK patient organisation. The large qualitative dataset included many helpful comments about effective formats for communicating risk information. The challenge is to strike a balance between providing more information, in appropriate and clear formats, but