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Care of the elderly symposium report

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ABSTRACT This symposium covered a wide range of conditions of interest to the geriatrician, the general physician and the general practitioner, including demographic shift, the epidemiology of ageing, diabetes in older people, investigation and management of falls, an update on stroke (including the role of neurovascular clinics, stroke thrombolysis and rehabilitation) and the management of coronary heart disease in the elderly.

KEYWORDS Acute coronary syndromes, ageing, clinical guidelines, diabetes mellitus, carotid sinus syndrome, dementia, epidemiology, falls, integrated care, rehabilitation, stroke, syncope, transient ischaemic attack, thrombolysis

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EDUCATION

SESSION 1
WHO WILL LOOK AFTER ME WHEN I'M OLD?

In his presentation on the epidemiology of ageing, Professor David Stott (David Cargill Professor of Geriatric Medicine, Royal Infirmary, Glasgow) addressed issues surrounding longevity, the burden of disability and cognitive ageing. The average life expectancy in the developed world is increasing by 0.8 years every decade, and there is also an increase in the number and proportion of older people in our society. It is projected that by 2030 more than a third of the UK population will be over 65 years of age. Healthy lifestyle measures and a higher socioeconomic status can lead to a longer life expectancy as well as less disability at the end of life, or a compression of morbidity.[1] Population increases in life expectancy are not linked with any increase in severe disability before death, but are associated with a rise in moderate/mild disability and self-reported chronic disease. Women live longer, but do seem to have a longer period of disability at the end of life than men.[2] This overall increase in chronic disease burden will lead to higher demand on healthcare services.

Preventable disease, particularly cerebrovascular disease and ischaemic heart disease, is a major contributor to disability and cognitive decline in older age. The Office for National Statistics shows that more than 30% of over 80 year olds live with severe disability. A third to a half of physical decline in older age is due to a combination of stroke and ischaemic heart disease.[3] Often the underlying pathology is covert, but not benign. The Rotterdam Scan Study concluded that 'silent' brain infarction is five times as common as symptomatic infarction in older people.[4] Small vessel disease is a gradual and progressive phenomenon. White matter lesions are associated with slower gait speed, falls in mini mental state examination (MMSE) and slower information processing.[5]

The new concept of cognitive ageing recognises that Alzheimer's dementia and atherosclerosis are independent pathological processes with common risk factors. It is the combination of these disease processes that leads to cognitive decline and the most significant expression of dementia.[6] We should therefore view cognitive ageing as a continuum and target treatments to actively manage vascular risk and adopt novel approaches in preventing cognitive decline.

Diabetes mellitus is an important cause of disability. Dr Terry Aspray (Consultant Geriatrician and Honorary Clinical Senior Lecturer, Sunderland Royal Hospital) outlined the impact of demographic change on the growing epidemic of type 2 diabetes in older age. More than half of the diabetic population is aged over 50 years, and a quarter over 75 years. Moderate glycaemic control in type 2 diabetes leads to longer-term cardiovascular benefit, but there is a paucity of evidence about the optimal diabetic control in older patients as this group has tended to be excluded from clinical trials.

As new drugs for type 2 diabetes are marketed, we are learning more about their effectiveness and side effects in older patients. Rosiglitazone increases fracture risk and cardiovascular risks[7] and contributes to fluid retention and anaemia. The incretins may be a safe and efficacious option, with confirmed benefits in haemoglobin A_{1c} (HbA_{1c}) reduction, lower fasting glucose levels and weight loss conferred into the sixth and seventh decades.[8] The gliptins have shown a greater reduction in HbA_{1c} and weight in 70 year olds compared with 50 year olds, tend to be safe and well tolerated[9] and can be orally administered.

Complications of diabetes are common in frail older people, particularly in care home residents. Blood pressure and glucose-lowering strategies reduce macrovascular and microvascular risk. There is strong epidemiological evidence that diabetes is a risk factor for dementia; both hypoglycaemia and hyperglycaemia are linked with impaired cognition. Tight blood pressure control and tight glycaemic control may not always be achievable in the elderly and individualised care may be more appropriate. Dr John Dean (Medical Director for

Quality and Care Improvement and Consultant Diabetologist, NHS Bolton) discussed his model of integrated care for patients with diabetes. Key features include prevention, self care and collaborative care planning between patient, clinician and carer, at significant times of change, with individualised goals and action plans. Care planned from a population perspective, with aims to reduce variations in outcomes across practices and geographical areas and lessen current health inequalities, is crucial. This can be achieved by co-ordinating appropriate roles and extending skills within primary care, with specialist care teams working across boundaries and providing key support.

SESSION 2 FOUND ON THE FLOOR: THE DIAGNOSIS AND MANAGEMENT OF FALLS

Dr Martin Wilson (Consultant Physician, Raigmore Hospital, Inverness) used two scenarios to demonstrate how the label of 'falls' in the acute receiving unit is a non-specific term. He highlighted the importance of reaching diagnoses in such cases, and illustrated how the all too common mix of acute and chronic pathology can lead to this presenting complaint. Discriminating between acute and chronic issues is essential in understanding the relative loss of function in individuals, and helps avoid common pitfalls in managing these cases.

In the Stanley Davidson Lecture, Professor Rose Anne Kenny (Professor and Head of Department of Medical Gerontology, Trinity College Dublin) discussed the future of falls management. Differentiating between falls and syncope requires a witnessed account, or an awareness of events. At least 30% of older adults have amnesia for loss of consciousness. Old age, abnormal electrocardiograms, low haematocrit and underlying heart disease are risk factors in predicting hospital admission following acute presentation of falls or syncope.[10] Of all falls, 35% are accidental, 25% have cognitive impairment, 22% have a medical diagnosis (epilepsy or arrhythmia), and 18% are drop attacks.[11] Randomised controlled trials evaluating targeted intervention based on these categories have had positive results.[12] Epilepsy is often considered in the differential of falls or syncope, and is a challenge to diagnose. A series of studies, from all ages, have found that 40% of cases of 'treatment-resistant epilepsy' are, in fact, due to an underlying cardiovascular abnormality.[13] Increased use of implantable and wearable cardiac, blood pressure, heart rate and electroencephalogram monitoring are the future in reaching a diagnosis in falls and syncope.

Guidelines for falls and syncope highlight the importance of screening for falls or gait and balance problems, the indications for multifactorial assessment and individualised multicomponent intervention strategies, and the place of prescribed balance and strengthening programmes.[14]

Carotid sinus syndrome accounts for 30% of syncope and one in four drop attacks. A cardio-inhibitory response in carotid sinus syndrome generally responds to pacemaker insertion. Concomitant lowering of blood pressure associated with the syndrome is present in 30% of cases, and is more challenging to treat. An abnormal carotid sinus response with lowered blood pressure and heart rate is seen, with similar prevalence in subsets of adults with and without symptoms.[15] Tau protein deposits found within autonomic cardiovascular nuclei in the brainstem in post-mortem studies of patients with carotid sinus hypersensitivity may explain why some have a predisposition towards developing the syndrome.

Recent studies have suggested a link between cognitive function and the effectiveness of cardiac pacing in carotid sinus syndrome. No reduction in falls or syncope is seen following pacemaker insertion for carotid sinus syndrome in older patients with an MMSE <20 and co-morbid conditions on multiple other medications.[16,17] Longitudinal studies evaluating carotid sinus hypersensitivity as a biomarker for dementia are required, as are studies to evaluate whether early intervention could prevent falls and cognitive decline.

Falls are common in dementia. From the age of 50 and onwards memory, concentration, reaction times and executive function have been shown to decline rapidly.[18] The degree of drop in blood pressure, and the time taken for blood pressure to return to baseline on standing, is one of the known predictors of falls in dementia, and a correlation between this blood pressure variability and white matter hyperintensity on magnetic resonance imaging, a marker of cognitive impairment, has been found.[19,20] The causal association between hypotension and secondary neurodegeneration remains unclear. Fundamental research is required to elucidate the underlying mechanisms of falls in cognitively impaired adults so that preventative interventions can be developed.

Finally, Prof. Kenny presented the exciting new projects currently under way in her gerontology unit in Dublin, including the Technology Research for Independent Living Research Project (TRIL) and the Irish Life Longitudinal Study on Ageing, which is researching health, wealth and happiness as factors influencing the experience of ageing.

SESSION 3 I NEED TREATMENT FAST! FUTURE STROKE CARE NOW

Professor Martin Dennis (Professor of Stroke Medicine, Western General Hospital, Edinburgh) outlined that the main aim of a neurovascular service is to provide secondary prevention and reduce the risk of further stroke. The risk of stroke is highest in the first few days after a transient ischaemic attack (TIA), 10% in the first week on average, and early intervention is necessary to

gain the maximum benefit. The ABCD (Age of patients, Blood pressure, Clinical features, Duration of TIA symptoms) score was developed to stratify absolute risk of stroke after TIA, and is useful in identifying patients at the highest absolute risk of stroke, in whom the benefit of treatment will be greatest.[21]

The European model of a daily, accident and emergency department-based TIA service reduces delays to assessment and treatment, but implementation would be a challenge in the UK healthcare system. The EXPRESS (Early use of eXisting PReventative Strategies for Stroke) study found that early intervention significantly reduced subsequent stroke risk.[22] The introduction of the '24/7 TIA hotline' in the Western General Hospital, Edinburgh, in 2007, where telephone consultations occur with an 'on call' stroke specialist, has reduced the average delay to assessment from 11.3 days to 3.3 days. In Scotland, Quality Improvement Scotland standards recommend that 80% of TIAs should be seen within seven days of receipt of referral.

Transient ischaemic attack clinics therefore need to be redesigned and remodelled to maximise their benefits and meet these targets. The introduction of communication technologies, including telephone hotlines, video conferencing, web-based clinic templates and electronic patient records, can make a major contribution in minimising delays, optimising diagnostic accuracy, improving communication with primary care and providing patients with necessary information.

Professor Keith Muir (SINAPSE Professor of Clinical Imaging, University of Glasgow) emphasised that the concept of stroke as an evolving process of ischaemic damage occurring over hours and days is now widely recognised. Intervening early to restore the blood supply to cortical tissue stops this ischaemic process. Intravenous (IV) thrombolysis for ischaemic stroke is an effective treatment that is supported by clinical trials and recommended by national and international guidelines. Thrombolysis with the tissue plasminogen activator alteplase increases the proportion of disability-free survivors after stroke, with a number needed to treat of eight or less when administered within three hours of symptom onset.[23] Recent trial data confirm that IV alteplase is safe and effective up to 4.5 hours after the onset of symptoms, but the benefit is time dependent and declines significantly over the course of these early hours.[24]

Cerebral haemorrhage is a risk of thrombolysis. Clinical trials have used different classifications of cerebral haemorrhage following thrombolysis. When tightening the definition of haemorrhage into those that are clinically significant, i.e. large confluent haematoma associated with poorer neurological outcome, there is an incidence of 2.4% or a risk of one in 50 patients treated.[24]

Implementing change requires increased training in recognition of early ischaemic change on computerised tomography scans, a practice that has evolved over the past 15 years. The ASIST study shows that the vast majority of patients do report to hospital within three hours of onset of symptoms, but it highlights the delays in appropriate assessment and imaging that frequently occur.[25] By illustrating the service development that has taken place in Glasgow, Professor Muir demonstrated that services can change substantially for the better, in response to more focus on hyper-acute stroke care. Rapid recognition, transfer, clinical assessment, imaging and treatment delivery are necessary to optimise clinical outcomes from IV thrombolytic therapy.

Professor Peter Langhorne (Professor of Stroke Care, Royal Infirmary, Glasgow) discussed stroke rehabilitation. The evidence for organised inpatient (stroke unit) care in improving outcomes in stroke is well established. Rehabilitation is a core characteristic of a stroke unit. Future planning in stroke care will advance the multidisciplinary rehabilitation model to the acute end of stroke care. A systematic review of many observational studies focusing on the implementation of the multidisciplinary stroke unit care model in routine practice has demonstrated that basic models of stroke care across a range of settings show consistent benefits with more patients surviving, returning home and regaining independence after stroke.[26]

Early supported discharges aim to accelerate discharge home from hospital and provide rehabilitation and support in the home setting. Trials have demonstrated a reduction in hospital stay and improved long-term outcome. Services need to be delivered from a well-resourced and co-ordinated clinical team, and are appropriate for people with mild or moderate stroke.[27]

A substantial number of trials have examined the effectiveness of home-based rehabilitation services provided by therapists, specialist nurses and multidisciplinary teams. Stroke therapy intervention studies show consistent effects in preventing deterioration and maintaining levels of activity, although the economic effectiveness of this remains unclear. Similarly, stroke liaison worker interventions seem to improve patient and carer satisfaction, but have not been shown to influence independence or quality of life.

Finally, it is predicted that by fully implementing and delivering evidence-based stroke services in Scotland, with 10,000 patients suffering a stroke annually, there would be an additional 800 independent survivors per year. Implementing the recommendations informed by robust clinical trials, and ensuring optimal service delivery for the majority of stroke patients, remains a challenge.

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SESSION 4 IN GOOD HEART – CARDIOLOGY AND THE ELDERLY

Internationally agreed evidence-based guidelines highlight the best care for patients with conditions such as acute coronary syndromes and unstable angina. There are limitations, however, in that the trials that have informed these guidelines have not included elderly patients. Age is one of the strongest predictors of adverse events, but the elderly are also likely to be at greater risk of the adverse effects of treatment.

Careful evaluation of risks and benefits of individual treatments should be undertaken when determining what is 'best' for an individual patient. The registry-based Grace Risk Score[28] gives prognostic information for mortality or myocardial infarction following acute coronary syndrome, from day zero to hospital discharge and six months. Based on age, heart rate, systolic blood pressure, creatinine, Killip class, ST segment depression, elevated biomarkers and cardiac arrest, the Grace Risk Score gives a probability percentage of adverse events at the above intervals, and may be used to help guide management.

Evidence has accumulated on the efficacy of dual antiplatelet treatment as well as heparin and direct and indirect thrombin inhibitors. Other drugs such as glycoprotein 2b/3a inhibitors also have a role in reducing cardiovascular adverse events. However, the use of multiple agents increases the risk of bleeding, which itself is associated with morbidity and mortality. The CRUSADE registry[29] gives a bleeding score and categorises the risk of in-hospital major bleed following non-ST elevation myocardial infarction (NSTEMI). Patients on two or more antithrombotic agents have a higher bleeding risk, and a higher risk of major bleed following invasive catheterisation compared with a conservative approach. Bleeding is a strong predictor of mortality, and avoidance of bleeding risk is as important as the desire to reduce thrombotic events.

Dr Mark de Belder (Consultant Cardiologist, James Cook University Hospital, Middlesbrough) outlined the OASIS 5 trial, comparing fondaparinux with enoxaparin.[30] In a complex protocol, this showed no difference in death, myocardial infarction and refractory ischaemia endpoints at day nine, and significant reduction in bleeding with fondaparinux. Fondaparinux showed some mortality benefit in the longer term. The ACUITY trial randomised bivalirudin, a direct antithrombin drug, against heparin and glycoprotein 2b/3a inhibitors, and reported net clinical outcomes in favour of bivalirudin with less associated bleeding.[31] Cardiovascular endpoints of death, myocardial infarction and unplanned revascularisation were, however, non-significantly in favour of heparin and glycoprotein 2b/3a inhibitors. Thirty-day non-coronary artery bypass graft (CABG) bleeding risk doubled in those over 75 years old in the heparin/glycoprotein 2b/3a inhibitor arm when compared with bivalirudin. The TRITON trial randomised patients with ST segment elevation myocardial infarction and NSTEMI to clopidogrel and prasugrel, and found improved efficacy endpoints of death, myocardial infarction, stroke and revascularisation with prasugrel.[32] Prasugrel did, however, have increased associated bleeding. Furthermore, net harm was seen in patients with previous stroke or TIA, and no net benefit was seen in patients over 75 years or with a body weight of less than 60 kg.

Overall, elderly patients should be offered proven treatments, but they need to be informed of the potential risks as well as benefits of treatment. Evaluating when risk outweighs benefits requires clinical judgement.

Dr Andrew Flapan (Consultant Cardiologist, Royal Infirmary of Edinburgh) debated the question of coronary intervention. The main purpose of coronary intervention is to improve symptoms and, where possible, improve outcome. Data from the Scottish Cardiac Registry, from 2003–04, have shown that 10.7% of percutaneous transluminal coronary angioplasty (PTCA) and 12.7% of all CABG procedures were in patients aged over 75 years. Approximately 5% of this patient cohort suffered a major adverse cardiac event following both interventions, percutaneous and surgical intervention, and data at 12 months show a 9.2% and 8.6% mortality following PTCA and CABG respectively. A significant determinant of outcome is whether intervention is delivered as scheduled or unscheduled care. Percutaneous transluminal coronary angioplasty outcomes from the New York registry, in patients aged over 80 years, report a 11.5% death rate and 13.1% major adverse cardiac event rate in unscheduled care, compared with a 1.1% death rate and a 1.6% major adverse event rate in scheduled intervention. This is at least a two-fold increase compared with the same data from patients aged 60–80 years.

There is evidence supporting coronary intervention in the elderly population to improve symptoms, but less evidence to support improvement in prognosis. The TIME study[33] found angioplasty to be a useful treatment for stable angina with a significant reduction in hospital admissions and improved quality of life over 12 months, with no mortality benefit. Given the elderly are more likely to suffer complications of coronary intervention, careful consideration should be given prior to undertaking these procedures, with the overall treatment aims established.

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