The future of cardiology – heart disease in older patients

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Abstract

Cardiovascular death is steadily decreasing but still accounts for 40% of deaths (235,000) in this country per year. More than 85% occur in older patients over the age of 65 years. The future of cardiology lies in the delivery of care to this rapidly expanding population of older people, whose growing numbers will account for an increasing trend upwards in the prevalence of cardiovascular morbidity in the UK. There will be increasing numbers of heart failure, hypertension, myocardial infarction, angina, atrial fibrillation, pacemaker implants and heart valve implantation in older patients. Randomised clinical trials often exclude the treatment of these conditions in patients over 75 years and results cannot always be easily extrapolated. Older patients often seem to be disadvantaged when compared with younger patients with cardiovascular disease. This article is the first in a series examining the treatment of older patients with cardiovascular disease.

Key words: older patient, coronary heart disease, heart failure, hypertension, myocardial infarction, angina, atrial fibrillation, heart valve implantation.

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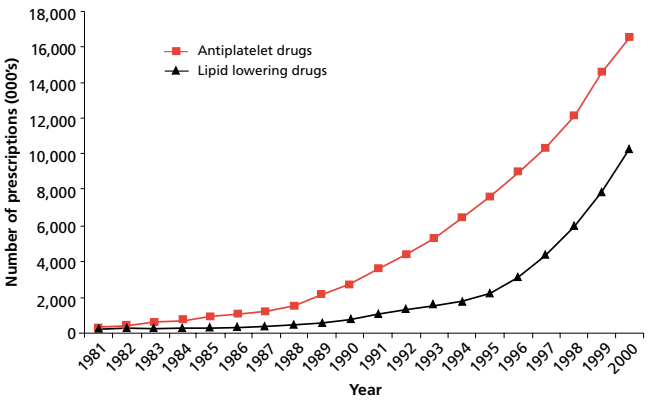
Figure 1. Prescriptions used in the prevention and treatment of diseases of the circulatory system, selected BNF paragraphs, 1981–2000, England



Adapted from: British Heart Foundation Statistics Database[3]

Introduction

2002 marked the publication of the tenth annual British Heart Foundation *Coronary Heart Disease Statistics*.[1] Each year there has been a trend of reducing cardiovascular death but increasing cardiovascular morbidity. From 1988-98 the overall death rate for coronary heart disease (CHD) fell by over 30%. This was mirrored in older patients. However, CHD still accounts for almost 40% of all deaths – about 235,000 per year. More than 85% of these deaths were in 'elderly' patients over the age of 65 years. The question is often asked, what is the future of cardiology? The lay press, particularly, seems keen on health promotion in young people (nothing wrong with that) or stories about unfortunate disease in young, fit people. While these stories are interesting, the future is much more 'custard' than 'caviar'. The future of cardiology is the delivery of cardiac care to the rapidly expanding population of older people.

The proportion of the population aged 65 years and older is projected to rise from 12% today to over 20% by mid-2002, with the biggest rises occurring among those > 75 to > 80 years.[2] Cardiovascular disease becomes more common with age and there will be increasing numbers of patients living with cardiovascular disease and in need of medical care. A simple indicator of the rate of rise in cardiovascular morbidity is the doubling of prescriptions for antiplatelet therapy from 1995–2000; prescriptions for lipid-lowering drugs quadrupled in the same period (see figure 1). In the Healthwise survey of 24,431 patients with coronary heart disease, two thirds were > 65 years.[4] Thus the stereotypic CHD patient, the middle-aged man with angina, is an increasingly rare individual. The future of cardiology is more risk stratification, investigation, percutaneous intervention and coronary artery bypass grafting (CABG) among the growing number of older patients.

The available data for cardiovascular morbidity is less robust than that for death. Morbidity data is extrapolated from health

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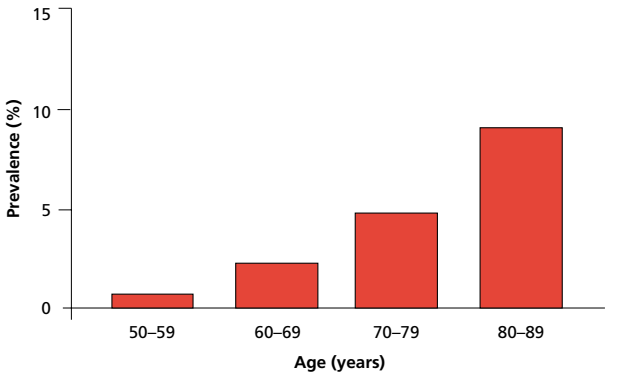
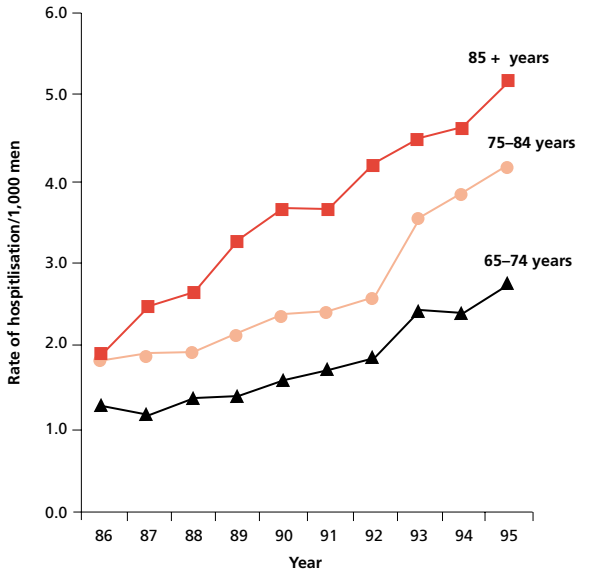
Figure 2. Prevalence of chronic heart failure in the Framingham Study



Adapted from: Petrie MC *et al.*[6]

Figure 3. The prevalence of atrial fibrillation (AF) in Scotland showing the population rate of first-ever hospitalisation for AF from 1986–95



Adapted from: Stewart S *et al.*[10]

questionnaires and cohort studies and is subject to errors. Nevertheless, the data available indicate that the morbidity of common cardiac conditions has increased in prevalence in keeping with our ageing population. The trend is likely to be an increasing one until mid-century.

Heart failure

The prevalence of heart failure in the UK population is approximately 1% (Key Health Statistics). The prevalence rises steeply with age and, in those aged 75–84 years, the prevalence is 10%; and in those aged over 85 years, it is almost 20%. In the USA, in the years 1986–93, the rate of hospitalisation for heart failure increased by 10%. The burden was heaviest among the very old, the fastest-growing age group in the USA.[5] Figure 2 shows the increasing prevalence of heart failure in the Framingham study population.

Hypertension

In the years 1981/82 to 1991/92 the prevalence of hypertension in those aged 65–74 years increased by 29% in men and 21% in women. *The Health Survey for England 2000* defined hypertension as a systolic blood pressure of greater than 140 mmHg or a diastolic pressure of > 90 mmHg. By this definition, in healthy male and female volunteers aged > 65 years, almost 80% were hypertensive and, of these, only 20% were controlled (Primatesta P, Poulter NR *et al.*, British Hypertension Society, Cambridge, September 2002). A similar study showed the lifetime risk of developing hypertension was 90% in the USA.[7]

Unrecognised and untreated hypertension in an ageing population will result in many avoidable strokes and heart attacks. While a non-fatal myocardial infarction is an inconvenience, a non-fatal stroke is a disaster for the patient and their family. This should be reason enough for all of us to treat hypertension in older persons. We can reduce an individual's risk of stroke by 50% if systolic blood pressure is lowered by about 15 mmHg – not very difficult to achieve.

Myocardial infarction

The prevalence of myocardial infarction is 8% of men and 3% of women aged 65–75 years.[8] Although the prevalence rates of myocardial infarction are in decline, in the 10 years to 1988, self-reported morbidity secondary to previous myocardial infarction increased by 35% in both men and women aged 75 years and over (*General Household Survey 1988*).

Angina

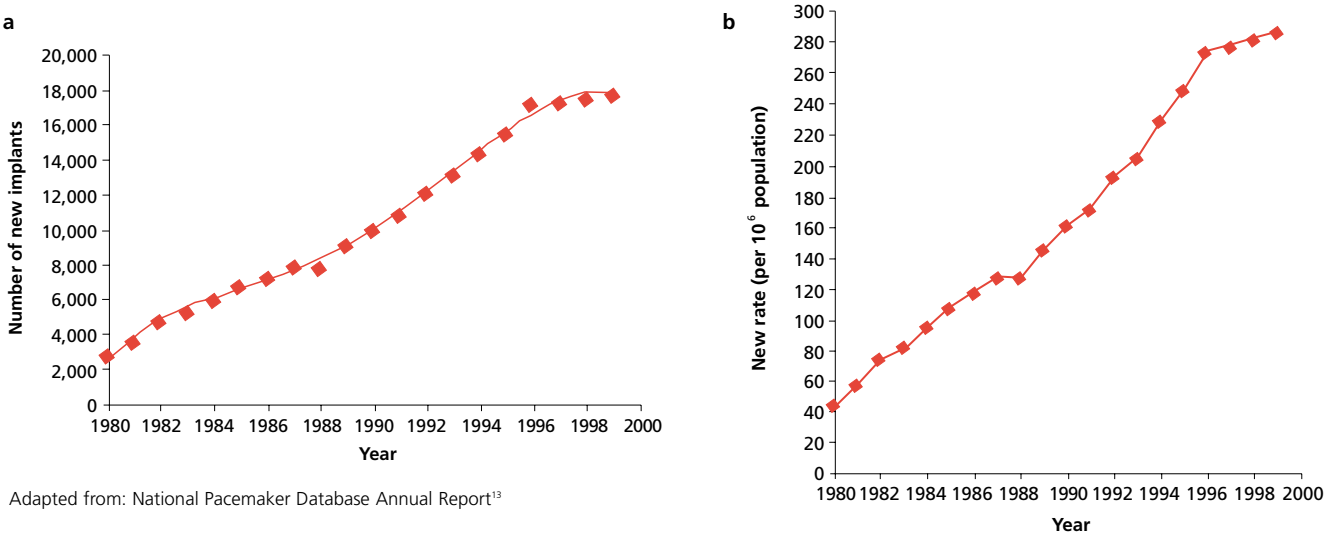
In the *Health Survey of England 1998*, the proportion of men who had ever experienced angina was 10.5% for those aged 55–64 years, and 15.6% for those aged 65–74 years. In those 75 years and over, the proportion was 18.3%.

Atrial fibrillation

The prevalence of atrial fibrillation (AF) in those under 60 years of age is less than 1%. This increases with age and, in those older than 69 years, the prevalence is more than 5%.[9] Furthermore, AF is on the increase. In Scotland the number of both men and women hospitalised for the first time with a principal diagnosis of AF more than doubled from 1986–95[10] (see figure 3).[10] For any patient in AF, the risk of stroke is increased by concomitant diabetes, hypertension, heart failure, coronary artery disease or valvular heart disease. All of these conditions are more common in older patients and age itself significantly increases the risk of stroke.[11]

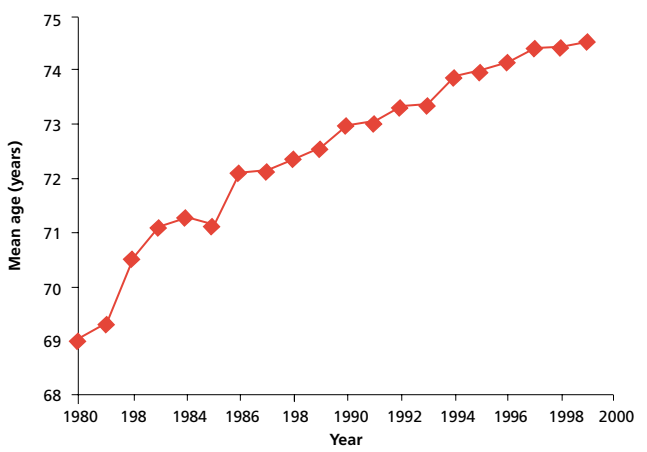
Both aspirin and warfarin have been shown to reduce the risk of stroke in certain patient groups with AF. Warfarin is approximately 50% more effective than aspirin, but because of bleed-

Figure 4. a) The number and **b**) the rate of new implants in the United Kingdom and Republic of Ireland



Adapted from: National Pacemaker Database Annual Report[13]

Figure 5. Mean age at first implant



Adapted from: National Pacemaker Database Annual Report[13]

ing risk, has been reserved for those at highest risk of stroke or for those in whom elective cardioversion is planned. Restoration of sinus rhythm by DC cardioversion, surprisingly, does not in itself reduce the risk of stroke in medium-term follow-up,[12] but many cardiologists believe that improved cardiac performance with sinus rhythm, perhaps with a reduced long-term stroke risk, is still important. In the UK, DC cardioversion is still widely practised. International agreement on co-existing anti-arrhythmic therapy has not yet been reached. It is likely that increasing numbers of older patients will remain in permanent AF with a strategy of rate control and anticoagulation.

Pacemaker implants

The National Pacemaker Database Annual Report 1998-99 gives details of the new implantation rate and mean age at first implant for the preceding 20 years (see figures 4 and 5).[13] In that time, the number of implants increased from 2,892 per year to 17,864 per year, a 600% increase. The mean age of first implant rose from 69 years to 74 years. Although the rate of UK implants lags behind that of our European counterparts, it is likely that there will be increasing demand in our ageing population.

Heart valve implantation

In 1986 around 5,000 artificial heart valves were implanted in the UK and, by 1994, the number implanted each year had risen to 6,000.[14] This 20% increase occurred principally in those over 70 years of age at the time of their first implant. In 1986 only 12% of patients were over 70 years of age at the time of their first implant but, by 1994, this had risen to 29%.

Discussion

Older patients will constitute a growing and substantial proportion of every cardiologist's workload. Advances in cardiology have largely been driven by large, randomised, controlled trials. Many of these studies specifically excluded those aged 75 years and over. How should we extrapolate the results of these studies when treating the elderly? The elderly are not always older 'normal' adults. They usually have co-morbidity and the relative risks and benefits of therapeutic options are often altered. Age and life expectancy can determine the choice of prosthetic heart valve. The risk of stroke as a complication of thrombolysis increases with age. Although older patients are at greater absolute risk of death, there has been debate about the benefits of thrombolytic therapy in the elderly and, in particular, in those over the age of 75

Key messages

- Cardiovascular death is steadily decreasing while cardiovascular morbidity is steadily increasing. This is mirrored in older patients
- Cardiovascular morbidity is likely to continue to increase until mid-century
- The future of cardiology is the delivery of cardiac care to the rapidly increasing population of older people
- Older patients should be included in future clinical studies

years.[15,16] It should be remembered that the three year survival of a 70-year-old post-myocardial infarction with preserved left ventricular function is better than that of a 60 year old with left ventricular failure.[17] In GUSTO-IIb, primary angioplasty was found to be of benefit in those over the age of 70 years.[18]

Despite these realities, older patients seem to be disadvantaged when compared with younger patients with cardiovascular disease. In elderly patients with acute myocardial infarction, time to arrive in hospital can be longer.[17] In those with acute coronary syndromes, investigation and treatment is less aggressive than in younger patients. This is despite these patients having more severe coronary disease.[19] It is a frequently ignored truism that we are likely to achieve the highest absolute risk reduction in those with the highest absolute risk, that is, the older population. The Heart Protection Study has shown that older patients achieve even greater risk reduction than middle aged patients when they receive statins.[20] Yet in the Healthwise study only 11% of patients with overt CHD aged > 70 years were prescribed statins, data from 1998.[4]

Conclusion

The absolute number of elderly and very elderly patients who suffer cardiovascular morbidity has been increasing and is likely to increase for the foreseeable future. These patient groups often have co-morbidity and have been systematically excluded from large, randomised, controlled trials. In the future, commercial and publicly funded bodies should be encouraged to include such patients in their studies. We will need this data for what will be an increasing proportion of our workload. In the meantime, should we extrapolate the data we have? In the forthcoming series, each aspect of cardiology including coronary care unit (CCU), intervention, arrhythmias, pacing and defibrillators, heart failure, hypertension, risk factors and palliative care will be studied in a critical examination of the available evidence. Read on next issue.

Editor's note

Please see page 27 for details of a new learning resource linked to this series of articles.

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