

Recent Advances in Geriatric Medicine

N.A. Ansari*, Nadeem Ahmad**

Introduction:

Ageing is a natural process. In the words of Seneca; “Old age is an incurable disease”, but more recently, Sir James Sterling Ross commented: “You do not heal old age. You protect it; you promote it; you extend it”^[1]. These are in fact the basic principles of preventive medicine. Old age should be regarded as a normal, inevitable biological phenomenon. The study of the physical and psychological changes which are incident to old age is called gerontology. The care of the aged is called clinical gerontology or geriatrics. Another aspect of gerontology is social gerontology which was born on the one hand out of the instincts of humanitarian and social attitudes and on the other out of the problems set by the increasing number of old people^[2]. Experimental gerontology is concerned with research into the basic biological problems of ageing, into its physiology, biochemistry, pathology and psychology.

The number of people older than 65 years is increasing, and the proportion of people older than 85 is increasing exponentially^[3,4]. In response to this challenge, clinicians need to assess and optimize health care for this group. In the year 2002, there were an estimated 605 million old persons in the world, of which 400 million are living in low income countries^[5]. Italy and Japan have the highest proportion of older persons (about 16.7 per cent and 16 percent respectively in the year 2003).

By 2025, the number of elderly people is expected to rise more than 1.2 billion with about 840 million of these in low-income countries^[5]. In India, although the percentage of aged persons to the total population is low in comparison to the developed countries, nevertheless, the absolute size of aged population is considerable. For the year 2003 the SRS (Simple Random Sampling) estimates are 7.2 per cent of total population were above the age of 60 years.

* Dept. of Pharmacology, RMC, Loni.

** Dept. of PSM, RMC, Loni.

Randomized controlled trials for disease prevention in elderly

1. Cardiovascular risk

Several studies have shown the benefits of angiotensin converting enzyme inhibitors in patients with left ventricular dysfunction, but the findings of the heart outcomes prevention evaluation study provide evidence for the use of ramipril in patients at high risk of cardiac events who do not have left ventricular dysfunction. Treatment with ramipril decreased the risk of death, myocardial infarction, and stroke compared with placebo^[6].

2. Cholesterol risk

A subgroup analysis of data on patients older than 65 from the cholesterol risk group and recurrent events trial has been published recently^[7]. The study was a randomised, double blind, placebo controlled trial in which patients with a recent history of myocardial infarction and average cholesterol concentrations were allocated to either pravastatin 40 mg /day or placebo and subsequently followed for the development of major coronary events. Among the 1283 patients aged between 65 and 75 years, those randomised to pravastatin had reduced risks of major coronary events and stroke at a median follow up of five years compared with patients who received placebo^[7]. A recent systematic review of randomised trials evaluating the use of statins to reduce cholesterol concentrations has shown that these drugs decrease the risk of stroke and death at a mean follow up of 3.3 years^[8].

3. Hypertension

Clinical practice guidelines for the management of hypertension prepared by various organisations suggest use of diuretics or β -blockers as first line treatment for patients with hypertension unless they have coexistent illnesses or other contraindications. However, as with lipid lowering drugs, diuretics are

underused despite evidence that they reduce the risk of stroke and cardiovascular mortality^[9]. A recent systematic review of randomised trials evaluating diuretics and β -blockers as first line drugs in patients aged 60 years or older found that diuretics reduced the risk of stroke, coronary heart disease, and all causes of mortality whereas β -blockers reduced only the risk of stroke^[10]. Thiazides were also found to be the most effective first line drugs for hypertension in a systematic review that looked at randomised trials of diuretics, β -blockers, calcium channel blockers, and angiotensin converting enzyme inhibitors^[11].

4. Heart failure

Congestive heart failure is a common cause of morbidity and mortality in elderly people. Two systematic reviews of 18 randomised trials that evaluated β -blockers in patients with congestive heart failure who were already receiving diuretics and angiotensin converting enzyme inhibitors showed a decrease in mortality and hospital admission^[12].

In a recently published randomised trial of extended release metoprolol versus placebo in patients with symptomatic chronic heart failure, metoprolol was found to decrease the risk of death. Spironolactone has also been shown to reduce mortality in patients with congestive heart failure^[13].

5. Stroke

A systematic review published in 1997 showed that specialised stroke units decrease the risk of death, dependency, and the need for long term institutional care compared with care on a general medical ward^[14]. Stroke units also improved survival and increased the proportion of patients able to live at home 10 years after their stroke^[15].

6. Dementia

A systematic review published in 1997 showed that specialised stroke units decrease the risk of death, dependency, and the need for long term institutional care compared with care on a general medical ward^[15]. Stroke units also improved survival and increased the proportion of patients able to live at home 10 years after their stroke^[16].

The association between apolipoprotein E and Alzheimer's disease is well established. Various drugs

have been evaluated for treating this disorder, but most of the evidence is on the use of cholinesterase inhibitors. Tacrine was the first of these drugs to be assessed, but many patients cannot tolerate it because of severe adverse effects^[16]. Several studies have looked at other cholinesterase inhibitors including donepezil, metrifonate, and rivastigmine. All these drugs produce similar, small improvements in cognition and behaviour. Further research is needed to look at longer follow up periods and at how patients should be selected for these treatments.

7. Osteoporosis

Osteoporosis is an important public health concern in older women. Several advances have been made in the prevention and treatment of this condition over the past few years. A randomised, double blind, placebo controlled study of 445 people older than 65 living in the community evaluated the effectiveness of calcium and vitamin D supplementation in reducing non-vertebral fractures. Participants were randomised to either elemental calcium 500 mg/day & vitamin D 700 IU/day or to placebo and were followed up for three years. The risk of non-vertebral fractures was decreased in people who received calcium and vitamin D compared with patients who received placebo.

The fracture intervention trial assessed 2027 postmenopausal women with osteoporosis who were randomised to alendronate or placebo^[17]. All women who had a daily calcium intake of less than 1000 mg/day were also given calcium and vitamin D supplementation. The study showed that alendronate decreased the risk of fracture (vertebral and hip) compared with placebo.

Conclusions

Although we have evidence about the effectiveness of some interventions in elderly people, and many advances have been made in the care of elderly people, still some gap in our knowledge remains. We need to encourage research in elderly people and encourage our elderly patients to participate in this research. In particular, we need to encourage the inclusion of frail elderly people (those with complex medical and

psychosocial problems) in studies assessing interventions, prognosis, and quality of life.

References:

1. Weir, J.H. et al. *Roy Soc Health Jr* 1967; 87: 144.
2. Verzar, F. et al. *Triangle, The Sandoz Jr. of Med. Sc.* 1968; 8: 293.
3. Bureau of the Census. *Current population reports. 65-plus in America*. Washington DC: US Government Printing Office; 1993.
4. *Partnerships in long-term healthcare*. Toronto: Ministry of Health; 1993.
5. *Health Action (2004), Eldercare*, Feb. 2004, Vol. 17, No. 2.
6. The Heart Outcomes Prevention Evaluation Study Investigators. Effect of ACE inhibitor, ramipril, on death from cardiovascular causes, myocardial infarction, and stroke in high-risk patients. *N Engl J Med*. 2000;342:145–153.
7. Lewis SJ, Moye LA, Sacks FM. The effect of pravastatin on cardiovascular events in older patients with myocardial infarction and cholesterol levels in average range. Results of the Cholesterol in Recurrent Events Trial. *Ann Intern Med*. 1998;129:681–689.
8. Hebert PR, Gaziano JM, Chan KS, Hennekens CH. Cholesterol lowering with statin drugs, and total mortality. An overview of randomised trials. *JAMA*. 1997; 278:313–321.
9. Psaty BM, Savage PJ, Tell GS, Polak JF, Hirsch CH, Gardin JM, et al. Temporal patterns of antihypertensive medication use among elderly patients. The cardiovascular health study. *JAMA*. 1993;270:1837–1841.
10. Messerli FH, Grossman E, Goldbourt U. Beta-blockers efficacious as first-line therapy for hypertension in the elderly. Review. *JAMA*. 1998; 279:1903–1907.
11. Gueyffier F, Bulpitt C, Boissel J-P, et al. for the INDANA Group. Antihypertensive drugs in very old people: Randomised controlled trials *Lancet* 1999. 353:793–796.
12. Lechat P, Packer M, Chalon S, Cucherat M, Arab T, Boissel JP, et al. Clinical effects of beta-adrenergic blockade in chronic heart failure. A meta-analysis of double-blind, placebo-controlled, randomised trials. *Circulation*. 1998; 98:1184–1191.
13. Avezuma A, Pogue J, Yusuf S et al. Beta-blockers reduce mortality in morbidity in congestive heart failure. *Can j Cardiol* 1998; 14:1045-53.
14. Stroke Unit Trialists' Collaboration. Review of the randomised trials of organised inpatient (stroke unit) care after stroke. *BMJ*. 1997;314:1151–1159.
15. Indredavik B, Slordahl SA, Bakke F, Rokseth R, Haheim LL. Stroke unit treatment. 10 year follow-up. *Stroke*. 1999;30:1524–1527.
16. Lopez Arrieta J, Rodriguez Rartalejo F. Methodology, results and quality of clinical trials of tacrine in the treatment of Alzheimer's disease: *Age Ageing*. 1998;27:161–179.
17. Cryer PC, Davidson L, Styles CP, Langley JD. Descriptive epidemiology of injury in the south east: identifying priorities for action. *Public Health*. 1996;110:331–338.

