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β Blockers, lipids, and coronary atherosclerosis: fact or fiction?

Together with other antihypertensive agents β blockers disturb the plasma lipoprotein profile.¹ Thus investigators have assumed that treatment with β blockers might increase the risk of developing coronary atherosclerosis²⁻⁴ as well as being a reason why the major antihypertension studies have not shown a reduction in deaths from coronary artery disease.⁵⁻⁹

At least 80 published reports have detailed the lipoprotein responses to β blockers but in only 33 were these given exclusively for four weeks or more.⁴ The data show that the most consistent change with β blockers without intrinsic sympathomimetic activity is an increase in the concentration of triglycerides and a reduction in that of total high density lipoproteins. Nevertheless, most studies have found no significant change in these lipid fractions. Cardioselectivity does not appear to affect these responses, although the effects of non-selective agents possessing intrinsic sympathomimetic activity are not as pronounced.^{10,11} Pindolol, a drug with intrinsic sympathomimetic activity, may even increase the total high density lipoprotein concentration in the short term,^{12,13} though this effect was not confirmed in a large study over one year.¹⁴

A low total high density lipoprotein concentration is associated with an increased risk of developing coronary artery disease,^{15,16} and some¹⁷ but not all^{18,19} reports have suggested that hypertriglyceridaemia may also be a risk indicator. There is no epidemiological evidence, however, that the rises of triglyceride or falls of high density lipoprotein concentrations seen in patients treated with β blockers substantially alter the risk. Any assumption that β blockers exacerbate coronary atherosclerosis must therefore be regarded as speculative.

Given to patients who have had a myocardial infarction

β blockers reduce total mortality, as well as the frequency of sudden death and non-fatal reinfarction. Thus there is a discrepancy between the action of β blockers in trials of treatment of hypertension against those of myocardial infarction. How strong is the thesis that lowering blood pressure with β blockers does not affect coronary mortality? Of nine major antihypertension trials,^{5-9,20-23} in a total of 49 000 patients, pooling the results shows only 44 fewer deaths in the treated group.²⁴ Nevertheless, these trials are all based on short periods of treatment and the longest of them had a statistical power of only 50% to detect a 15% reduction in mortality from coronary heart disease.⁸ Longer treatment might produce a true effect as possibly the atherosclerotic process takes a long time to evolve and thus modify. Any benefit may, moreover, be masked by cigarette smoking as both the International Prospective Primary Prevention Study and the Medical Research Council trials show a reduction in the incidence of myocardial infarction in male non-smokers taking β blockers.^{8,9}

Possibly also overzealous reduction of the blood pressure may not be associated with better survival. Lowering diastolic blood pressure below 85-90 mm Hg may be associated with a greater risk of myocardial infarction than if the blood pressure was maintained over 90 mm Hg,^{25,26} especially in patients with known coronary heart disease.²⁷ Possibly myocardial perfusion becomes critical at a diastolic blood pressure of about 85 mm Hg, or lower in some patients with coronary heart disease.^{28,29} Finally, one study that aimed at optimal blood pressure control in high risk hypertensive patients reported a reduction in the mortality from stroke and myocardial infarction despite a rise in the plasma triglyceride concentrations.³⁰

Despite the lipoprotein changes with β blockers, atheroma may be inhibited or even regress. An early study suggesting this noted that rabbits receiving high cholesterol diets had less severe aortic atherosclerosis when given propranolol,³¹ results confirmed by Chobanian, who showed that this effect was independent of the changes in blood pressure or lipid concentrations.³²

Should we regard the disturbances of lipoprotein metabolism important given the beneficial effects of β blockers? The answer must be yes, though such changes may not have been correctly interpreted. Until we have clear epidemiological evidence of an increased risk of coronary atherosclerosis with these drugs, however, it would be unreasonable to abandon them in favour of other antihypertensive drugs. After all, together with diuretics, β blockers are the only antihypertensive drugs which have been shown to reduce mortality and morbidity in patients with hypertension. They have also been used successfully for the long term treatment of patients with ischaemic heart disease and cardiomyopathy for several years.

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Private nursing home care: the middle way

The place of private nursing homes in the care of elderly patients is rousing both emotion and political prejudice. A recent television documentary alleged neglect and even criminal abuse in some nursing homes in Kent.¹ Conversely, a report commissioned for the Registered Nursing Home Association claims that government parsimony and regional variations in interpreting guidelines for nursing homes have caused financial hardship, bankruptcy, and two deaths among the proprietors of residential homes.²

The issue was made all the more contentious in 1983, when funds were made available to provide patients on low incomes with a supplementary benefit to pay for care in either residential or nursing homes.³ Since then private nursing home places in Britain have expanded rapidly, with figures ranging from 34.2 for every 100 000 of the total population in Scotland to 220.2 for every 100 000 in the south east Thames region.⁴ In England 53 000 old people are in National Health Service geriatric beds but another 28 000 are in private nursing homes.⁵ Proponents of the expansion in private institutional care emphasise that it takes pressure off a hard pressed health service.⁶ A flourishing private sector also

provides patients and relatives with more choice. Critics of the system, however, are concerned about the difficulty of ensuring standards of care.⁵

Current arrangements for monitoring by health authorities are concerned primarily with accommodation or staffing rather than the quality of life. There are no arrangements for the medical assessment of patients before admission, so that people who might survive in the community with rehabilitation and help may be wrongly consigned to long term care.⁷ Physically disabled but alert people are likely to be placed with those suffering from severe dementia. Furthermore, the money spent providing supplementary benefit for patients in the private sector might be better spent in expanding the resources for old people within health and local authority services.⁸ Conversely, another possibility is that homes can provide less expensive care only by cutting staff levels, equipment, and catering to a minimum acceptable standard.

One response to these difficulties would be to stop providing supplementary benefit for elderly patients to stay in private institutions. But even if there was the political will to do this it would be difficult to dismantle the system without causing great hardship to current patients and proprietors.

If this is not done steps must be taken to assess better the quality of care in nursing homes. The most effective way of doing this might be to look at failures such as the prevalence of patients with pressure areas or under physical restraint.⁵ Uniformity of standards for assessing buildings, equipment, and staff would also be useful and these should be equivalent to those in health service units. One approach would be to use a national inspectorate to evaluate local assessment teams.⁵ Training staff in both administration and in nursing care of the elderly would also be important.² There is also concern about the gap between the cost of implementing the recommendations of health authority reviewers and the social security allowances available to patients.² This will have to be closed if high standards are to be maintained.

Medical evaluation of patients before admission to nursing homes would be essential, and a questionnaire might be used to score dependency.² This is, however, a blunt instrument that might wrongly categorise people and which would be unlikely to identify patients in need of further assessment or rehabilitation. A better system would be to use geriatricians to make a more detailed evaluation.⁹ This has already been used successfully in evaluating clients for admission to local authority residential homes.¹⁰

Whatever the future of private nursing homes, there must be good communication and coordination with health authorities. Reports from abroad graphically illustrate the dangers of uncoordinated expansion of the private sector^{11 12}—not only do many elderly patients experience a low standard of care but also it increases costs.

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