

All bodies representing the interests of doctors within the European Community and throughout the whole of the continent must become more effective at ensuring, and further developing, higher educational standards and ensuring improved levels of care. Within the UK, our tradition of high quality medical education, the growing awareness of our involvement in Europe and the increasing importance being placed on primary health care should enable us to play a role in the development of European health care.

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## Preventive medicine in primary care: management of hyperlipidaemia

**S**UCCESS in the prevention of coronary heart disease may reasonably be considered, like infant mortality rate, to be a criterion of the quality of a country's health care. The United Kingdom should have been pre-eminent in controlling coronary heart disease: its epidemiologists and medical scientists have been at the forefront of research on this subject; and the National Health Service, with public funding of care and free access for the population to general practitioners, is an optimal setting for preventive care. Yet mortality rates from coronary heart disease in the UK (except in southern England) are the world's highest, and the decline in these rates in the UK in the over 60 year olds, among whom most coronary deaths occur, is far slower than the decrease in the majority of other countries with high rates, for example the United States of America, Australia and Finland.<sup>1</sup>

While public health measures are central to controlling the disease, there is an imperative parallel need for the detection and treatment of individuals at high risk of coronary heart disease.<sup>2</sup> The Royal College of General Practitioners' guidelines on the management of raised blood lipids, to be published as *Occasional paper 55*,<sup>3</sup> are to be welcomed as a landmark, like the RCGP's previous recommendations on this topic.<sup>4</sup> Their true recognition will be their widespread adoption by general practitioners throughout the UK. There have been several published sets of recommendations, following the original European and USA recommendations, and the striking feature has been their consistency, commonality far outweighing differences. The present guidelines, dealing specifically with lipid risk factors, are to be commended both for their simplicity and completeness. They are a valuable contribution to the control of coronary heart disease in the UK.

There is great scope for an increased role for general practitioners in the prevention of coronary heart disease, as was recognized in the recent white paper. The new contract for general practitioners will encourage preventive practice, which need be neither time-consuming nor expensive, though the main motivation will continue to be the satisfaction of practising good medicine. The practical basis for general practitioner involvement in the prevention of coronary heart disease is overwhelmingly strong. Not only does the vast majority of the population consult the general practitioner within a five year period, permitting opportunistic preventive care, but general practitioners are in a position to combine comprehensive care for the individual patient with concern for the family as a whole. The theoretical bases for risk factor reduction are now compelling, and they

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merit brief summary.

The case against cigarette smoking is an interesting paradigm by which other risk factor interventions may be judged.<sup>5</sup> It is based almost entirely on epidemiological studies: the consistent demonstration that smoking is a strong, dose-related, independent predictor of the incidence of coronary heart disease.<sup>5</sup> The case is not based upon clinical trials, though non-randomized observations on persons who have chosen to stop smoking indicate lower coronary heart disease rates and lower rates of recurrent coronary heart disease, than among comparable persons who continue to smoke. Nor is the case for action against smoking supported by evidence of high success rates in achieving long term smoking cessation. Smoking is addictive and pleasurable, and we must at present be content with moderate cessation rates. Though there are interesting hypotheses to explain the association between smoking and coronary heart disease — free radical effects, altered platelet function, lowering of high density lipoprotein cholesterol — we lack clear understanding of the basis of the association. Hence the case for smoking cessation in the prevention of cardiovascular disease, by counselling and ancillary methods, is based — and soundly so — on the convincing observational epidemiology.

The issue of hypertension management is more complex. The epidemiological association between blood pressure and several cardiovascular end points shares the same features suggesting causality as the smoking association, such as strength, consistency, independence, predictive ability and gradation of effect; and it spans the range of 'normal' blood pressure as well as hypertensive levels. Clinical trials of blood pressure lowering offer convincing evidence of reduction in strokes and cardiac failure, but evidence of reduction in coronary heart disease is inconsistent in individual trials and quite modest in a meta-analysis of these trials.<sup>6</sup> Two recent trials of hypertension treatment in the elderly have achieved reductions in coronary events as well as strokes.<sup>7,8</sup> The interdependence of coronary risk factors is evident from the Gothenburg hypertension trial: a substantial fall in coronary heart disease was confined to those participants in whom both blood pressure and serum cholesterol level decreased.<sup>9</sup>

The association between hypertension and lipid risk factors is of increasing interest. Not only are these variables synergistic in their effects on risk, but as the Gothenburg study shows, combined management is likely to yield greater benefit than selective attention to one or other risk factor. Furthermore, lipid

risk factors and hypertension coexist in the same individual more often than happens by chance.<sup>10</sup> This clustering is only partly explained by the associations between a patient being overweight and both elevated blood pressure and adverse lipid levels. It is also independent of (though clearly it can be aggravated by) the untoward effects of many diuretics and some beta blockers on lipid and high density lipoprotein cholesterol levels. Other nutritional influences may have a common adverse effect on blood pressure and plasma lipid levels. There is also an impressive body of evidence for genetic factors influencing both blood pressure and lipid levels. The entity of 'familial dyslipidaemic hypertension', manifesting with elevated blood pressure and one or more lipid abnormality (low high density lipoprotein cholesterol, elevated triglyceride, or elevated cholesterol levels) may be remarkably common.<sup>11</sup> The clinical implication is that comprehensive management of risk factors, rather than attention to a single presenting risk factor, is the cornerstone of coronary prevention. Being overweight is an independent risk factor for coronary heart disease but much of the cardiovascular risk conferred by obesity results from the association between being overweight and several other risk factors, including high blood pressure, elevated triglyceride and cholesterol levels, low high density lipoprotein cholesterol level and impaired glucose tolerance. Hence the value of correction or reduction of weight in reducing coronary risk cannot be overemphasized.

The evidence for correction of hypercholesterolaemia in lowering the risk of coronary heart disease is unique in its extent, and in the concordance of data from epidemiology, and from several other disciplines.<sup>12</sup> The case for treating moderate hypertriglyceridaemia is growing stronger but is as yet incomplete, and there is no compelling evidence to date that risk is decreased by raising low levels of high density lipoprotein cholesterol. Unlike the smoking habit, hyperlipidaemia is comparatively easy to treat. That hypercholesterolaemia is indeed the central causal risk factor for coronary heart disease is supported by sufficient evidence to satisfy the most austere scientific or even legal criteria. There have been two types of clinical trial of lipid lowering. Of the 23 that used clinical end points, most were individually affirmative; 20 or more have been subjected to several meta-analyses that have established a high level of significance of benefit and have shown clearly that the extent of benefit is related to the degree of cholesterol lowering.<sup>13-15</sup> Thirteen trials have shown cholesterol lowering to have a favourable effect on angiographically-measured coronary or peripheral atherosclerosis, yielding retarded progression, stabilization or regression of varying degree.<sup>16,17</sup> One such trial in the UK has shown that an effective lipid lowering diet leads to reduced progression and increased regression of coronary heart disease, associated with reduction of cardiovascular events.<sup>18</sup> Thus the causal relation between elevated cholesterol levels and coronary heart disease must be regarded as at least partially reversible. Meta-analysis of eight secondary prevention trials confirms that recurrent coronary heart disease end points are substantially reduced by lowering cholesterol levels.<sup>19</sup> Since approximately 50% of coronary heart disease deaths occur in patients with overt pre-existing coronary heart disease, the treatment of elevated lipid levels and other risk factors in such patients is a potentially valuable and cost effective approach to reducing coronary heart disease in general.<sup>19</sup>

In some reports, cholesterol lowering or innately low cholesterol levels have been associated with increased non-cardiovascular death rates. Such associations are far from consistent however, and after 20 years of research there is no persuasive evidence that reducing plasma cholesterol to 4.9-5.0 mmol l<sup>-1</sup> causes any untoward effect.<sup>20</sup> No conclusions can be drawn from a recently published Finnish trial in which coronary

and total mortality increased.<sup>21</sup> In this trial serum cholesterol was barely lowered (by less than 6% for five years and not at all for the remaining 10 years). Hence the study sheds no light on the results of effective present-day lipid lowering diets or drugs. Its authors speculate that the outcome reflected untoward effects of drug combinations. Trials large enough to assess effects of lipid lowering on non-cardiovascular deaths have yet to be reported; for the present it is reassuring that those trials in which cholesterol reduction was greatest have shown a decrease in total mortality.<sup>14,17</sup> Decreased total and non-cardiovascular mortality have also been a feature of three reports of long-term post trial follow up.<sup>20</sup>

The determinants of coronary risk are numerous,<sup>12,22</sup> including also diabetes, lipoprotein(a), hyperinsulinism, fibrinogen, sedentary behaviour, specific stresses and raised white cell count. But the 'classical' risk factors — smoking, high blood pressure, elevated cholesterol level, and low high density lipoprotein cholesterol level — are more comprehensively documented and provide a strong basis for risk assessment and for preventive clinical care. Family history of cardiovascular disease presenting before 60 years of age is important both in risk assessment and in identifying the hereditary risk factors mentioned. Since most risk factors interact synergistically, high coronary risk commonly results from the presence of two or more risk factors each of mild degree. A single severe risk factor such as serum cholesterol level above 8 mmol l<sup>-1</sup> also confers high risk and needs detection and effective therapy. The recognition and management of hyperlipidaemia and of other treatable risk factors, along the lines recommended by the RCGP, is likely to be a rewarding component of medical practice.

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## RCGP COURSES 1992 — PGEA APPROVED

**Managing General Practice in the 90s** (14/15 February) — A two day course for general practitioners and practice managers looking at the skills of policy, strategy and operational needs of practice management.\*

**Data Handling for Medical Audit** (18/19 February) — Two days training in the technical skills involved in collecting and digesting medical audit information suitable for both interested general practitioners, their practice staff, and those involved with medical audit advisory groups.\*

**Primary Care for People with Mental Handicap** (5 March) — A study day for members of practice teams and voluntary organizations to consider arrangements for the primary care of people with a mental handicap.

**Personnel Management Course** (18/19 March) — A two day course which aims to give general practitioners and practice managers an appreciation of the processes and skills required to improve organizational performance.\*

**Computer Appreciation Course** (20/21 March) — A two day course, aimed at making general practitioners and practice staff aware of the rapid developments currently taking place in micro-computing. Hands-on experience provided.\*

**Practice Annual Reports — Who Needs Them?** (31 March) — A one day seminar to examine the issues and potential use of practice annual reports from the point of view of various professional groups — primary care teams, family health services authorities, public health, research, managers etc.

**Teaching the Audit Teachers** (29/30 April/1 May) — A three day course in medical audit for those who teach audit, which examines standard setting, collection and analysis of data and presentation skills.\*

\* Further dates are available later in the year. All the above courses are PGEA approved.

Further details and application forms are available from: Conference Office, Corporate Development Unit, 14 Princes Gate, Hyde Park, London SW7 1PU. Telephone: 071-823 9703. Fax: 071-225 3047.



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