

Who should have their cholesterol concentration measured? What experts in the United Kingdom suggest

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Abstract

General practitioners are being encouraged to participate in preventive care, including preventing coronary heart disease. Now that they can measure cholesterol concentrations in their surgeries they need to decide which patients should be screened. Several reports on measuring cholesterol concentrations in the United Kingdom were reviewed to see if experts agreed about who ought to be screened. The results showed that currently no national consensus exists, making it difficult for general practitioners to plan policies for their patients.

Introduction

A raised cholesterol concentration is a major risk factor for coronary heart disease, and British general practitioners have recently been criticised for failing to do enough towards preventing the disease.¹ Screening programmes within general practice have identified people with high cholesterol concentrations,² and it is now possible to measure cholesterol concentrations in general practitioners' surgeries, although such measurements may sometimes be inaccurate.³

As an incentive the government proposes to pay practices that do preventive work, one aspect of which is preventing coronary heart disease. Who should have their cholesterol concentrations measured by general practitioners in the United Kingdom? In 1984 a consensus conference of experts from the United States agreed that cholesterol concentration in all American adults should be measured at least once.⁴ The present report examines whether any similar consensus exists among experts in the United Kingdom.

Methods

I reviewed a sample of recent publications to ascertain their main recommendations on who should have their cholesterol concentration measured. Publications selected for review were chosen on the basis that they were easily available, seemed to be authoritative, and were the kind that general practitioners might consult before deciding what to do for their patients with regard to measuring cholesterol concentrations. The following sources were used: editorials in the *Journal of the Royal College of General Practitioners*^{5,6};

papers published by the working group on cardiovascular disease of the Faculty of Community Medicine in the *Lancet*,⁷ and the British Hyperlipidaemia Association in the *BMJ*⁸; the relevant *Drugs and Therapeutics Bulletin*⁹ and a statement by the British Heart Foundation that was posted to general practitioners¹⁰; papers available easily on request from the Coronary Prevention Group¹¹ and the Royal College of General Practitioners¹²; and recommendations of the study group of the European Atherosclerosis Society¹³ (included because these were quoted commonly by other authors).

Results

Table I shows the considerable differences among the main recommendations of the various publications reviewed. Table II shows that when it was suggested that people at high risk of heart disease have their cholesterol concentration measured experts disagreed as to what factors constitute a high enough risk to warrant measurement.

Discussion

The publications that I chose to review are only a proportion of recent reports on measuring cholesterol concentrations. They varied considerably in length and complexity. The reasons for writing each of them were probably different, and the summaries cannot be assumed to represent the comprehensive views of the authors. Nevertheless, the results show that there is no consensus among British experts over who should have their cholesterol concentration measured. Measuring cholesterol concentrations in all adults, for example, is thought to be desirable by several authors but not by the working group of the Faculty of Community Medicine. Big differences in workload and expenditure would result if some of the different recommendations outlined were followed. For example, if a general practitioner adopts a policy of measuring cholesterol concentrations of patients at high risk the number of patients who require screening will vary greatly depending on whether people with common risk factors such as smoking, hypertension, and obesity are included.

Without consistent expert advice general practitioners may find it difficult to decide on the best course

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TABLE I—Main recommendations of publications available easily to general practitioners on who should have their cholesterol concentration measured

Source	Main recommendations
Working group on cardiovascular disease of the Faculty of Community Medicine, 1989 ⁷ Study group of the European Atherosclerosis Society, 1987 ¹³	Screening of the population not recommended General screening to be carried out only if provisions have been made for treatment and follow up by medical practitioners; screening of specified high risk groups*; screening of patients opportune during routine medical contact (examples given)
British Heart Foundation, 1987 ¹⁰ Coronary Prevention Group, 1987 ¹¹	Screening of people with a family history of coronary heart disease Screening of specified high risk groups*
<i>Journal of the Royal College of General Practitioners</i> (editorial), 1986 ⁵ <i>Journal of the Royal College of General Practitioners</i> (editorial), 1988 ⁶	Screening of specified high risk groups*
Royal College of General Practitioners, 1988 ¹² <i>Drugs and Therapeutics Bulletin</i> , 1987 ⁹	Screening of specified high risk groups* if screening all adults not practical Ideally screening of all adults aged 20-70 or, if this is not possible, of specified high risk groups*
British Hyperlipidaemia Association, 1987 ⁸	Ideally screening of all adults or, if this is not possible, of specified high risk groups* Screening of all adults, preferably before age 30

*See table II.

TABLE II—High risk groups for which screening of cholesterol concentration is recommended by publications available easily to general practitioners

Source	High risk groups								
	People with family history of coronary heart disease	People with family history of hyperlipidaemia	People with personal history of coronary heart disease	People with physical signs of hyperlipidaemia—for example, arcus xanthoma, xanthelasma	People with hypertension	Diabetics	Obese people	People with a history of gout	Smokers
Study group of the European Atherosclerosis Society, 1987	Yes, especially if history is in relative <50	Yes		Yes (specified)	Yes	Yes	Yes	Yes	Yes
Coronary Prevention Group, 1987 <i>Journal of the Royal College of General Practitioners</i> (editorial), 1986	Yes, (age unspecified)	Yes	Yes	Yes (specified)	Yes	Yes			
<i>Journal of the Royal College of General Practitioners</i> (editorial) 1988	Yes if patient is <60		Yes		Yes	Yes			Possibly
Royal College of General Practitioners, 1988	Yes (age unspecified) Yes if history is in relative <60	Yes	Yes	Yes (specified) Yes (specified)	Yes	Yes	Yes (gross)		
<i>Drugs and Therapeutics Bulletin</i> , 1987	Yes, especially if history is in relative <50	Yes		Yes (specified)	Yes	Yes	Yes		

of action for their patients. Apart from financial considerations screening for raised cholesterol concentrations is not without problems. People with positive results may become anxious whereas those with negative results may be reassured falsely and fail to make important changes in lifestyle.¹⁴ In addition, a person's cholesterol concentration may vary from time to time,¹⁵ leading to misclassification. Tunstall-Pedoe *et al* showed recently that one dimensional algorithms with fixed cut off points between normal and abnormal cholesterol concentrations and universal management protocols are inappropriate in the United Kingdom as they fail to take into account sex differences and the fact that cholesterol concentration rises with age.¹⁶

Population and high risk strategies are said commonly to be complementary rather than alternative approaches to preventing coronary heart disease. Though this is true, different emphasis given to one or other strategy can be expected to lead to different consequences in terms of both use of resources and eventual impact on the disease. A British consensus is needed urgently to determine priorities and policies concerning measurement of cholesterol concentrations and treatment. In the mean time general practitioners may choose to measure cholesterol concentrations only in people with a high risk of coronary heart disease and concentrate their efforts on identifying and treating as

many people in this category as possible until an agreed national policy emerges.

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- 5 Hart JT. Reduction of blood cholesterol in the population: can it be done? *J R Coll Gen Pract* 1986;36:538-9.
- 6 Fowler G. Coronary heart disease prevention: a general practice challenge. *J R Coll Gen Pract* 1988;38:391-2.
- 7 Smith WCS, Konec MB, Davies AM, Evans AE, Yarnell J. Blood cholesterol: Is population screening warranted in the UK? *Lancet* 1989;ii:372-3.
- 8 Shepherd J, Betteridge D, Durrington P, *et al*. Strategies for reducing coronary heart disease and desirable limits for blood lipid concentrations: guidelines of the British Hyperlipidaemia Association. *Br Med J* 1987;295:1245-6.
- 9 Anonymous. Management of hyperlipidaemia. *Drug Ther Bull* 1987;25:89-92.
- 10 British Heart Foundation. *Screening for ischaemic heart disease risk in general practice*. London: British Heart Foundation, 1987. (Factfile.)
- 11 Scientific and Medical Advisory Committee of the Coronary Prevention Group. *Risk assessment: its role in the prevention of coronary heart disease*. London: Coronary Prevention Group, 1987.
- 12 Waite C. *The prevention of coronary heart disease*. London: Royal College of General Practitioners, 1988.
- 13 Study Group of the European Atherosclerosis Society. Strategies for the prevention of coronary heart disease: a policy statement of the European atherosclerosis society. *Eur Heart J* 1987;8:77-88.
- 14 Kinlay S. High cholesterol levels: Is mass screening the best option? *Med J Aust* 1988;148:635-7.
- 15 Natelson B, Tapp W, Munsif A, *et al*. Fluctuating serum cholesterol: implications for coronary prevention. *Lancet* 1988;ii:404.
- 16 Tunstall-Pedoe H, Smith W, Tavendale R. How often that high graphs of serum cholesterol. Findings from the Scottish heart health and Scottish MONICA studies. *Lancet* 1989;i:5402.

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Size of flour particles and its relation to glycaemia, insulinaemia, and colonic disease

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The rise in plasma insulin concentration after a meal varies with the digestibility of the starch consumed.¹ If digestion is incomplete starch escapes into the colon and has an effect similar to that of dietary fibre. Several Western diseases are partly attributed to hyperinsulinaemia (hypertension, obesity, gall stones, atherosclerosis²) and to overefficient digestion of starch (diverticulosis coli and colonic neoplasia).³ One determinant of the digestibility of food, particularly cereals, is the size of the particles. As much of the starch in Western diets is provided by bread made from finely milled flour it might be beneficial to eat less digestible

bread made from coarse flour. Plasma insulin concentrations might rise less and more starch might escape from the small intestine after a meal containing bread made from coarse flour. To test this hypothesis we studied people with permanent ileostomies as well as non-insulin dependent diabetics.

Patients, methods, and results

We studied nine healthy, non-obese patients with ileostomies (aged 30-69; four men) who had had a curative total proctocolectomy for ulcerative colitis, and 11 non-insulin dependent diabetics (aged 44-68; six men). The diabetics were receiving oral hypoglycaemic drugs: mean body mass index and glycated haemoglobin concentration were 28.5 (range 21.6-36.9) kg/m² and 9.93 (7.6-11.9)% respectively.

Coarse and fine wholemeal flours were milled from the same batch of English wheat. None of the fine flour but 40% of the coarse flour was retained by a sieve with 1 mm holes; 20% of the fine flour but 80-85% of the coarse flour was retained by a sieve with 140 µm holes.¹

Test breakfasts (containing 52.4 g carbohydrate) consisted of sodabread scones made from 76 g fine or