Applying the Sheffield tables to data from general practice

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SUMMARY

Lowering cholesterol with drugs of the statin class reduces the risk of a coronary event. Recent guidelines recommend use of the 'Sheffield tables' to detect individuals who might be offered drug treatment in whom the annual absolute risk of a first coronary event is ×3%. Using these tables in a general practice cohort aged 35–68 years, we found that 3% of men and 0.05% of women were above the treatment threshold. Smokers aged over 50 accounted for 85% of people recommended for statin therapy. Almost all smokers would fall below the treatment threshold if they quit smoking.

Keywords: Sheffield tables; serum cholesterol level; statins; ischaemic heart disease.

Introduction

The Sheffield tables have been introduced to direct statin therapy as a primary prevention towards those who will receive greatest benefit. They can be used to determine which individuals have an annual risk of ×3% of ischaemic heart disease events that is the recommended threshold for drug treatment.[1] The United Kingdom Department of Health's Standing Medical Advisory Committee (SMAC) recently endorsed the 3% threshold, and The Chief Medical Officer sent a copy of the Sheffield tables and summary of the SMAC guidelines to all British doctors.[2] This led some purchasers and providers of health care to voice concerns about implementing such a policy that might add as much as 8% to drug budgets.[3] To address this issue more precisely, we used data from a study of cardiovascular screening and risk modification in general practice.

Method

In the Oxford and collaborators health check (OXCHECK) trial, patients initially aged 35 to 64 years were systematically invited for screening from a practice nurse over a four-year period. Patients with cholesterol ×6.5 mmol/l were given dietary advice and follow-up.[4] The data necessary for estimating absolute risk from the Sheffield tables were available from the trial except for electrocardiogram evidence of left ventricular hypertrophy. The latter is infrequent in middle age in the absence of hypertension or ischaemic heart disease.[5]

We calculated the numbers requiring follow-up on the basis of screening data. We then used the lipid values after dietary advice to determine the number for statin treatment from the tables. We assumed that those who did not attend for follow-up had no change in their initial risk factor levels. We then repeated the analysis assuming that they had changed to the same extent as those who re-attended. This conservative analysis is shown in Table 1. Patients were considered to have hypertension if they were taking hypotensive drugs, or if they had a screening systolic blood pressure ×160 mmHg and/or diastolic ×90 mmHg at 60 years of age or over, or ×100 mmHg below 60 years of age. Second blood pressure measurements at screening were available on about half the relevant participants, but using these had no significant impact on levels of risk.

Results

Complete data were available on 7963 participants. The 371 subjects reporting vascular disease were not considered for primary prevention. Three per cent of men and 0.05% of women were above the 3% threshold of risk at which drug treatment is recommended (Table 1).[1] Cigarette smoking contributed to risk in 66/76 (87%) of those above the threshold. To determine the contribution of smoking, we re-analysed risk levels assuming that smokers had quit; remarkably, the risk was then below the treatment threshold in all but one of the cigarette smokers. This reduced the percentage of men to 0.46 for whom a statin would be recommended, a relative reduction of 85%. Results from the analysis which assumed that non-attenders had no change in cholesterol levels differed little from those shown; they implied that a further 0.4% of men might be offered statin therapy.

Discussion

The prescribing cost of dispensed prescriptions in England for the year April 1996–1997 was £4460 million (help desk; Prescription Pricing Authority). If the estimate that implementation of SMAC guidelines would add 8% to the drug budget is correct, statins in primary prevention would cost about £357 million. If smokers who were assigned to statins at screening stopped smoking, the cost of implementation would fall by around £315 million. These data show that one effect of the availability of potent, expensive drugs for lowering cardiovascular risk has been to increase dramatically the cost savings associated with successful smoking cessation.

References

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Table 1. Percentage of population recommended for lipid-lowering drugs as primary prevention (i.e. at 3% annual risk) after dietary intervention and follow-up cholesterol, and if smokers quit.

	Number eligible for drug treatment (analysis includes all of the population)						Number eligible for drug treatment (analysis restricted to smokers)					Number eligible for drug treatment (analysis assumes all smokers quit)			
Age (years)	Total number	From screening data	With follow-up	Follow-up attenders for statins	Adjusted[a] percentage for statins	CI (95%)	From screening data	With follow-up	Follow-up attenders for statins	Adjusted[a] percentage for statins	CI (95%)	Former smokers still eligible after quitting	Total still for drug therapy		
													n	%[a]	CI (95%)
Male															
61–68	707	113	72	55	12.2	11.9–12.5	91	56	45	10.3	10.0–10.6	1	11	2.44	2.31–2.58
51–60	1187	35	28	18	1.9	1.75–2.04	32	27	18	1.8	1.65–1.94	0	-		-
41–50	1269	1	1	1	0.1	0.01–0.43	1	1	1	0.1	0.01–0.43	0	-	-	-
35–40	419	0	-	-	-	-	0	-	-	-	-	0	-	-	-
Total	3582	149	101	74	3.0	2.99–3.10	124	84	64	2.6	2.58–2.69	1	11	0.45	0.43–0.48
Female															
61–68	764	4	4	2	0.3	0.12–0.52	4	4	2	0.3	0.12–0.52	0	0	-	-
51–60	1421	3	3	0	-	-	3	3	0	-	-	0	1	0.07	0.01–0.40
41–50	1667	0	-	-	-	-	0	-	-	-	-	0	-	-	-
35–40	529	0	-	-	-	-	0	-	-	-	-	0	-	-	-
Total	4381	7	7	2	0.05	0.02–0.07	7	7	2	0.06	0.02-0.07	0	1	0.02	N/A

[a]Percentage to receive statins by row, estimated by the formula: (100 ´ number for statins/number in age group) ´ (number from screening/number attending follow-up).

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