

SCIENTIFIC LETTER

Clinicians' preferences for treatments to prevent coronary heart disease: a postal survey

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The decision to offer treatment to prevent coronary heart disease weighs up the benefits of treatment against the disadvantages of treatment. The benefits of treatment are the product of the relative risk of treatment and pre-treatment risk. Relative risk is approximately 0.7 for both aspirin and statins. As adverse effects are infrequent, the principal disadvantages of treatment are medicalisation and inconvenience.

Previous research on clinicians' preferences for preventive treatments had a number of weaknesses. Clinicians were asked to decide on their own behalf rather than for their patients. Outcome was expressed only as improvement in mortality, ignoring non-fatal outcomes. Stating only reductions in negative outcomes (loss framing) is likely to increase the uptake of a preventive intervention.¹ No visual aids were used to illustrate risk, although these improve knowledge and encourage realistic expectations of benefits and harms. There was no test of participants' comprehension of the information provided. This survey investigates the threshold reduction in coronary risk at which cardiologists, general practitioners, and practice nurses would offer treatment to their patients.

METHODS

A list of physicians with an interest in cardiology was obtained from the West Midlands region of the Royal College of Physicians. A list of practice nurses with an interest in cardiology and a list of general practitioners were obtained from a previous survey. A random sample of one fifth of the 2893 general practitioners, all of the 74 cardiologists, and all of the 154 practice nurses in the sampling frames were posted a questionnaire booklet in 2003. Those who failed to respond received a telephone reminder.

The questionnaire booklet asked participants to indicate whether they would offer drug treatment in six scenarios representing six different levels of pre-treatment five year coronary risk. In each scenario treatment reduced coronary risk by 30%. Participants were informed of the implications of

treatment, which were biannual clinic visits and annual blood tests, and also of the prognosis of a coronary event—three in 10 recover fully, five in 10 survive but are restricted in their usual activities (usually because of chest pain or shortness of breath), and two in 10 die.

For each scenario participants were told the pre-treatment risk, on-treatment risk, and risk reduction with treatment. Risk information was provided in two forms—in words and as decision aids (coloured bar charts). All risks were expressed as frequencies per 100 patients as these are better understood than percentages.² To mitigate framing effects, coronary risk was presented both as the number of persons per 100 who would have a coronary event in the next five years, and the number who would not have a coronary event in the next five years. The numbers were stated twice, indicating the numbers affected by each outcome with and without treatment. Participants were randomly allocated to each of two counterbalanced booklets, one presenting scenarios in descending order of coronary risk, the other in ascending order.

At the end of each booklet, two questions tested participants' comprehension of the numerical risk information. Participants were asked to choose between two otherwise identical treatments that reduced coronary risk by different amounts. Participants who chose the more effective treatment were judged to have understood the numerical information.

Data were entered into SPSS 11.0 and the relationship between thresholds and professional group was investigated by Mann-Whitney U test. Relations between treatment thresholds, the order in which risk scenarios were presented, and participant comprehension were investigated as secondary hypotheses.

RESULTS

Questionnaires were sent to 775 clinicians. Of these, 70 were confirmed as having retired, died or moved away, and four practice nurses indicated that the questionnaire was not applicable to them. The overall response rate was 42% (296 of

Table 1 Thresholds at which treatment is recommended by different groups of clinicians

Lowest 5 year coronary risk at which treatment is recommended*	Number (%) choosing this threshold					
	Grouped by profession			Grouped by comprehension		
	Cardiologists	General practitioners	Practice nurses	Did not understand	Understood	All groups
3%	3 (7%)	29 (15%)	10 (16%)	7 (29%)	35 (13%)	42 (14%)
6%	1 (2%)	9 (5%)	10 (16%)	6 (25%)	13 (5%)	20 (7%)
10%	14 (33%)	38 (20%)	8 (13%)	1 (4%)	57 (22%)	60 (20%)
15%	18 (42%)	60 (31%)	17 (28%)	6 (25%)	85 (32%)	95 (32%)
20%	5 (12%)	22 (11%)	7 (11%)	0 (0%)	33 (13%)	34 (11%)
30%	2 (5%)	25 (13%)	5 (8%)	3 (13%)	27 (10%)	32 (11%)
Not recommended at 30%	0 (0%)	9 (5%)	4 (7%)	1 (4%)	12 (5%)	13 (4%)
Total	43 (100%)	192 (100%)	61 (100%)	24 (100%)	262 (100%)	296 (100%)
	Kruskal-Wallis H test, $p=0.528$ (NS)			Mann-Whitney U test, $p=0.026$		

*Approximately equivalent to reductions in 5 year coronary risk of 1%, 2%, 3%, 4.5%, 7%, 9% and >9%, respectively.

701), 60% (43 of 72) cardiologists, 38% (192 of 505) general practitioners, and 49% (61 of 124) practice nurses.

Ninety two per cent of clinicians (262/286) answered both comprehension questions correctly. There were differences between professional groups: all cardiologists answered both correctly, 96% of general practitioners and 73% of practice nurses (χ^2 : $p < 0.0001$). There was considerable variation in the risk thresholds at which clinicians would offer treatment. Fourteen per cent (42/296) would offer treatment to patients at 3% five year coronary risk. Four per cent (13/296) of respondents would not offer treatment to patients at even a 30% five year coronary risk. The median treatment threshold was 15% five year coronary risk (equivalent to 4.5% absolute reduction in risk). For all three professional groups, both modal and median thresholds for treatment were 15% five year risk (equivalent to 4.5% absolute reduction in risk). Differences in median responses between professional groups were not significant by Kruskal-Wallis H test (table 1).

Exclusion of respondents who failed to answer both comprehension questions correctly did not affect the median responses. Modal and median treatment thresholds were the same in participants presented with scenarios in descending and ascending order of coronary risk.

The median risk threshold was 6% for respondents who answered both comprehension questions correctly and 15% for those who did not (Mann-Whitney U test, two tailed $p = 0.026$).

DISCUSSION

Despite low response rates from general practitioners, response rates are comparable to those achieved in a similar postal survey.³ Significant numbers of non-specialist clinicians, a quarter of nurses and one in 20 general practitioners, failed to understand the risk information and were more likely to recommend treatment. Our survey may underestimate failures of comprehension as participants who felt they understood the decision aids are more likely to have responded.

Our study concurs with previous studies which concluded that individual clinicians vary widely in the threshold at which they offer treatment.³⁻⁵ We found similar median coronary risk thresholds to those reported previously.³⁻⁴ Our finding of the same median coronary risk threshold across different professional groups differs from previous research and may reflect recent UK treatment guidelines. These guidelines recommend intervention at 30% 10 year coronary risk (equivalent to 15% five year coronary risk).

In conclusion, there is no consensus among clinicians on a treatment threshold at which to offer preventive treatment. Guidance provided to patients is therefore arbitrary. The extent and implications of poor understanding of risk among clinicians merits further investigation.

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