

Een nieuwe risico score voor cardiovasculaire pathologie (maar wat houdt ze in??)

QRISK, een nieuwe risico score voor cardiovasculaire problemen lijkt in het UK een betere parameter dan een voor Schotland ontworpen score en ook beter dan de Framingham tabellen. Tot mijn grote frustratie heb ik na meer dan een uur zoeken niet gevonden wat QRISK nu eigenlijk inhoudt..

Participants

The derivation cohort consisted of 1.28 million patients, aged 35-74 years, registered at 318 practices between 1 January 1995 and 1 April 2007 and who were free of diabetes and existing cardiovascular disease. The validation cohort consisted of 0.61 million patients from 160 practices.

Main outcome measures

First recorded diagnosis of cardiovascular disease (incident diagnosis between 1 January 1995 and 1 April 2007): myocardial infarction, coronary heart disease, stroke, and transient ischaemic attacks. Risk factors were age, sex, smoking status, systolic blood pressure, ratio of total serum cholesterol to high density lipoprotein, body mass index, family history of coronary heart disease in first degree relative aged less than 60, area measure of deprivation, and existing treatment with antihypertensive agent.

Results

A cardiovascular disease risk algorithm (QRISK) was developed in the derivation cohort. In the validation cohort the observed 10 year risk of a cardiovascular event was 6.60% (95% confidence interval 6.48% to 6.72%) in women and 9.28% (9.14% to 9.43%) in men. Overall the Framingham algorithm over-predicted cardiovascular disease risk at 10 years by 35%, ASSIGN by 36%, and QRISK by 0.4%. Measures of discrimination tended to be higher for QRISK than for the Framingham algorithm and it was better calibrated to the UK population than either the Framingham or ASSIGN models. Using QRISK 8.5% of patients aged 35-74 are at high risk (20% risk or higher over 10 years) compared with 13% when using the Framingham algorithm and 14% when using ASSIGN. Using QRISK 34% of women and 73% of men aged 64-75 would be at high risk compared with 24% and 86% according to the Framingham algorithm. UK estimates for 2005 based on QRISK give 3.2 million patients aged 35-74 at high risk, with the Framingham algorithm predicting 4.7 million and ASSIGN 5.1 million. Overall, 53 668 patients in the validation dataset (9% of the total) would be reclassified from high to low risk or vice versa using QRISK compared with the Framingham algorithm.

Conclusion

QRISK performed at least as well as the Framingham model for discrimination and was better calibrated to the UK population than either the Framingham model or ASSIGN. QRISK is likely to provide more appropriate risk estimates to help identify high risk patients on the basis of age, sex, and social deprivation. It is therefore likely to be a more equitable tool to inform management decisions and help ensure treatments are directed towards those most likely to benefit. It includes additional variables which improve risk estimates for patients with a positive family history or those on antihypertensive treatment. However, since the validation was performed in a similar population to the population from which the algorithm was derived, it potentially has a "home advantage." Further validation in other populations is therefore required.

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Gratis in zijn geheel te raadplegen: <http://www.bmj.com/cgi/content/full/335/7611/136>

Een mooie commentaar hierbij is van Luc Bonneux:

Risk scores based on the Framingham heart study reflect the higher risks of cardiovascular disease in the 1970s and 1980s and tend to overpredict current risks. They do not include family history, body mass index, use of antihypertensive drugs, or measures of social class. Omitting socioeconomic status as a predictor increases the health gap between rich and poor: the risks in poor people are underestimated and undertreated, and risks in rich people are overestimated and overtreated.

In this week's *BMJ* Hippisley-Cox and colleagues derive a new cardiovascular disease risk score (QRISK) for the United Kingdom and validate its performance against the Framingham cardiovascular disease algorithm and a newly developed Scottish score (ASSIGN) They found that QRISK provided more appropriate risk estimates to help identify high risk patients on the basis of age, sex, and social deprivation. The QRISK score indicates that in the United Kingdom about 3.2 million men and women aged 35-74 are likely to be at high risk, compared with 4.7 million predicted by Framingham and 5.1 million with ASSIGN.

In rationing the use of statins for primary prevention, cardiovascular disease risk scores were developed to produce the biggest effect at minimum cost. However, the distribution of risk of cardiovascular disease in healthy populations is determined largely by the age, sex, lifestyle, and socioeconomic class distribution in the population. Treatment decisions and resource allocation based on age, sex, and lifestyle have moral implications, depending on what is included in the model and what is left out. The point made by Hippisley-Cox and colleagues, that omission of socioeconomic class from risk prediction models increases health inequities between poor and rich, is correct. But absolute risk scores also label male sex, old age, and risky lifestyles as diseases to be treated, while denying life extending drugs to women, younger people, and those living healthily. To facilitate more equitable and transparent decisions, these moral implications of cardiovascular disease risk models have to be better understood.

Firstly, all cause mortality is reduced more by moderate consumption of alcohol than by taking statins. A bottle of red wine a week seems to be a health investment that increases quality adjusted life expectancy more. Under a wide range of assumptions, the cost utility of red wine in primary prevention is higher than of statins—so risk models ought to target selectively reimbursed prescriptions of bottles of inexpensive red wine. On the other hand, evidence of the benefits of statins is stronger than that of nutraceuticals such as phytosterols or omega 3 fatty acids, so why should doctors recommend nutraceuticals, for which the effectiveness of hard clinical outcomes has not been proved, and not statins, for which we have evidence?

Secondly, absolute risk scores reduce all highly individual risk taking behaviours to a single value. In most population screening programmes for cancer, the 10 year absolute risk of death is 0.5% and numbers needed to treat are higher than 1000 NICE (National Institute for Health and Clinical Excellence) guidelines advise that primary prevention should reduce the risk of cardiovascular disease by 20%, comparable to a 7% risk of death. The number needed to treat to avoid a cardiovascular event is 20; to prevent a death it is 50. An alternative strategy is mass treatment, championed by proponents of the "polypill." At all existing levels of cardiovascular disease risk over age 40, mass treatment with statins alone is always more effective than cancer screening.

Thirdly, absolute risk scores prioritise elderly people to the detriment of younger people. But ageing is part of the finite life course. These are healthy elderly people, not patients. Risk comprises the probability of an event happening and the adverse consequences of that event. The ethically and scientifically most unacceptable aspect of management by absolute risk is the ignoring of the relative importance of loss of life at different ages. No modern society with a low risk of mortality places equal value on a death at age 45 and one at age 75.

Fourthly, absolute risk scores select those with a risky lifestyle to the detriment of those with a healthy lifestyle. Healthy smokers who refuse to quit are eligible for statins, yet smokers who quit should be denied them as quitting will lower cardiovascular disease risk. The more you choose a healthy lifestyle, the less you are supposed to wish to extend healthy life. Non-smokers, paradoxically, reap more benefits from statins than smokers. Statins reduce the probability of an event more among smokers. But if you take into account the adverse consequences of that event, statins save more life years among non-smokers, because non-smokers live much longer.

What does this mean for clinicians faced with prioritising which patients to treat? For an individual patient, the information provided by risk models should be interpreted with caution. There is little medical or scientific justification that risk calculations with arbitrary thresholds should supersede informed choice. From a societal perspective, treating healthy people competes with other investments in health, such as reducing poverty or promoting a healthy environment. It also competes with investments in the treatment of disease, such as new cancer drugs or innovative technology, and with expensive long term care for increasing numbers of disabled elderly people. Absolute risk scores do not offer an easy escape from moral choices.

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