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New figures reveal changing patterns of stroke and heart disease-related deaths in Europe

New figures show there are still large variations between and within European countries in the numbers of stroke and heart disease-related deaths. Several countries, particularly in northern and eastern Europe, have rates of death that are as much as 7-14 times higher than other countries, while countries such as Poland, Spain, Portugal, Germany and the UK have large regional variations.

Published in Europe's leading cardiology journal, the *European Heart Journal* [1] today (Wednesday 6 February), the study looked at deaths from ischaemic heart disease (IHD) – a form of heart disease characterised by a reduced blood supply to the heart – and cerebrovascular disease (CVD) – defects in the blood vessels supplying the brain which can result in events such as stroke – for the year 2000.

The researchers found that mortality rates for IHD were lower in countries to the south and west, while for CVD, mortality was reduced in the centre of western Europe, with higher rates in the countries surrounding this circle, including some Mediterranean countries such as Greece, Portugal and regions in southern Spain and Italy.

The lead author of the study, Dr Jacqueline Müller-Nordhorn, said: "These latest figures show a changing pattern of cardiovascular mortality within Europe, which needs to be taken into account in the definition of countries as high- or low-risk when primary prevention strategies are being designed for heart disease. In addition, there needs to be further research into the underlying reasons for the observed differences in cardiovascular mortality in Europe, both between and within countries. Preventive strategies could then focus on specific risk factors."

Dr Müller-Nordhorn, a senior scientist at the Institute of Social Medicine, Epidemiology and Health Economics, Charité University Medical Center, Berlin, Germany, and her colleagues calculated age-standardised mortality rates for IHD and CVD from data provided by the statistical office of the European Communities (Eurostat) and the national statistics offices of all the countries. They concentrated on the 45-74 age group, as mortality in younger age groups is very low. They divided the rates per 100,000 of the population into five groups: the quintile (or group) with the lowest mortality was indicated by dark green on their published maps of Europe, the second lowest quintile by light green, the middle quintile by yellow, the second highest quintile by orange, and the highest quintile by red. [2]

She said: "In Latvia there was a more than seven-fold higher rate of IHD mortality among men than in France and there was a nearly 10-fold higher rate for women in Estonia than in France. For CVD, there was a 14.5-fold higher rate for men and a 12-fold higher rate for women in Estonia than in Switzerland.

"With regard to IHD, there is a clear north-east to south-west gradient in mortality. In particular, countries from central and eastern Europe have high mortality rates compared with other European countries. The lowest mortality rates are found in France, Portugal, Italy and Spain. There is a considerable within-country variation in IHD in Germany, the UK and Poland.

"With regard to CVD, there is a different pattern of regional variation compared with IHD. CVD mortality is reduced in the centre of western Europe with the lowest national mortality rates in Switzerland, France, Norway and Spain. There is a considerable within-country variation in Italy, Spain, Portugal and the UK."

Dr Müller-Nordhorn said that mortality from both IHD and CVD had decreased continually in most western European countries over the past decades, with public health interventions in countries such as Finland making a big difference to the mortality rates.

“In most central and eastern European countries, on the other hand, cardiovascular mortality increased during the 1970s and 1980s and only started to decline in the 1990s. Despite this recent decrease, mortality rates are still considerably higher in these countries compared to western European countries. Some countries, such as the Ukraine, reach almost top levels in a worldwide comparison. Although most central and eastern European countries appear to have reached their peak in cardiovascular mortality, the majority of them can clearly still be classified as high risk countries.”

She said a number of risk factors could account for the large variations between countries; these included classic risk factors such as hypertension or diabetes, income or employment status, psychosocial factors such as stress or the prevalence of depression, lifestyle variables such as physical activity, smoking and diet, environmental factors, or the quality of medical care available.

“For example, in Poland, changes in dietary fat intake during the 1990s, leading to a more favourable ratio of polyunsaturated to saturated fat, were associated with a drop in mortality from IHD by approximately one quarter. Other factors such as the consumption of fruit and vegetables, smoking, or alcohol consumption have been linked to the east-west gradient in mortality.”

Regional variations within countries seemed to depend on varying risk factors, depending on the location. “For example, regional differences in Israel, Bavaria and the Czech Republic were found to be associated particularly with differences in blood pressure levels. Within England, on the other hand, the regional variation was associated to a large extent with differences in smoking prevalence,” she said.

At present, guidelines for the treatment and prevention of cardiovascular disease divide Europe into high- and low-risk countries, and physicians treat their patients according to the block in which their country falls. However, Dr Müller-Nordhorn said that her research showed that many countries had changed from being high- to low-risk, and, in addition, the current classifications didn't take account of the considerable regional variations.

“Misclassification may have a huge impact at the population level with regard to the number of people over- or under-treated. Regular updates on the complex pattern of regional variation within Europe are needed to make efficient prevention possible,” she said.

“It seems that former high-risk western European countries now have similar mortality rates compared with those of the low-risk countries at the time of previous cohort studies conducted in the 1980s and 1990s. For example, Finland had an average of 587 IHD deaths among men per 100,000 in the years 1990-1992, but in 2000 it had dropped to 372 per 100,000, putting it on a par with countries that are currently classified as low-risk. This suggests that the current classification needs to be reconsidered for accurate risk assessment in primary prevention of cardiovascular disease. For example, it may be more appropriate and practical to generally classify western European countries as low-risk and central and eastern European countries as high-risk. Otherwise, there may be an overestimation of current cardiovascular risk in certain populations leading to unnecessary therapies and costs.”

(ends)

Notes:

[1] An update on regional variation in cardiovascular mortality within Europe. *European Heart Journal*, doi:10.1093/eurheartj/ehm604

[2] The paper includes these coloured maps showing age-adjusted mortality in European regions.

A PDF of the full report is available on request from Emma Mason or is available from 10.00 hrs London time on Monday 4 February, at:
http://www.oxfordjournals.org/our_journals/eurheartj/press_releases/freepdf/ehm604.pdf

The European Heart Journal is the flagship journal of the European Society of Cardiology (<http://www.escardio.org>). Please acknowledge the journal as a source in any articles.

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