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RESEARCH NEWS

Cancer overtakes CVD to become leading cause of death in high income countries

Elisabeth Mahase

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Cancer is now responsible for twice as many deaths as cardiovascular disease (CVD) in high income countries, according to two new papers published in the *Lancet*.

The studies said that while CVD remains the leading cause of mortality among middle aged adults globally, accounting for 40% of all deaths, this is no longer the case in high income countries.

The researchers estimated that of 55 million deaths that occurred in the world in 2017, approximately 17.7 million were from CVD.

The findings come from the PURE study, a large prospective international cohort study that involves substantial data from a large number of middle, low, and high income countries.

Countries analysed in the two reports include: Argentina, Bangladesh, Brazil, Canada, Chile, China, Colombia, India, Iran, Malaysia, Pakistan, Palestine, Philippines, Poland, Saudi Arabia, South Africa, Sweden, Tanzania, Turkey, United Arab Emirates, and Zimbabwe.

The first paper[1] evaluated the differences in the incidence of common diseases, related hospital admissions, and related mortality in a large contemporary cohort of adults from 21 high income, 12 middle income, and five low income countries, across five continents.

It followed 162 534 middle aged adults (aged 35-70, 58% women) across the countries over a median of 9.5 years (between 2005 and 2016).

It found that CVD was more prevalent in low income countries (7.1 cases per 1000 person years) and in middle income countries (6.8 cases per 1000 person years), than in high income countries (4.3 cases per 1000 person years).

CVD was the most common cause of deaths overall (40%) but accounted for just 23% of deaths in high income countries, compared with 41% in middle and 43% in low income countries. This was despite more CVD risk factors in high income countries and low income countries having the fewest risk factors.

In contrast, incident cancers, injuries, chronic obstructive pulmonary disease, and pneumonia were most common in high income and least common in low income countries.

The ratio of deaths from cardiovascular disease to those from cancer was 0.4 in high income, 1.3 in middle income, and 3.0 in low income countries, although four upper-middle income countries (Argentina, Chile, Turkey, and Poland) showed ratios similar to the high income countries.

The paper said, "As cardiovascular disease decreases in many countries, mortality from cancer will probably become the leading cause of death. The high mortality in poorer countries is not related to risk factors, but it might be related to poorer access to healthcare."

The second paper[2] looked at the contribution of 14 modifiable risk factors to CVD among 155 722 middle aged people without a prior history of CVD within the same countries analysed in the first paper.

The researchers found that modifiable risk factors such as metabolic; behavioural; socioeconomic and psychosocial factors; strength; and environment, accounted for 70% of all CVD cases globally.

As suggested in the first study, this research found that metabolic risk factors—such as high cholesterol, abdominal obesity, or diabetes—played a larger role in causing CVD in high income countries, compared with low income.

Salim Yusuf, professor of medicine at McMaster University, Canada, and principal investigator of the first paper, said: "While long term CVD prevention and management strategies have proved successful in reducing the burden in high income countries, a change in tack is required to alleviate the disproportionately high impact of CVD in low and middle income countries."

"Governments in these countries need to start by investing a greater portion of their gross domestic product in preventing and managing non-communicable diseases including CVD, rather than focussing largely on infectious diseases."

Both papers had limitations, including that PURE does not include data from west Africa, north Africa, or Australia, as well as only a modest number of participants from the Middle East. Data from low income countries was predominantly from south Asia with a few African countries.

The PURE study has a number of funders including Population Health Research Institute, the Canadian Institutes of Health Research, and several pharmaceutical companies (through grants to which they contributed), including AstraZeneca, Sanofi-Aventis, Boehringer Ingelheim, Servier Laboratories, and GlaxoSmithKline.

1 Dagenais GR, Leong DP, Rangarajan S, et al. Variations in common diseases, hospital admissions, and deaths in middle aged adults in 21 countries from five continents (PURE):

a prospective cohort study. Lancet, 2019. www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32007-0/fulltext.

2 Yusuf S, Joseph P, Rangarajan S, et al. Modifiable risk factors, cardiovascular disease, and mortality in 155722 individuals from 21 high income, middle income, and low income countries (PURE): a prospective cohort study. Lancet. 2019. www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32008-2/fulltext.