Cardiology's problem women

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Asked to describe a typical heart attack, most people (including most doctors), would describe a man with crushing chest pain, probably with a background history of hypertension. But this traditional teaching, it turns out, is only telling us half the story. Cardiovascular disease is also the leading cause of death in women globally and, in the USA, leads to a similar number of deaths in men and women. The failure to recognise the prevalence of heart disease in women and the different set of symptoms in women (feeling generally unwell or unexplained weakness) during a heart attack contribute to delays in women seeking help and the loss of vital time in a cardiovascular emergency. Even after seeking help, women get consistently worse care. US data, published in *Women's Health Issues* in December, last year, showed that women with heart attack symptoms were less likely to receive aspirin, be resuscitated, or be transported to the hospital in ambulances using lights and sirens than were men. These factors contribute to the disproportionately higher mortality in women with cardiovascular disease than men. A major shift in thinking is required to realise that the traditional medical textbooks and many public and professional assumptions about who gets and dies from heart disease and how it manifests are simply wrong. For both men and women, evidence-based approaches are needed to minimise the time from onset of symptoms to treatment.

The structural gender bias in cardiology stems from a historical failure to ensure gender balance in cardiology research. Many guidelines for the management of the 50% of heart disease that occurs in women are extrapolated from studies that predominantly enrolled men, such as the Harvard Physician's Health Study done in 22 000 men that formed the basis for aspirin in the prevention of heart attacks. In February, during this year's public awareness event American Heart Month, WomenHeart, a patient-centred organisation focused on women's heart disease, held a briefing on Capitol Hill. The briefing advocated for greater inclusion of women in cardiology research, reporting of sex differences in research, and raising awareness of the implications for treating women with heart disease when women are left out of studies. At the event, Marjorie Jenkins, Professor of Medicine from Texas Tech University Health Sciences Center, currently working at the Office of Women's Health at the US Food and Drug Administration (FDA), reported on research published in the *Journal of the American College of Cardiology*. The research assessed women's participation in cardiovascular disease trials approved by the FDA and revealed that while women are now well represented in clinical trials for hypertension and atrial fibrillation, they are dramatically under-represented in clinical trials for coronary heart disease and heart failure.

The journal *Circulation* has also this past month published its third annual Go Red for Women issue, focusing on women in cardiology, both as doctors and patients. It includes data from the US Atherosclerosis Risk in Communities surveillance study reporting a worrying increase in the number of young women (aged 35–54 years) hospitalised with acute myocardial infarction between 1995 and 2014. The number of young men hospitalised in this same period decreased. The research also showed young women were substantially less likely to receive guideline-based myocardial infarction therapies than young men, and that despite population level falls in the mortality from heart disease, there was no change in this younger age group, especially young women. A major factor in these poor statistics is likely to be the failure of current risk prediction models that are based on male risk factors, and the typical descriptions of a myocardial infarction occurring in the context of a ruptured atherosclerotic plaque. Current risk prediction does not include female risk factors, such as polycystic ovary syndrome, premature menopause, pre-eclampsia, or preterm birth. Nor does it describe the greater role of other pathologies in the development of acute myocardial ischemia in women, such as coronary artery dissection, arterial spasm, and stress-induced cardiopathy, creating a critical error in the current estimation of cardiovascular risk.

The historic failings of cardiology to take a balanced approach to research have led to fundamental flaws in the care for women with heart disease and has cost the lives of many women. This week's issue of *The Lancet* is published on International Women's Day, the theme for which is Balance for Better. In the issue, Roxana Mehran and colleagues announce the *Lancet* Commission on Women and Cardiovascular Disease, which sets out to take a fresh look at the issues and to deliver clear recommendations that can finally shift the entrenched inequity experienced by women with heart disease. ■ *The Lancet*

For more on the **US FDA research** see http://www.onlinejacc.org/content/71/18/1960.short

For more on **myocardial infarction in young women** see https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.118.037137