

Study: No link between menopause and increased risk of fatal heart

September 6 2011

Johns Hopkins researchers say data show aging alone, not hormonal impact of menopause, explains increasing number of deaths as women age

Contradicting the long-held medical belief that the risk of [cardiovascular death](#) for women spikes sharply after menopause, new research from Johns Hopkins suggests instead that [heart disease mortality](#) rates in women progress at a constant rate as they age.

The findings, published in *BMJ*, the [British medical journal](#), could have implications for how heart health is assessed in pre-menopausal women, who were previously believed to be at negligible risk of death from heart attack.

"Our data show there is no big shift toward higher fatal heart attack rates after menopause," says Dhananjay Vaidya, Ph.D., an assistant professor of medicine at the Johns Hopkins University School of Medicine and the study's leader. "What we believe is going on is that the cells of the heart and arteries are aging like every other tissue in the body, and that is why we see more and more heart attacks every year as women age. Aging itself is an adequate explanation and the arrival of menopause with its altered hormonal impact does not seem to play a role."

Menopause clearly plays a role in other diseases for women, the researchers found. For example, Vaidya says, the rate of [breast cancer mortality](#) decelerates at menopause, probably because of hormonal

changes.

To reach its conclusions, Vaidya's team analyzed [mortality statistics](#) for people born in England, Wales and the United States between 1916 and 1945. They followed similar groups of people as they aged and found that, at the time of menopause in each cohort, there were no increases in female [mortality rates](#) above and beyond the steady curve that is expected from aging, he says. Vaidya says his team also found that the number of women who die each year from [heart disease](#) increases exponentially at roughly 8 percent per year. The statistical death rate curve stays steady throughout life, he says, increasing risk annually in the same way compound interest increases a bank account balance over time. Absolute mortality — the actual number of deaths — increases at all ages with no abrupt change at menopause.

Also surprising, Vaidya says, is what he and his team learned about men. It has long been known that men are at risk of heart disease mortality from a much earlier age than women. Vaidya says he found that the mortality curve for men under the age of 45 actually increases by 30 percent a year, only to slow after that age to roughly 5 percent a year — similar to the rate throughout the lifetime in women.

The data suggest that something biological may be happening to younger men that is harming their hearts. "Instead of looking at menopause, what we should be looking at is what is happening biologically to men over time," Vaidya says. "We don't have an answer. Good research always creates more questions."

Rapid progress in the understanding the effects of aging on cells — most notably the concept of shrinking telomere length — could account for some of the gender differences, Vaidya suggests. Telomeres are found at the end of each chromosome in the body and act as shields that protect important genes from assault. Telomeres shrink every time they are

copied, which occurs every time cells divide. As telomeres get shorter, there is the chance that the genes at the end of the chromosome will get damaged, and if they are, they will not recover, leading to the damaging effects of aging.

Such may be the case in heart disease mortality. Previous studies have shown that telomere lengths are similar in male and female babies, but become significantly shorter in young adult men as compared to young adult women, which could account for the finding that men have increased risk of cardiovascular mortality at younger ages. At later ages, telomeres shorten at similar rates in men and women, which could account for their similar heart disease mortality rate increases during older ages.

The researchers also found good news: Each successive birth cohort had lower total and heart disease mortality over their lifetime, owing to better nutrition, lifestyle, preventive care, drugs and other heart disease treatments.

Meanwhile, Vaidya says, physicians need to assess cardiovascular health in women from an early age, institute healthy heart habits and preventive care. "Special attention should be paid to heart health in [women](#) due to their overall lifetime risk," he says, "not just after the time of menopause."

Provided by Johns Hopkins Medical Institutions

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