The recent reports of a reduction in breast cancer mortality rates certainly is encouraging news for both cancer researchers and patients alike (1). However, we must take cautious steps in interpreting these findings, especially when considering future directions for research into breast cancer prevention and treatment. It is important that we understand what factors explain the dramatic decline in mortality that has occurred after the increased mortality observed in the 1980s. Although it does appear that some of these data do show a survival benefit that can be attributed to treatment, we cannot ignore the importance of secular changes in risk factors.

Chu et al. (1) show age-specific breast cancer mortality rates by decade beginning with women 30–39 years of age. These mortality rates can be correlated to the corresponding changes in age at first birth shown in Fig. 1 reproduced from Gray et al. (2).

In the oldest age group (≥80 years), there is an increasing mortality for breast cancer that begins in 1983 (i.e., women born in 1898) and continues until 1993. This increase in mortality corresponds to the increased risk associated with the rise in mean age at first pregnancy for birth cohorts around and subsequent to 1900 through 1910. In contrast, in the age group 50–59 years, there is a fairly consistent drop in mortality over the period 1973 through 1993, corresponding to birth cohorts from 1908 through 1938. It is over this period of time that the mean age at first birth fell from 25.5 years of age to under 21 years. This is a substantial enough reduction to “explain” the corresponding fall in mortality in this age group using the model of Pike et al. (3).

For women 40–49 years of age, those who were born between 1928 and 1938 again experienced the decline in mortality between 1973 and 1983. However, for women born after 1938 and certainly for those born during the mid 1940s, the mean age at first birth began to rise abruptly, so that for women born around 1950, the mean age at first birth was back up to 24 years of age. Therefore, the fall in mortality for women aged 40–49 years and younger that began around 1989 and has persisted actually reverses the increase in mortality that one would expect following the rising age of first birth.

Of the ups and downs of breast cancer mortality by age group, only the recent drop in mortality for women under 49 years of age is inconsistent with the secular changes in age at first birth. Such a drop in mortality limited to women under 50 years of age would not likely be the result of screening, since mammographic screening has little effect on reducing mortality in women under age 50 years, or of the use of tamoxifen, which primarily benefits women over age 50 years. Rather, this reduction in mortality probably reflects the impact of adjuvant chemotherapy (either by the cytotoxic effects or by secondary effects on ovulation).

When allocating future resources for the prevention and treatment of breast cancer, we must be wary of these current trends and watch them carefully over the next decade. We cannot be overly optimistic about this downward trend until we have elucidated all of the factors that have contributed to its decline.

HEATHER S. FEIGELSON
BRIAN E. HENDERSON
MALCOLM C. PIKE

References


Notes

Affiliation of authors: Department of Preventive Medicine, University of Southern California (USC) School of Medicine, USC/Norris Comprehensive Cancer Center, Los Angeles.

Correspondence to: Brian E. Henderson, Ph.D., Department of Preventive Medicine, University of Southern California School of Medicine, University of Southern California/Norris Comprehensive Cancer Center, 1441 Eastlake Ave., MS #44, Los Angeles, CA 90033–0800.