Abstract

Increasing numbers of women experience pregnancy around the time of, or after, a diagnosis of breast cancer. Understanding the effect of pregnancy on survival in women with breast cancer will help in the counseling and treatment of these women. This population-based, retrospective cohort study used linked health administrative databases in Ontario, Canada, comprising 7,553 women aged 20 to 45 years at the time of diagnosis with invasive breast cancer, from January 1, 2003, to December 31, 2014. The objective was to compare the overall survival of women diagnosed with breast cancer during pregnancy or in the postpartum period with that of women who had breast cancer but did not become pregnant. The primary exposure was any pregnancy, including abortion (or stillbirth) and livebirth, in the period from 5 years before, until 5 years after, the index date of the diagnosis of breast cancer. Women were classified into four exposure groups: no pregnancy (n = 5,832; the referent), pregnancy before breast cancer (n = 1,108), pregnancy-associated breast cancer (n = 501), and pregnancy following breast cancer (n = 112). We calculated 5-year overall survival rates for each exposure group; unadjusted, age-adjusted, and multivariable hazard ratios (HRs) of the impact of pregnancy on overall survival for all exposure groups; and time-dependent hazard ratios for women with pregnancy following breast
cancer. The mean age of women at breast cancer diagnosis was 39.1 years (median, 40 years; range, 20-44 years). The 5-year overall survival rate was 87.5% (95%CI, 86.5%-88.4%) for women with no pregnancy (the referent), 85.3% (95%CI, 82.8%-87.8%) for women with pregnancy before breast cancer (age-adjusted hazard ratio, 1.03; 95%CI, 0.85-1.27; \( P = .73 \)), and 82.1% (95%CI, 78.3%-85.9%) for women with pregnancy-associated breast cancer (age-adjusted hazard ratio, 1.18; 95%CI, 0.91-1.53; \( P = .20 \)). The 5-year overall survival rate was 96.7% (95%CI, 94.1%-99.3%) for a subgroup of women who had a livebirth (or stillbirth) 6 months or more after diagnosis of breast cancer versus 87.5% (95%CI, 86.5%-88.4%) among women with no pregnancy (age-adjusted HR, 0.22; 95%CI, 0.10-0.49; \( P < .001 \)). In conclusion, pregnancy did not adversely affect the overall survival of women with breast cancer. For women who wish to conceive after breast cancer, the risk of death is lowest if pregnancy occurs 6 months or more after diagnosis of breast cancer.