Racial disparities in response to neoadjuvant therapy among patients with triple-negative invasive ductal breast carcinoma

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BACKGROUND

Neoadjuvant therapy is used in locally advanced and some early-stage triple-negative invasive ductal breast cancer (TNIDC). Complete pathological response after neoadjuvant therapy has been shown to improve survival outcomes in TNIDC. We aim to investigate the racial differences in the achievement of complete response and survival after neoadjuvant therapy in TNIDC.

METHODOLOGY

Histology-confirmed cases of TNIDC females from 2010 to 2018 in the National Cancer Database who had received neoadjuvant therapy were included in our study. Baseline characteristics among Non-Hispanic Whites (NHWs) and Non-Hispanic Blacks (NHBs) were compared using relevant parametric/non-parametric tests. Univariate survival analysis was done using the Kaplan-Meir plot and log-rank test. Cox proportional hazards regression model was used for multivariate survival analysis. The odds of achieving a complete response among NHW and NHB patients were evaluated using a multivariate logistic regression model.

RESULTS

A total of 24,700 women with TNIDC were included among which 15398 (62.3%) women were NHWs, 5625 (22.7%) were NHBs and 3677 (14.8%) were from other racial/ethnic origins. After receiving neoadjuvant therapy 41.8% of NHWs compared to 35.2% of NHBs developed a complete response. Furthermore, NHBs had lower odds of achieving a complete response to neoadjuvant therapy than NHWs in multivariate analysis. (Odds Ratio:0.81, Confidence Interval [CI] [0.75,0.88], p<0.001). The five-year overall survival among NHWs and NHBs women in our study sample was 79.0% and 74.9% respectively (p<0.001). In the multivariate analysis, the NHBs had a higher hazard ratio for death compared to the NHWs (Hazard Ratio: 1.12, 95% CI [1.02,1.22], p=0.01). However, in the subset of females who achieved complete response to neoadjuvant chemotherapy, overall survival was not significantly different among NHWs and NHBs (p=0.55)

CONCLUSION

Although NHBs with TNIDC are less likely to develop a complete response after neoadjuvant therapy when compared to NHWs, they have comparable survival outcomes if they develop a complete response.