Introduction to Management of Triple Negative Breast Cancer

Breast cancer is the most common cancer and the second leading cause of death from cancer among women. Triple negative breast cancer (TNBC) is a heterogeneous group of tumors comprising various breast cancers characterized by the lack of estrogen and progesterone receptors and the absence of human epidermal growth factor receptor 2 (HER2) overexpression. It accounts for approximately 10% to 15% of breast cancer and is considered one of the most aggressive types of breast cancer with a worse prognosis compared to other phenotypes.

Despite all the treatment advances, patients diagnosed with TNBC still have a poor prognosis with a high risk of recurrence and/or mortality. While progress was made in estrogen receptor (ER) and HER2+ breast cancer phenotypes that significantly improved patients' outcomes, TNBC is still far behind with limited approved treatment options. Chemotherapy, radiation therapy and surgery have been the main treatments for decades for TNBC with clearly unmet therapeutic needs. New treatments options to safely improve the outcomes of patients with TNBC are eagerly needed.

In the last decade, significant progress was made in cancer treatment in general including TNBC. New prospective therapeutics have emerged, including agents like poly (ADP-ribose) polymerase enzyme inhibitors, immune checkpoint inhibitors, antibody drug conjugates and kinases inhibitors, and testing is ongoing in clinical trials. Continued efforts toward personalized medicine, and genetic screening aim to identify novel methods for enhancing treatment of TNBC. Furthermore, new radiation technologies emerged, using precise and focused radiation beams to deliver high dose of radiation to patients.

In this series, we will review and discuss the current standard treatments of TNBC along with the advances in TNBC research and treatment. With the hope that there is a light at the end of the tunnel, TNBC outcome will dramatically change with all the new promising agents in development.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Precision Cancer Medicine* for the series "Management of Triple Negative Breast Cancer". The article did not undergo external peer review.

Conflicts of Interest: The author has completed the ICMJE uniform disclosure form (available at https://pcm.amegroups.com/article/view/10.21037/pcm-22-21/coif). The series "Management of Triple Negative Breast Cancer" was commissioned by the editorial office without any funding or sponsorship. JR served as the unpaid Guest Editor of the series and serves as an unpaid editorial board member of *Precision Cancer Medicine* from June 2020 to May 2024. The author has no other conflicts of interest to declare.

Ethical Statement: The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Received: 14 May 2022; Accepted: 09 June 2022; Published: 30 December 2022.

doi: 10.21037/pcm-22-21

View this article at: https://dx.doi.org/10.21037/pcm-22-21

doi: 10.21037/pcm-22-21

Cite this article as: Raphael J. Introduction to Management of Triple Negative Breast Cancer. Precis Cancer Med 2022;5:32.

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