EDORIUM Journals

Int J Case Rep Images 2019;10:101071Z01SK2019.
www.ijcasereportsandimages.com

CASE REPORT PEER REVIEWED | OPEN ACCESS

Capecitabine can do a wonder in metastatic triple negative breast cancer

Shekhar Kumar Keshri, Satyendra Narayan Sinha

ABSTRACT

Introduction: Breast cancer is one of the most commonly diagnosed cancer in India and the leading cause of cancer death. Triple-negative breast cancer accounts for 15–20% of all breast cancers. Prognosis of triple negative breast cancer is very poor, and many women relapse quickly. There is very limited option and no standard recommended therapy available for previously treated patients with metastatic triple negative breast cancer (TNBC). Case Report: A 50-year-old (age in 2019) female was diagnosed as a carcinoma left breast (stage pT2N1M0) triple negative in year 2008. After a disease-free interval of eight years, in April 2017, she developed sternal and vertebral metastasis. She had received local palliative radiation to sternum along with zoledronic acid, and further, she continued zoledronic acid four weekly and started on oral capecitabine which she continued for 18 cycles. More than 11 years have been passed since initial diagnosis and at present she is perfectly alright without any disease and leading a normal life with ECOG 0. Conclusion: In metastatic TNBC patients, single agent oral capecitabine can be a cost-effective and valid option which can do a wonder. We suggest a large clinical trial to validate this option in metastatic TNBC.

Keywords: Capecitabine, Capecitabine in mTNBC, Metastatic triple negative breast cancer

Shekhar Kumar Keshri[1], Satyendra Narayan Sinha[1]

Affiliation: [1]Department of Radiation Oncology, Paras HMRI Hospital, Patna, India.

Corresponding Author: Dr. Satyendra Narayan Sinha, Senior Resident, Department of Radiation Oncology, Paras HMRI Hospital, Patna, India; Email: dr.satyendra4u@gmail.com

Received: 17 September 2019
Accepted: 29 October 2019
Published: 26 November 2019

How to cite this article

Keshri SK, Sinha SN. Capecitabine can do a wonder in metastatic triple negative breast cancer. Int J Case Rep Images 2019;10:101071Z01SK2019.

Article ID: 101071Z01SK2019

****

doi: 10.5348/101071Z01SK2019CR

INTRODUCTION

Breast cancer is the most frequently diagnosed cancer in the majority of the countries and is also the leading cause of cancer death in over 100 countries (GLOBOCON 2018). In Indian women, breast cancer has become the most common cancer in terms of incidence and mortality [1]. Triple negative breast cancer is a unique subset of breast cancer which lack expression of the estrogen receptor (ER), progesterone receptor (PR), and HER-2 neu. It accounts for 15–20% of all breast cancer diagnosis and has a poorer prognosis compared with other subtypes with decreased locoregional control, metastasis-free survival, and overall survival [2, 3]. Currently there are no effective targeted therapies or standard recommended therapy for previously treated patients with TNBC. There are few reports in the literature that discussed long-term complete response in patients who have metastatic TNBC. Here, we described our experience with metastatic TNBC patient who has received single agent oral capecitabine as the sole chemotherapeutic treatment with dramatic response and she is surviving more than 11 years at present.

CASE REPORT

A 50-year-old (age in 2019) nondiabetic, normotensive female from Patna district (Bihar, India) was diagnosed as a carcinoma left breast stage pT2N1M0 triple

negative in year 2008. She underwent left modified radical mastectomy (MRM) with axillary clearance in August 2008. Histopathology report was suggestive of infiltrating ductal carcinoma grade III, size: 5 × 3.5 × 5 cm, margin: negative, lymphovascular invasion: negative, pericapsular spread: identified, lymph node: 2/15 positive. Status of ER/PR/HER-2 neu was negative which had been tested by immunohistochemistry. As per recommended protocol for all TNBC patients, she had completed all adjuvant chemotherapy [four cycles of chemotherapy: FEC (5-Fluorouracil + Epirubicin + Cyclophosphamide) followed by four cycles of Paclitaxel] from November 2008 to April 2009. She had received adjuvant locoregional radiation therapy to left chest wall and left supraclavicular fossa to a dose of 50 Gy in 25 fractions in May–June 2009 uneventfully. She was on regular follow-up and remained disease free till March 2017. Approximately after eight years of disease-free interval in April 2017, she started complaining of severe pain over anterior chest wall. Positron emission tomography–computed tomography (PET-CT) (April 2017) (Figure 1) showed fluorodeoxyglucose (FDG) avid lytic sclerotic lesion involving the sternum (SUV_{max} 7.8). She received palliative local radiation to sternal region to a dose of 33 Gy in 11 fractions by three-dimensional conformal radiation technique in May 2017 and she was started on zoledronic acid 4 mg four weekly.

After six months, PET-CT was done again in October 2017 which showed mixed lytic sclerotic lesion seen in sternum (SUV_{max} –1.9). Hypermetabolic increased attenuation in the paramediastinal lung parenchyma of upper and lower lobe of right lung and upper lobe of left lung—postradiation-induced fibrosis. During this period, she continued zoledronic acid only as planned of q4 weekly.

After six months, PET-CT was done again in April 2018 (Figure 2) to compare with the previous PET-CT (October 2017) which revealed the increase of FDG uptake in sternal lesion and active hypermetabolic lytic lesion in the L1 vertebra (SUV_{max} 6.1), and it was the new finding. In view of new finding seen on whole body PET-CT, she was planned to start on oral capecitabine which was in the dose of 500 mg three tablets twice daily for 14 days followed by one week gap (21 days cycle). She had completed 18 cycles of same till April 2019. It was noticed that during oral capecitabine, she did not have any complains in terms of concerned toxicities. She was tolerating very well and there were no complaints. Positron emission tomography–computed tomography was done on May 2019 (Figure 3) which showed complete resolution of all disease and its activity. At present also, she is alright and on follow-up with ECOG 0.

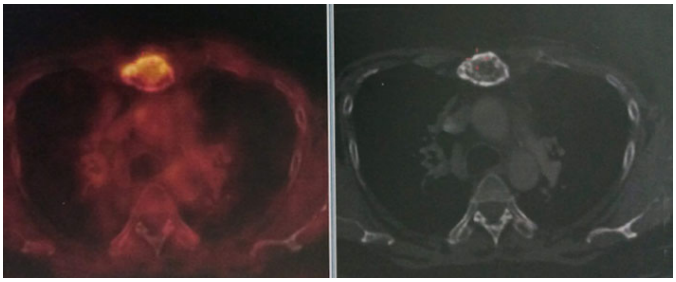

Figure 1: PET-CT (April 2017) showing FDG avid lytic sclerotic lesion involving the sternum (SUV_{max} 7.8).

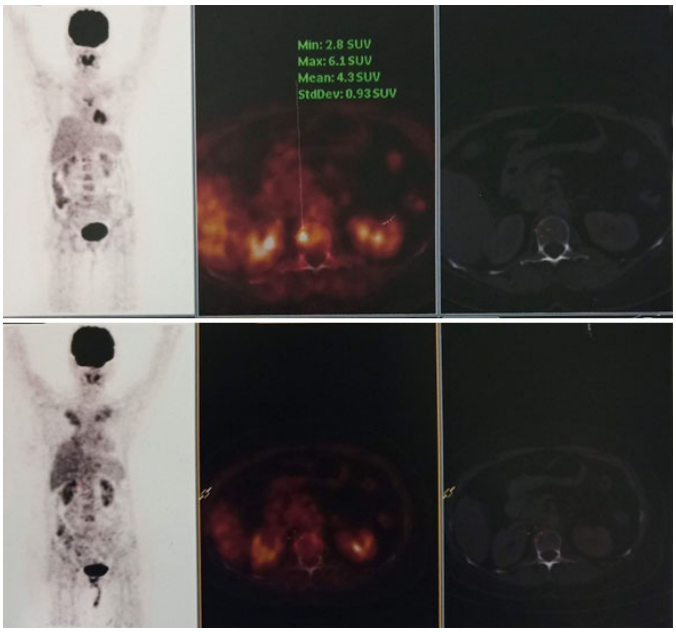

Figure 2: PET-CT (April 2018) showing active hypermetabolic lytic lesion in the L1 vertebra (SUV_{max} 6.1).

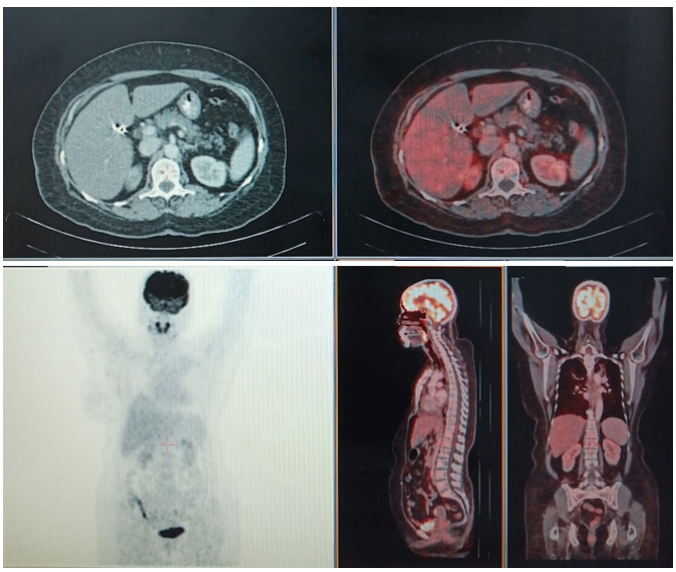

Figure 3: PET-CT (May 2019) showing complete resolution of the disease.

DISCUSSION

Most of the TNBCs are characterized by an aggressive natural history and very poor disease-specific outcomes

in comparison to other subtypes [3]. There are no absolute specific treatment guidelines for such subgroup of patients, so TNBCs are managed with standard treatment protocol and, unfortunately such treatments are associated with a high rate of local and systemic relapse [4].

Management of metastatic TNBC patients is very complex, and it requires consideration of watchful observation of patient, tumor, and therapy-related factors for tailoring the treatment and optimizing the care [5]. As opposed to patients with localized breast cancer where the primary goal of treatment is cure, treatment of metastatic TNBC focuses on prolonging the progression-free survival (PFS), overall survival (OS), and improving the quality of life (QOL).

Most of the newer treatment options are available for metastatic breast cancer (mBC) with ER/PR positive or HER-2 positive tumors, and very few novel agents have been approved for metastatic TNBC patients.

Since there is lack of high-quality comparative data, the most efficacious sequencing of chemotherapy agents in the treatment of metastatic TNBC is not yet defined. Anthracycline, antimetabolites, and taxane-based chemotherapy have traditionally been the mainstay of TNBC therapy in clinical practice [6].

There are few case reports that demonstrate long-term survival and complete remission in metastatic TNBC. Montero and Gluck have reported a patient with metastatic TNBC who was treated with nab-paclitaxel, gemcitabine, and bevacizumab and survived for five years after diagnosis [7]. Shakir has reported on a significant clinical response to nab-paclitaxel monotherapy in a patient with triple-negative BRCA1-positive breast cancer, although the patient survived a little more than five years and died with central nervous system recurrence [8]. Randhawa et al. also described two cases of TNBC who survived more than 10 years after initial diagnosis and received multiple lines of chemotherapy [9].

Our patient diagnosed as TNBC in 2008 and received the prescribed treatment in form of MRM, adjuvant chemotherapy (FEC regimen +Paclitaxel), and adjuvant radiation. She was on regular follow-up and remained disease free for eight years, then she developed symptomatic sternal metastasis seen on whole body PET-CT. Fine-needle aspiration cytology (FNAC)/biopsy was not possible from the skeletal lesion, however, she received palliative radiation to the symptomatic sternal metastasis and was started on zoledronic acid q4 week. On disease progression after six months, she received oral capecitabine [three tablets twice daily for two weeks and one week off (q3 week) total 18 cycles]. After 18 cycles of oral capecitabine, PET-CT has shown complete remission. This has shown very high tolerance to oral capecitabine in such kind of patients and in terms of overall response and remission also.

Capecitabine, a 5-fluorouracil (5-FU) prodrug and pyrimidine antimetabolite that inhibits thymidylates synthetase, is an oral chemotherapy agent administered on a two-week-on/one-week off schedule [10–12]. Due to the ease of administration and comparable efficacy and tolerability compared to other agents, it is commonly used in the first-line metastatic setting. Capecitabine is also associated with a unique side effect profile, including minimal alopecia and neuropathy, but sometimes with dose-limiting adverse effects, including palmar-plantar erythrodysesthesia and diarrhea [12].

In two multicentric phase II trials, one of which used cyclophosphamide, methotrexate, and 5-FU (CMF) as a comparison arm and looked at capecitabine as the first-line metastatic breast cancer (patient had received prior adjuvant treatment with anthracycline and taxane). This trial demonstrated both comparative superiority and overall response rate (ORR) 28–30%, time to tumor progression (TTP) between four and five months, and a median overall survival between 15 and 20 months [11, 12]. In a phase II trial, Alagizy et al. [13] evaluated the tolerability and efficacy of metronomic capecitabine as extended adjuvant treatment for women with TNBC and concluded that extended adjuvant metronomic capecitabine is well tolerated with patient compliance.

CONCLUSION

Due to its heterogeneous nature, TNBCs have different behavior and response to treatment. Clinical experience suggests that many women with TNBC relapse quickly and have very limited treatment options available who are previously treated with anthracycline and taxane and later develop metastatic disease. In such patients, single agent oral capecitabine, which is highly tolerable, can be a cost-effective and valid option which can do a wonder. We suggest a large case series or clinical trial to validate this option for absolute recommendation in future.

REFERENCES

1. Globocon 2018: India Factsheet. [Available at: http://cancerindia.org.in/globocan-2018-india-factsheet/]
2. Sporikova Z, Koudelakova V, Trojanec R, Hajduch M. Genetic markers in triple-negative breast cancer. Clin Breast Cancer 2018;18(5):e841–50.
3. Dent R, Trudeau M, Pritchard KI, et al. Triple-negative breast cancer: Clinical features and patterns of recurrence. Clin Cancer Res 2007;13(15 Pt 1):4429–34.
4. Cleator S, Heller W, Coombes RC. Triple-negative breast cancer: Therapeutic options. Lancet Oncol 2007;8(3):235–44.
5. Zeichner SB, Terawaki H, Gogineni K. A review of systemic treatment in metastatic triple-negative breast cancer. Breast Cancer (Auckl) 2016;10:25–36.
6. Palma G, Frasci G, Chirico A, et al. Triple negative breast cancer: Looking for the missing link between biology and treatments. Oncotarget 2015;6(29):26560–74.

7. Montero A, Glück S. Long-term complete remission with nab-paclitaxel, bevacizumab, and gemcitabine combination therapy in a patient with triple-negative metastatic breast cancer. Case Rep Oncol 2012;5(3):687–92.
8. Shakir AR. Strong and sustained response to treatment with carboplatin plus nab-paclitaxel in a patient with metastatic, triple-negative, BRCA1-positive breast cancer. Case Rep Oncol 2014;7(1):252–9.
9. Randhawa J, Park T, Malhotra A, Charif M. Two cases of possible remission in metastatic triple-negative breast cancer. J Community Support Oncol 2017.
10. Fumoleau P, Largillier R, Clippe C, et al. Multicentre, phase II study evaluating capecitabine monotherapy in patients with anthracycline- and taxane-pretreated metastatic breast cancer. Eur J Cancer 2004;40(4):536–42.
11. Oshaughnessy JA, Blum J, Moiseyenko V, et al. Randomized, open-label, phase II trial of oral capecitabine (Xeloda) vs. a reference arm of intravenous CMF (cyclophosphamide, methotrexate and 5-fluorouracil) as first-line therapy for advanced/metastatic breast cancer. Ann Oncol 2001;12(9):1247–54.
12. Ambros T, Zeichner SB, Zaravinos J, et al. A retrospective study evaluating a fixed low dose capecitabine monotherapy in women with HER-2 negative metastatic breast cancer. Breast Cancer Res Treat 2014;146(1):7–14.
13. Alagizy HA, Shehata MA, Hashem TA, Abdelaziz KK, Swiha MM. Metronomic capecitabine as extended adjuvant chemotherapy in women with triple negative breast cancer. Hematol Oncol Stem Cell Ther 2015;8(1):22–7.

****

Author Contributions

Shekhar Kumar Keshri – Conception of the work, Acquisition of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be 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

Satyendra Narayan Sinha – Design of the work, Acquisition of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be 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

Guarantor of Submission

The corresponding author is the guarantor of submission.

Source of Support

None.

Consent Statement

Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.