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# Triple Negative Breast Cancer in Jharkhand

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## Abstract

**Introduction:** Breast cancer incidence is rising in our country and most of them are diagnosed at advanced stage. Triple negative subgroup carries dismal prognosis and lacks effective targeted treatment. With this study we have attempted to analyze clinical profile of triple negative breast cancer patient in Jharkhand.

**Method:** The study was done at HCG; Ranchi from January 2012 to January 2017. All histologically confirmed breast cancer patients were retrospectively included in the study. According to their receptor status they were divided into triple negative subgroup and other group. Their clinic-pathological characteristics and demographic details were compared.

**Result:** Triple negative subgroup accounts for 1/3rd of total breast cancer patient in Jharkhand. 41% of total tribal breast cancer patients in Jharkhand are triple negative. Most common stage at presentation in both group is stage III.

**Conclusion:** Effective cancer screening programs and cancer registries are required for adequate planning and execution of cancer programs. Further larger population based studies to study the genetic predisposition of tribal population towards triple negative subgroup.

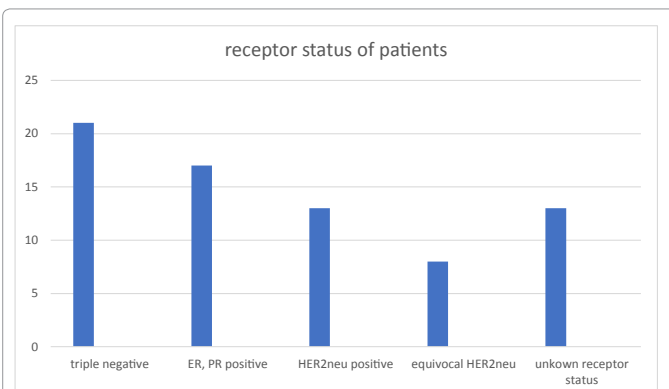**Keywords:** Triple negative breast cancer; Jharkhand; Tribal population; Cancer programs

## Introduction

Having recently overtaken cervical cancer, breast cancer is the most common cancer in Indian women. Recent 2017 data from various national cancer registries have shown the age adjusted rate as high as 25.8 per 100,000 women and mortality 12.7 per 100,000 women [1]. What is even more alarming is the early age at onset approximately a decade earlier and rising incidence of triple negative breast cancer [2]. Lack of effective screening program and awareness of the disease the majority of the breast cancer are diagnosed at advanced stage. Roughly in India for every 2 women newly diagnosed with breast cancer, one lady is dying of it (as per WHO data released in 2012). It is one of the worst survival from breast cancer in world. The numerous myths and ignorance that prevail in our society results in unrealistic fear of the disease.
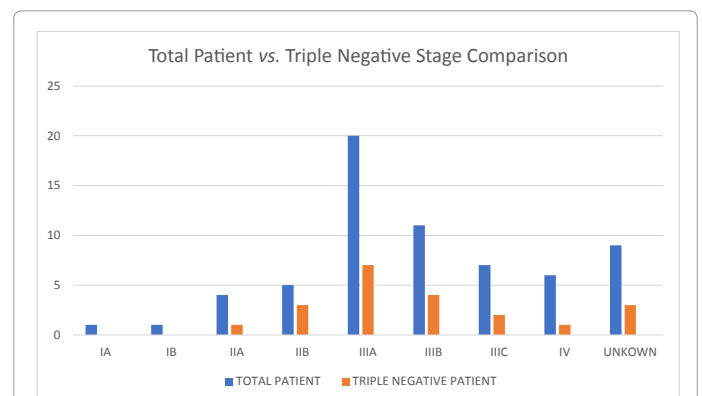
Jharkhand or land of forest is a state in eastern part of India with wide ethnic and cultural diversity. As per 2011 Indian census it has a population of 32.96 million, consisting of 16.03 million females. Literacy rate is 67.63% and 75.95% population resides in rural area. As per 2001 census 26.3% population is tribal. General indifference towards health of females and lack of access to health care facilities leads to higher number of advanced stage disease.

Breast cancer is heterogeneous disease with different biological subtypes recognized by gene expression studies. Triple negative group is distinct subgroup with high risk biological characteristics and lacks effective treatment methods. With this study we have attempted to analyze clinical profile of triple negative breast cancer patient in Jharkhand.



**Figure 2:** Among total patient the most common stage was stage III (38). Two patient were stage I, 9 with stage II, 6 with stage IV, and unknown status in 9 patients.



**Figure 1:** Total 13 patients were HER2neu positive (20%). The receptor status was equivocal in 8 patients.

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## Methodology

All confirmed cases of breast cancer were retrospectively reviewed in the study. They were divided into TNBC and other subgroups. Clinico-pathological characteristics were compared between the groups. Study period was from January 2012 to January 2017 at HCG Ranchi. Demographic details, risk factors and clinical profiles were retrospectively reviewed. Histopathological characteristics, receptor status, follow-up records were analyzed.
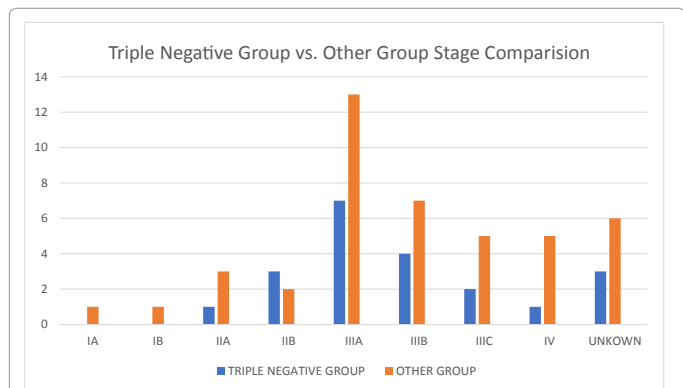


**Figure 3:** Among triple negative patient most patient were diagnosed with stage III (13). None of the patient were stage I. Four patient were stage II and one patient stage IV. In other group patient also most patient were diagnosed with stage III (25). Two patient were stage I, 5 patient stage II, 5 patient stage IV.
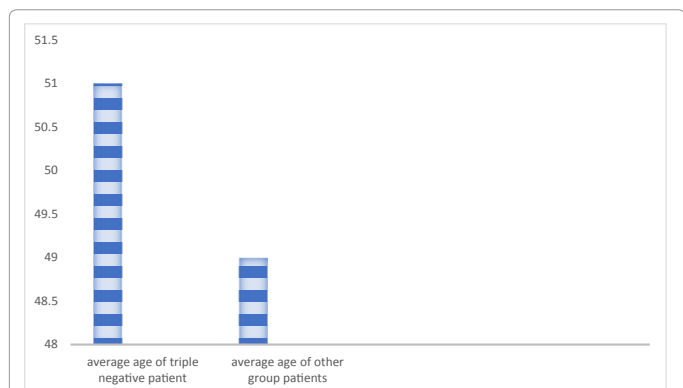


**Figure 4:** Demographic comparison of age: Average age of patient in triple negative group was 51 years and other group was 49 years.
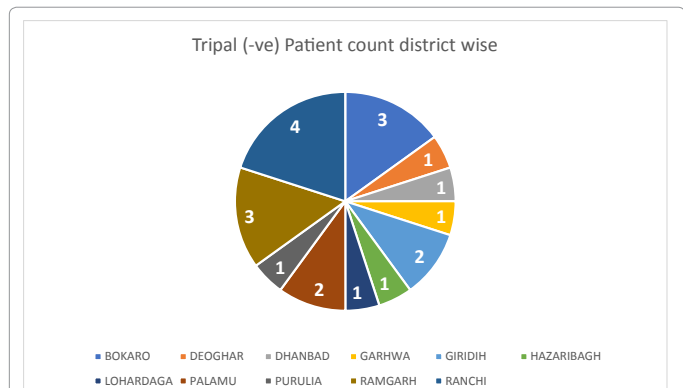


**Figure 5:** Demographic comparison of sex: Out of 21 patients, in triple negative group two were male patient. All patient in the other group were females.
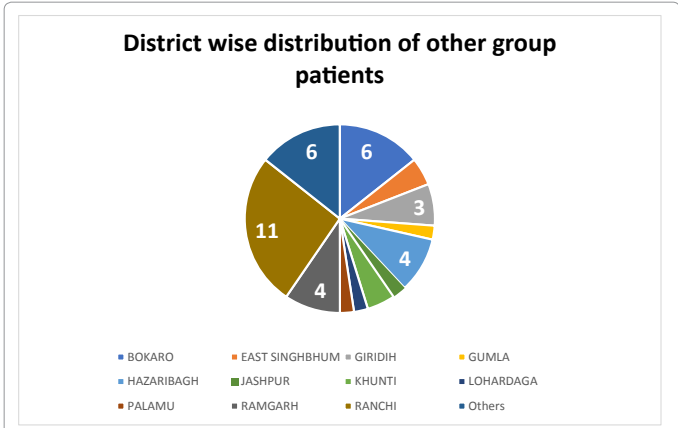


**Figure 6:** Most of the triple negative patients were from Ranchi, Bokaro and Ramgarh. Other group patients: most of the patient in other group were from Ranchi; Bokaro; Ramgarh; Gumla and Hazaribagh.

## Results and Discussion

The total number of patient was 64. Out of them 62 were female and 2 were male. Average age of the patient was 50 years. There were 21 patient with triple negative status which is 32.8% of the total number of breast cancer patients. Out of 21 triple negative patient 5 were tribal lady (23.8%) of TNBC. There were total 12 tribal females in the breast cancer patient out of which 5 were TNBC (41%) (Figures 1-6).

### Risk factors

There were no difference in risk factor between both the groups. Common risk factors were nulliparity and late onset of menarche.

### Follow up

Total 3 patient had recurrence/ progression in other group patient during follow up. Average gap was 9 month. In triple negative group one patient had recurrence/progression with a gap of 5 months. Seven patient lost to follow up in other group patient and 3 lost to follow up in triple negative group patient.

Triple negative patient account for 32.8% total breast cancer patient in Jharkhand. The reported rate is 10-20% in literature [3]. Our data shows higher percentage of triple negative patient among breast cancer patient. The average age of presentation was 51 years which is contrary to other published data which shows slightly younger age predilection for triple negative cases. Of note 41% of the tribal population had triple negative disease of total breast cancer tribal patient. This disparity in incidence among different racial group suggest that there may be some genetic predisposition to triple negative breast cancer. As described in literature there is similar higher incidence of TNBC in African-American women as shown by epidemiological studies [3]. Her2neu positive cases account for 20% cases in Jharkhand. The reported rate of amplification of this gene is 20-25% [4].

Demographic distribution showed almost equal district wise distribution of triple negative and other group breast cancer patient. The most common stage in both the group patient at presentation was stage III. All triple negative breast cancer grade was III, whereas in other group patient the most common grade was II. These results shows no difference in age, demographic distribution or stage at presentation between both the groups.

The average duration of recurrence/progression in triple negative group was 5 months whereas it was 9 months in other group which

is statically significant. The results shows the higher recurrence rate early in treatment of triple negative subgroup. Studies have shown high recurrence rate for first 3 year following diagnosis followed by decline in triple negative subgroup [5].

Our result shows large number of patient being diagnosed with higher stage at presentation, possibly due ignorance about the disease. Lack of cancer registries also underestimate the prevalence of the disease. Screening facility; early diagnosis and proper follow up can improve the prognosis of breast cancer patients. With further sub-classification of the triple negative group and advent of new targets the prognosis of this subgroup will definitely improve.

## Conclusion

Triple negative breast cancer patient account for roughly 1/3$^{rd}$ of total breast cancer patients in Jharkhand. There is increased percentage of triple negative cases among tribal population. Most of them present at higher stage. Effective cancer screening program is the needed to address the issue. Cancer registries need to be maintained for proper planning and execution of cancer programs in the state. Larger genetic studies are required to know the reason for this increased incidence among tribal population.

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