Retrospective Cohort Analysis of Outcomes Among Young Onset Breast Cancer Patients in Kijabe, Kenya

Marissa M Khalil[1], Beryl Akinyi[2,], Rondi M Kauffmann[2,3]

[1]Vanderbilt University School of Medicine, [2]AIC Kijabe Hospital, [3]Vanderbilt University Medical Center

BACKGROUND

- Breast cancer remains one of the leading causes of morbidity and mortality in the world
- 2.3 million new cases in 2020 = most commonly diagnosed cancer worldwide
- There are more lost disability adjusted life years (DALY) by women to breast cancer than any other cancer globally.
- In Kenya, breast cancer is still the most prevalent cancer and the third leading cause of death.
- Large disparity between LMIC (40%) and HIC (90%) countries in breast cancer 5-year survival
- Previous studies have found a significantly lower mean age of diagnosis for breast cancer in Kijabe, Kenya (45) compared to the United States (65).

HYPOTHESIS

Research Question:
- Among patients with breast cancer in Kijabe Kenya, is young onset associated with decreased survival compared to average onset at 5 years from diagnosis?

Hypothesis:
- Our study hypothesizes that there is increased mortality amongst patients with young onset breast cancer compared with those of average onset breast cancer.
- We further hypothesize that there are differences in the tumor characteristics between these two populations.

LIMITATIONS

- Fragmented care in Kenya
- Inaccurate dating of birthdays and unknown dates of death
- Shift in management of the database
- Limiting our primary outcome to survival at 5 years post diagnosis limits our sample size
- Prior to 2018, HER2+ targeted therapy was not covered by Kenyan national health insurance.
- Those that were lost to follow up or have incomplete data may have some underlying similar factor that we cannot decipher.

METHODS

- Retrospective cohort study using the AIC Kijabe breast cancer database
- 558 patients included
- Inclusion criteria:
  - Patients diagnosed and treated with breast cancer between 2010-2021
  - All breast cancer patients diagnosed >18 years old who were diagnosed in Kijabe
  - Outcomes specified as either alive, dead, or recurrence
- Exclusion criteria:
  - Diagnosed outside of the study period
  - Outcomes labeled as not available

Populations:
- Patients divided into cohorts based on age of diagnosis (</= 45 years old and > 45 years old)
- Primary outcome: survival status at 5 years post diagnosis
  - Secondary outcomes:
    - One year status: sites of recurrence, survival, death

Covariates:
- Distance traveled to Kijabe was used as a surrogate for county of residence, considering the cultural context and methods of transportation available

Outcomes:
- Date of death was not always known by next of kin. If the exact date was not available with only the year provided, we selected January 1st of that year for consistency. The same was done for date of recurrence.

PRELIMINARY DATA

	Young Onset (n= 232)	Average Onset (n=336)
Sociodemographics:		
Mean Age	38.2	59.3
Female Sex	230	330
Male Sex	2	6
Close distance to Kijabe (defined as </= 75 km)	115	176
Far distance to Kijabe (defined as > 75 km)	105	153
Residence not recorded	11	6

PRELIMINARY DATA

	Young Onset (n= 231)	Average Onset (n=335)
Outcomes		
All cause survival 1 year	(n = 231) 201	(n = 335) 297
All cause survival 5 year	(n = 198) 168	(n = 297) 251
No time of death recorded or available	5	4
Recurrence 1 year	(n = 45) 10	(n = 52) 6
Recurrence (years 2-5)	(n = 34) 30	(n = 46) 36
No time of recurrence was recorded	1	0
Death	N= 65	N = 88
Breast cancer related	47	69
Non-cancer related	5	11
Blank	13	8
Recurrence sites	N=45	N = 52
Local	5	10
Axilla	3	2
Contralateral breast	3	4
Bone	8	11
Lung	26	20
Liver	5	7
Brain	9	2
Other	2	5
Time to recurrence (days)		
Mean	1046.17 days	1226.92 days
Type of Surgery		
Axillary dissection	187	264
Mastectomy	141	187
Breast conserving	49	87
Sentinel node	5	2

FUTURE DIRECTIONS

- Pending data analysis results, we hope to use this study to better understand the differences in care received and outcomes between young onset and average onset populations. With this, it willl prove beneficial in creating actionable interventions in order to address the disparities in time to recurrence and overall survival.
- Additionally, there is currently a knowledge gap in explaining possible causes of why the mean age of diagnosis in Kenya is significantly lower than that of the United States. The results of this study may shed light on why this may be and inform future research.