

A PILOT SURVEY OF ACCESS TO BREAST CANCER TREATMENT IN GUYANA

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SURG 560 Final Report

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A pilot survey of access to breast cancer treatment in Guyana

Abstract

In this pilot survey, we attempted to determine the resources available in Guyana for the treatment of breast cancer using a survey of health care professionals involved in breast cancer care. Due to limitations related to COVID delays, and closure of the research ethics board in Guyana, we were unable to perform the survey as planned. However, the survey was administered to the general surgery residents at Georgetown Public Hospital in Guyana, and the limited results are compiled in this report. Patient related factors impacting the access to breast cancer care include lack of knowledge and education along with cultural beliefs, resulting in delayed presentation. Institutional limitations to breast cancer care in Guyana include the lack of publicly funded radiation therapy, limited medical oncology resources, the lack of a multidisciplinary team, the lack of pre-operative receptor status, delays in pathology results, lack of sentinel lymph node dissection (SLND), and delayed access to the operating room. In the past six months since the survey was administered, several positive steps have been made to move towards earlier detection and treatment, including a screening program, core biopsies being done by radiology, and proposals for a breast clinic and implementing SLND.

Background

Breast cancer is becoming more common in low and middle-income countries (LMICs), and it is predicted that the burden of breast cancer will continue to increase in LMICs over the next couple of decades (Brand et al., 2019; Ogunkorode et al., 2017). There is a substantial difference in breast cancer survival rates between low resource and higher resource countries. The higher mortality rate in LMICs is thought to be a result of delayed presentation with more advanced stage, and delayed or inadequate access to treatment (Brand et al., 2019; Yip et al., 2008). There is evidence that delays in access to care for breast cancer result in poorer prognosis and higher mortality from breast cancer (Richards et al., 1999; Sharma et al., 2012).

To date, very little has been published in the literature about breast cancer in Guyana. One study demonstrated a high rate of breast cancer in Guyana, particularly among the Afro-Guyanese population (Best Plummer, Persaud and Layne, 2009). Two other studies reported worse prognosis for breast cancer in women of the same ethnic origin living in Caribbean countries, including Guyana, compared to women living in the US (Brown et al, 2017; Taioli et al, 2010). We know that hormone receptor testing became available in Guyana in 2016, and that 46% of breast cancer patients at the Georgetown Public Hospital (GPHC) were found to be triple negative (Solomon and Motilall, 2019). Globocan statistics from 2018 reveal that breast cancer is the most common new cancer diagnosis in women

in Guyana (Globocan, 2019). To date, a full survey of breast cancer treatment in Guyana has not been published.

In summary, the literature indicates that breast cancer is a significant burden in Guyana, and that women are more likely to present at a late stage with triple negative disease. Further documentation is needed to determine the stage of presentation and prognosis for women with breast cancer in Guyana. Along with this, the availability of treatment options and causes of delays need to be studied in order to advocate for needed changes to improve the treatment of breast cancer.

In this project, we examined the delays and barriers to appropriate and timely surgical management of breast cancer in Guyana. In this pilot study, using a survey of general surgery residents, we determined the resources available for the treatment of breast cancer, and attempted to understand some barriers to breast cancer surgical care in Guyana.

Methods

This was an anonymous and voluntary survey designed for health care providers involved in the diagnosis or treatment of breast cancer. Ethics approval was obtained from the University of British Columbia (UBC) Ethics committee, but the UBC Ethics committee required approval from the Georgetown Public Hospital Corporation (GPHC) ethics board in order to give final approval. Due to political issues as well as the COVID pandemic, the GPHC ethics board was not active for a period of 12 months shortly after submission of the ethics proposal. Due to time constraints, we therefore performed a more limited survey of the 13 current general surgery residents at GPHC.

Appendix 1 includes the survey that was administered in person to the general surgery residents at GPHC. Appendix 2 contains the information and consent form for survey participants.

This was a mixed-methods study with quantitative data summarizing the available resources. The qualitative assessment component of the survey collected opinions of the residents about causes of delays and barriers to breast cancer surgical care. Qualitative results were categorized by theme and summarized.

Results

All thirteen of the general surgery residents at the GPHC responded to the survey.

There are medical and radiation oncologists in Guyana, but radiation therapy is only available at one private hospital. Medical oncology is available at the GPHC. There are no established multidisciplinary breast cancer teams in Guyana in any setting.

Radiotherapy Equipment

Radiotherapy is only available in the private setting, at a cost that is prohibitive to the majority of Guyanese patients.

Availability of Chemotherapy and Hormonal Therapy

All of the surgical residents were unsure about which chemotherapy drugs were available, but they all stated that chemotherapy is available at the public hospital and that the government bears the cost of chemotherapy. As for endocrine therapy, only Tamoxifen is available to patients post-operatively.

Pathology Services

Diagnosis of breast cancer was most often made with excisional biopsy at the GPHC. The length of time to obtain pathology results from either an FNA, a core biopsy, or

an excisional biopsy, is greater than four weeks the majority of the time.

Immunohistochemistry is only available outside of the country. Pathology reports usually include histologic type, tumor size, number of nodes positive, margin, grade, hormone receptor and Her2 status. However, pathology reports do not routinely include final stage, lymphovascular invasion (LVI) or perineural invasion (PNI).

Imaging Capabilities

Imaging available for breast cancer patients at the GPHC include ultrasound, X-rays, and CT scan. MRI and bone scan are not available publicly at the GPHC, but these are available privately at full cost to the patient.

Management Practices

Residents surveyed felt that on average 40-60% of patients present initially with locally advanced disease, and that on average 20-30% of patients present with metastatic disease.

Surgery is the initial therapy for early-stage breast cancer, and it is also the most common initial therapy for locally advanced breast cancer.

Receptor status is determined from the surgical specimen, and therefore does not impact surgical treatment options.

Sentinel lymph node biopsy is not available in Guyana, which means that all invasive breast cancers are treated with a complete axillary node dissection (CAND). The average number of lymph nodes collected was reported as ten to twelve.

Lastly, there is no palliative care program at the GPHC.

Delays in Care

There was great variability in the resident estimates of the approximate time interval between symptoms and surgery, ranging from two months to greater than six months. The interval from time of surgery to start of chemotherapy was reported as six to eight weeks. For patients who can afford radiation therapy, the wait time for radiation therapy was reported as six to eight weeks.

Qualitative assessment of factors that contribute to poor outcome

Table 1 summarizes the resident responses when asked “What in your opinion are causes of delays or barriers to breast cancer treatment in Guyana?”. These are divided into patient related factors and institutional factors, and the number in parentheses represents the number of residents providing that response.

Table 1. What in your opinion are causes of delays or barriers to breast cancer treatment in Guyana?

Patient related factors	Institutional factors
Poor education and cultural beliefs resulting in late presentation (1)	Histopathology delays (7)
Lack of patient knowledge (7)	Radiation only available privately (6)
Cultural beliefs (4)	Facility resources in general (4)
	Lack of OR time, long wait list (3)
	No screening program (3)
	SLND not available (2)
	Delay in receptor status results (1)

	Lack of expert opinion (1)
	Delays in optimization by other specialties pre-op (1)
	Lack of funding for breast cancer (1)
	Administrative and government issues (1)

Table 2 summarizes the resident responses when asked “How could breast cancer treatment be improved in Guyana?”. The number in parentheses represents the number of residents providing that response.

Table 2. How could breast cancer treatment be improved in Guyana?

Population education about risk factors, and signs/symptoms of breast cancer (5)
Need a screening program (4)
Free radiation therapy (3)
Receptor status results prior to surgery (3)
Breast clinic for work-up (2)
Sentinel node biopsy (2)
Generally improving facility and resources, more funding from government (3)
Decreased pathology delays (2)
Having protocols for the management of breast cancer (1)
Multidisciplinary team (1)

Need research (1)
Stereotactic biopsies (1)
Needs to be more affordable to patients (1)
Soliciting external help and expertise (1)

Discussion

Despite not being able to administer the survey to several different specialists in both the public and private health care system in Guyana, we were able to identify institutional and patient related factors that impact breast cancer treatment in the public system in Guyana. The majority of patients in Guyana cannot afford care in the private system, so results from this survey reflect the resources available to the majority of the population.

From the survey results, it appears that a greater proportion of the population in Guyana presents with locally advanced or metastatic disease, compared to HICs. Patient related factors impacting the access to breast cancer care include lack of knowledge and education along with cultural beliefs, resulting in delayed presentation. National screening programs help to reduce the stage of breast cancer at diagnosis (Brand et al., 2019; Yip et al., 2008). Since the initial work on this survey, the Guyanese government initiated a national screening program in 2021. This is accompanied by a national education and awareness campaign aimed at educating patients and family practitioners. It will be important to collect prospective data on stage of breast cancer at presentation, in order to determine whether this was a successful initiative.

Institutional limitations to breast cancer care in Guyana include the lack of publicly funded radiation therapy, limited medical oncology resources, the lack of a multidisciplinary team, the lack of pre-operative receptor status, delays in pathology results, no access to sentinel lymph node dissection, and delayed access to the operating room. Efforts are underway to address some of these limitations.

Since administration of this survey, the radiology department at GPHC has initiated image guided core needle biopsies. This will change the method in which diagnosis is most often made, minimizing the need for surgical biopsy, which then usually requires a second surgery. This has involved training the radiology department and acquiring the necessary equipment for image guided biopsies. This also requires collaboration with the pathology department in assessing the core biopsy specimens. Research is ongoing to monitor timelines to diagnosis and treatment prospectively.

In several countries worldwide, breast clinics have demonstrated reduced wait times to diagnosis and treatment, when compared to usual care (Castellano et al, 2008; Jiang et al, 2018; McKevitt et al, 2017). In recent months, work has been done to develop a proposal for a surgeon run breast clinic at the GPHC. The goal of this clinic is to provide more streamlined and effective diagnostic and therapeutic options for patients, aiming to reduce wait times to diagnosis and treatment. The surgical group would like to collect data on wait times to biopsy, to diagnosis and to definitive treatment in a prospective manner, for quality improvement purposes. Lastly, there is strong interest from the general surgery department in learning sentinel lymph node dissection (SLND) techniques. Sentinel lymph node dissection

can achieve adequate staging of breast cancer while minimizing long term morbidity such as chronic lymphedema, when compared to complete axillary lymph node dissection (CAND) (Yip et al, 2008). The department is currently working on a proposal with the radiology department to get funding to develop this technique at the GPHC. There is a developing a partnership with the Canadian Association of General Surgeons (CAGS), which can provide expertise in training surgeons for this technique. In the past year, CAGS general surgeons have been providing online teaching sessions and practice oral exams for the Guyanese general surgery residents. There have also been some joint interesting cases rounds with residents from the University of British Columbia (UBC) and residents from the University of Guyana. This is all part of an ongoing relationship for both sites to learn from each other.

Unfortunately, with radiation therapy only available in the private system at full cost to the patient, most patients do not have the option of a segmental mastectomy for treatment of their breast cancer. This is a known limitation, and the Guyanese medical community is lobbying the government to make this a publicly funded service.

Limitations

For the qualitative component of the survey, we are limited to the perspectives and opinions of general surgery residents. A broader survey of practicing general surgeons, and other specialists such as medical and radiation oncologists, could yield other challenges faced in providing care to breast cancer patients.

Conclusion

Several patient-related and institutional factors have been identified as barriers to breast cancer surgical care in Guyana. New initiatives are in place since the survey process was started, including a national screening program, and access to image guided core needle biopsies. Access to radiation therapy is a serious limitation that will also need to be addressed, in order to make segmental mastectomies a treatment option for average Guyanese patients. Applications are currently being developed for funding for a breast clinic, and for sentinel lymph node dissections to be available in the treatment of breast cancer.

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Appendix 1. Survey of health care providers in Guyana

BREAST CANCER TREATMENT SURVEY - Guyana

A2. Name of institution: _____

B1. What is your specialty?

- 1 ☐ Surgical Oncology 2 ☐ Radiation Oncology 3 ☐ Medical Oncology
4 ☐ General Surgery 5 ☐ General Practitioner 7 ☐ Others (Specify):

B2. What other oncology specialties are available at your hospital?

- 1 ☐ Surgical Oncology 2 ☐ Radiation Oncology 3 ☐ Medical Oncology

B3. Do you belong to a multidisciplinary breast cancer team? 1 ☐ Yes 2 ☐ No

C1. What radiotherapy equipment is available to you?

- 1 ☐ Public 2 ☐ Private 3 ☐ None

C2. Who bears the cost of radiotherapy?

- 1 ☐ Insurance 2 ☐ Government 3 ☐ Patient

C3. What chemotherapy drugs are available?

- 1 ☐ Anthracyclines 2 ☐ Cyclophosphamide (CTX) 3 ☐ Fluorouracil (5-FU) or
Capecitabine
4 ☐ Taxanes 5 ☐ Methotrexate (MTX) 6 ☐ Gemcitabine
7 ☐ Vinorelbine 8 ☐ Trastuzumab (Herceptin) 9 ☐ Vincristine
10 ☐ Unsure

C4. Do you use mostly generic or patented drugs?

- 1 ☐ Generic 2 ☐ Patented 3 ☐ Unsure

C5. Who bears the cost of chemotherapy?

- 1 ☐ Insurance 2 ☐ Government 3 ☐ Patient

D1. How is diagnosis most often made?

- 1 ☐ FNAC (cytology) 2 ☐ Core needle biopsy (trucut) 3 ☐ Excisional/incisional biopsy
4 ☐ Clinical exam

D2. What imaging diagnosis techniques are available in your setting?

- 1 ☐ Ultrasound 2 ☐ Mammogram 3 ☐ Plain X-ray 4 ☐ CT 5 ☐ MRI 6 ☐ Bone scan

D3. How long does it take to get pathological results back from an FNA?

1 ☐ <1 week 2 ☐ 1 -3 weeks 3 ☐ 4+ weeks

D4. How long does it take to get pathological results back from a core biopsy?

1 ☐ <1 week 2 ☐ 1 -3 weeks 3 ☐ 4+ weeks

D5. How long does it take to get pathological results back from an excisional biopsy?

1 ☐ <1 week 2 ☐ 1 -3 weeks 3 ☐ 4+ weeks

D6. Do you have a fully equipped pathology lab for IHC (immunohistochemistry) or do you have to send outside the country?

1 ☐ Local 2 ☐ Outside, but within your country 3 ☐ Outside of country

D7. What is included in pathology report (Select all that apply)?

1 ☐ Histologic type 2 ☐ Tumor size 3 ☐ # of nodes positive 4 ☐ Margin status
5 ☐ Grade 6 ☐ Stage 7 ☐ Lymphovascular invasion (LVI)
9 ☐ Hormone receptor 10 ☐ her2neu 11 ☐ Perineural invasion (PNI)

D8. What percentage of patients have locally advanced disease (>5cm or + lymph nodes) at presentation, approximately? _____

D9. What percentage of patients have metastatic disease at presentation, approximately? _____

D10. Are axillary node dissections regularly performed? 1 ☐ Yes 2 ☐ No

D11. What is the average number of nodes removed? _____

E1. Do you routinely do a pretreatment workup?

1 ☐ Liver 2 ☐ Chest 3 ☐ Bone scan 4 ☐ Labs 5 ☐ Echocardiogram

E2. What is the most common initial therapy for early breast cancer (less advanced stage)?

1 ☐ Surgery 2 ☐ Neoadjuvant chemotherapy 3 ☐ Radiotherapy

E3. What is the most common initial therapy for locally advanced breast cancer?

1 ☐ Surgery 2 ☐ Neoadjuvant chemotherapy 3 ☐ Radiotherapy

E4. Does receptor status affect surgical treatment decisions? 1 ☐ Yes 2 ☐ No

E5. What endocrine therapy is available to you?

1 ☐ Tamoxifen 2 ☐ Arimedex 3 ☐ Exemestane 4 ☐ Femara

E6. Is there a palliative care program at your hospital? 1 ☐ Yes 2 ☐ No 3 ☐ Unsure

F1. What is the approximate interval between onset of symptoms and surgery? _____

F2. What is the approximate interval between surgery and starting chemotherapy? _____

F3. What is the approximate interval between chemotherapy and starting radiotherapy?

G1. What in your opinion negatively impacts treatment outcome in your hospital (Select all that apply)?

- 1 ☐ Advanced stage 2 ☐ Finance 3 ☐ Cultural/beliefs
4 ☐ Facility/human resource 5 ☐ Other (specify) _____

G2. What in your opinion are causes of delays or barriers to breast cancer treatment in Guyana?

G3. How could breast cancer treatment be improved in Guyana?

Appendix 2. Information and Consent Form

Participant Information and Consent Form

Project name: A pilot survey of access to breast cancer treatment in Guyana

Principal Investigator: Dr. Anise Barton, BSc, MD, FRCSC
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Clinical Assistant Professor, Department of Surgery
University of British Columbia

Co-investigator: Dr. Gabrielle DeNobrega, MBBS, MS
General Surgeon, Georgetown Public Hospital
Corporation, Department of Surgery

Invitation

You have been identified as a physician who is involved in the treatment of breast cancer in Guyana. We would like your opinions about the access to breast cancer treatment, and what barriers and causes of delays exist in the current system.

Your participation is voluntary

This is a voluntary and anonymous survey. You may choose not to complete it. If you choose to complete it, your responses will be anonymous.

Background

Breast cancer is becoming more common in low and middle-income countries (LMICs), and it is predicted that the burden of breast cancer will continue to increase in LMICs over the next couple of decades (Brand et al., 2019; Ogunkorode et al., 2017). There is a substantial difference in breast cancer survival rates between low resource and higher

resource countries. The higher mortality rate in LMICs is thought to be a result of delayed presentation with more advanced stage, and delayed or inadequate access to treatment (Brand et al., 2019; Yip et al., 2008). There is evidence that delays in access to care for breast cancer result in poorer prognosis and higher mortality from breast cancer (Sharma et al, 2012).

To date, very little has been published in the literature about breast cancer in Guyana. One study demonstrated a high rate of breast cancer in Guyana, particularly among the Afro-Guyanese population (Best Plummer, Persaud and Layne, 2009). Two other studies reported worse prognosis for breast cancer in women of the same ethnic origin living in Caribbean countries, including Guyana, compared to women living in the US (Brown et al, 2017; Taioli et al, 2010). We know that hormone receptor testing became available in Guyana in 2016 (Solomon and Motilall, 2019), but to date a full survey of breast cancer treatment in Guyana has not been published.

Purpose of the Study

This is a two-part pilot survey of health providers in Guyana involved in treating breast cancer. We would first like to determine resources available in Guyana for the treatment of breast cancer. Secondly, we would like to identify perceived causes of treatment delays or barriers to treatment of breast cancer in Guyana. In doing so, we hope to identify potential areas to focus on to improve the quality and timeliness of breast cancer treatment in Guyana.

Conflicts of Interest

There are no conflicts of interest for this study. The researchers are not receiving any financial compensation.

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Project name: A pilot survey of access to breast cancer treatment in Guyana

Participant Consent

My signature on this consent form means:

- I have read and understood the information in this consent form.
- I have had enough time to think about the information provided.
- I have been able to ask questions and have had satisfactory responses to my questions.
- I understand that my participation in this study is voluntary.
- I understand that I am not waiving any of my legal rights as a result of signing this consent form.
- I understand that there is no guarantee that this study will provide any benefits to me.

I consent to participate in this study.

Signature: _____

Date: _____