



Past, present and future of breast cancer in Nepal: A review

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ABSTRACT

The objective of this review is to provide a comprehensive outlook on existing evidence related to breast cancer in Nepal and provide a way forward. Different key words were used to search the articles in MEDLINE, Google Scholar and Google. In addition, grey literatures were searched and experts on related fields were contacted. We also looked into the references of each searched articles. BC cases are on the rise since 1990. It is more common among urban women aged 41-50. Majority of women presented self-detected mass at an advanced stage. Most common type of cancer was Invasive ductal carcinoma. Quality of life among BC patients was above average. History of BC treatment goes back to 1992 where first radiation therapy was started. Treatment services are being provided in seven major hospitals along and some private hospitals. BP Koirala memorial hospital is the first specialized cancer hospital in Nepal catering all kind of cancer treatment in Nepal. Different NGOs, government and cancer hospitals are working on prevention of BC in Nepal. Nepal has invested much in detection, diagnosis and treatment of breast cancer. It is high time when the resources should be diverted to primary prevention and early detection along with awareness creation.

Keywords: Breast Cancer, Prevention, Treatment, Nepal

INTRODUCTION

Breast cancer (BC) is the most common cancer in females, in both developing and developed countries,¹ with an estimated 1.67 million new cases diagnosed in 2012.^{1,2} The incidence of BC is on the rise and is higher in the developed countries as compared to developing countries, with 74.1 new cases per 100,000 women in comparison to the 31.3 cases per 100,000.^{2,3} It is the leading cause of cancer death among women (522,000 death annually) with greater burden of mortality in developing countries².

Of the total BC cases diagnosed worldwide in 2012, more than 25% BC cases were from the Asia pacific region (Approx. 404,000 cases at a rate of 30 per 100,000).⁴ The lowest incidence is reported from South East Asian countries and far eastern countries. In

South East Asian countries, the incidence of BC has been steadily mounting. It is estimated that 76,000 women will die of breast cancer in South Asia.⁵ In India, as per ICMR-PBCR data, BC is most common among women of Delhi, Mumbai, Ahmedabad, Calcutta, and Trivandrum where BC constitutes more than 30 percent of all cancers in females.⁶ Most of the south Asian countries has an Age Standardized Death Rate (ASDR) less than 13.1 per 100,000.² However, that of Pakistan is 25.2 per 100,000 women^{2,7} and Bhutan has the lowest ASDR among all the South Asian countries.⁸ In Sri Lanka, the incidence of BC in female population was noted to be 9.82 per 100,000 in 1995. The estimated lifetime risk was 1.35%.⁹ Nepal is a small landlocked developing nations in South East Asia bordering economic giants India and China. The topography of the nation is Mountainous

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in North and plains in South. Politically, it is divided into five development regions and 75 district with approx. 27 million populations.¹⁰⁻¹² BC is the second most common cancer among women in Nepal and is most common in urban settings.¹³ It accounts for 6-10% of all the cancer cases in Nepal and is on steady rise. It is more common among young premenopausal women, and many being diagnosed at an advanced stage.¹⁴⁻¹⁸ Mean duration of waiting to seek treatment among BC patients was 8.3 months.¹⁷ A number of studies have been conducted in Nepal. However, the evidence that exists is dispersed and not available at a single place for the policy makers and researchers.

OBJECTIVE

This review attempts to amalgamate the information and evidence related to BC in Nepal, to analyze the gaps that exist in research and to provide a way forward.

METHODS

We searched MEDLINE, Google Scholar and Google using the key words "Breast cancer, Cancer,

Awareness, Treatment, Prevention, Palliative care, Nepal" with their corresponding MESH term in combination with "OR" and "AND" wherever applicable. The search was limited to, articles written in English language with no date limitations for search. Furthermore, grey literatures were also searched for their availability and whichever applicable were included in the review. Some experts in the fields were contacted for more information in the context in this paper. Apart from these, we looked in the references of searched articles to find out relevant articles for the review.

The search yielded a total of 184 articles in PubMed and 29 articles on other sources (Google scholar, bibliographic checks) on the basis of key words used. Studies that focused on BC burden, treatment, palliative care, and prevention (Screening and awareness) were included in the review. After applying this criteria, a total of 27 articles were included in the review. Figure 1. Explains the study flow.



Fig 1 Study Flow Chart

DISCUSSION

Current Status of BC in Nepal

Many studies have been conducted on BC, however prevalence and incidence is not clearly identified. Population based cancer registry is still in its infancy. Hospital based cancer registries with support from the World Health Organization (WHO), are available in seven hospitals.¹⁹ All of these hospitals are situated in the major cities, of which four are located in the central development region. Most of the studies are based on these hospitals based registries. BC cases have risen sharply since 1990.^{13, 20} In 2010, 333 cases of BC were diagnosed accounting for 10% of all the cancer cases.²⁰ BC is more common among urban women aged 41-50 years.^{13, 21, 22} Survey of untreated breast mass revealed prevalence of 1.6% among adult women.²³ A study on breast lumps, either a cyst, a benign tumour or a malignancy²⁴ shows a prevalence of 4% among women aged 20-49 years.²⁵ Age-Standardized Death Rate (ASDR) of BC of Nepal is 12.92 per 100,000 and is ranked second in cancer related deaths among women.²⁶ Majority of women self-reported with self-detected breast masses. Other features were breast mass associated with pain coupled with ulceration, and nipple discharge.^{13, 17, 27} Majority (80%) were diagnosed as benign conditions, of which fibroadenosis, fibroadenoma and mastalgia was common.^{14, 27, 28} Cytological investigation of breast cancer stratifies most of the cases into C2 (Benign, 88%) followed by C5 (Malignant, 8.5%).^{13, 29} The commonest type of cancer was Infiltrating ductal carcinoma among the women in Nepal.^{13, 17, 21, 27, 28} Most of the patients seek treatment and care at the tertiary stage of cancer.^{27, 30} Regarding the tumour site, majority had lump in the outer upper quadrant followed by central.^{17, 27, 31} Along with breast cancer, axillary lymph node palpation positive was recorded in more than 75% of BC patients.^{13, 17} More than 75% of the patients were ER-/PR- receptor followed by ER+/PR+.²¹ FNAC was commonly used as a diagnostic tool to confirm diagnosis. Most common treatment provided was mastectomy with axillary level I and lymph node dissection in nearly 66% of BC patients. Breast conservation surgery with radiotherapy was common among younger patients when compared to older patients. Adjuvant chemotherapy was also common among younger patients. Histological and immunohistochemical

tests were less prevalent in Nepal. Less than 30% of BC patients underwent these test.^{13, 17, 27} Lymphatic and vascular invasion were higher among patients who had gone histological test (>75%). Number of patients who underwent immunohistochemical were fewer than who went for histological test.¹³

Change in biochemical profiles among breast cancer patients have been reported earlier.³²⁻³⁵ Increase in Triglyceride level and serum total cholesterol were reported in both premenopausal and postmenopausal patients in Nepal. The high concentration of triglyceride might lead to decrease the level of sex hormone binding globulin which results increase in free estradiol which might increase the risk of breast cancer.³⁶ A study conducted in Nepal to assess the biochemical profile among premenopausal and postmenopausal breast cancer patients showed increased level of total cholesterol, triglyceride level in breast cancer patients.³⁷ However, Insulin level decreased in patients when compared to control in both groups. Quality of life (QoL) of breast cancer patients was above average (mean=52.8). The worst performed scales were emotional and social function while best performed scales were physical and role function. Most of the patients have problems regarding sexual function and enjoyment.³⁸ A study on the psychological impact after mastectomy showed fear of death, emotional effect on breast disfigurement, loss of femininity, and concerns related to family.³⁹ However, there is no evidence on QoL of breast cancer survivors. Anxiety and depression were common among the cancer patients.⁴⁰ Many governmental and nongovernmental organizations have been working on cancer in Nepal. These organizations are mainly focused on creating awareness, conducting of screening camps, capacity building for cancer treatments and research, and to support cancer patients and their families to deal with cancer through holistic approach. Nepal Cancer relief society, Cancer Society Nepal (CSN), Nepal Cancer Care Foundation (NCCF) are pioneer research organizations working in these areas. Most of these NGOs work on education and prevention.

Treatment of Breast Cancer in Nepal

History of cancer treatment in Nepal goes back to 1992 when first radiation therapy was started in Bir hospital.²⁰ At present, BC treatment is provided through seven major hospitals viz Bir hospital, Bhaktapur Cancer hospital, BP Koirala Cancer hospital, BPKIHS, TUTH, Teaching hospital Manipal, and Kanti Children Hospital. Apart from these seven major hospitals, the treatment for cancer is being offered at few private hospitals. These private hospitals provide both medical and surgical treatment to cancer patients.^{41, 42} Bir hospital is the pioneer in starting cancer treatment services in Nepal. Services provided are radiotherapy, teletherapy, chemotherapy, palliative therapy.⁴³ Following Bir hospital, Bhaktapur cancer care centre was established in 1992 which was later changed to Bhaktapur cancer hospital (BCH) under Nepal cancer relief society (NCRS). BCH is a national level cancer hospital with a bed capacity of 62. It provides services like chemotherapy, radiotherapy, surgery, brachytherapy along with palliative care and pain management.^{44,45} BP Koirala cancer hospital is the first specialized cancer hospital in Nepal catering to all kind of cancer cases throughout nation. There are a total of nine departments focusing on cancer treatment and its prevention in this hospital. Each unit has different functions and treatment options for different kinds of cancer.⁴⁶ Department of surgical oncology has different subunit of which Gastro Intestinal (GI) and BC Unit cater BC patients. This unit provide different kinds of services for the treatment of BC. A total of 170 patients were treated with breast modified mastectomy in 2010. Other services include breast conservation surgery, breast reconstruction surgery (TRAM and LD), and subcutaneous mastectomy (Open and laparoscopic).⁴⁷ Radiotherapy plays a crucial role in treatment and palliative care in cancer. Delivery of radiotherapy treatment is done by two ways in Nepal: teletherapy and brachytherapy. Teletherapy includes one linear accelerator 2300CD with MLC, port vision, dual energy photo-6 & 20MV, various electron energies: 2-linear accelerator with 6MV photon energy: 3 telecobalt unit. Brachytherapy unit uses iridium isotope as a radioactive source. A total of 102 patients in 2010 were provided with the radiotherapy services. This unit comprises of a 16 bedded hospital

with OPD services. IMRT services are going to start soon from this hospital.⁴⁸ Apart from these, this hospital has an unit dedicated to cancer prevention, control and research department.⁴⁹

WHO has defined palliative care as an "approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual."⁵⁰ Palliative care in Nepal started in 2002 by National Network for Cancer Treatment and Research (NNCTR) with the support from International Network for Cancer Treatment and Research (INCTR). NNCTR/INCTR formed a palliative care group in same year which was later changed to palliative care committee, which consists of oncologist, local doctors, nursing staff.⁵¹ Palliative program in Nepal mainly focuses on Education and training of health care professionals, nursing education, psychosocial training, and clinical guidelines.⁵² Currently Five hospitals (BPKMCH, BCH, Hospice Nepal, Kanti Children Hospital, Scheer Memorial Hospital) are providing palliative care to cancer patients in Nepal. Hospice Nepal has 10 beds currently dedicated for palliative care. It has cared for a total of 756 patients since 2002 and has cared for 160 patients at home in a year.⁵² Kanti Children Hospital has a dedicated team and provided care to 323 children suffering from all cancers. There is a provision of palliative care OPD two days per week along with emergency palliative care treatment in BCH. BCH plans to develop a palliative care department in future. It intends to dedicate 15 beds especially for palliative care.^{44,52} Similarly, BPKMCH also provides a palliative care to cancer patients. In future, BPKMCH hopes to expand their services through home based care in surrounding area.

Prevention Program

Different NGOs, government, and cancer hospital are working on the prevention of Breast cancer in Nepal. Nepal Cancer Relief Society (NCRS) is the foremost NGO established with the aim to prevent, control and cure all kinds of cancer. It has its branches in 43 districts (out of 75) with more than 10,000 volunteers

working to prevent cancer in Nepal.⁴⁵ Now, there are many NGOs like cancer society Nepal, Nepal cancer care foundation, NNCTR working in the field of cancer in Nepal. Apart from these NGOs, major cancer hospitals are conducting prevention programs with the support from their respective District Health Office. Prevention services provided in Nepal can be categorised as: BC awareness/education and early screening and detection services. BC awareness includes school health program targeting school girls. Till 2010, BPMCH and NNCTR trained more than 350 health teachers of 19 districts on risk factors and importance of early screening and detection of cancer. A total of 186,418 students were trained in this process.^{49,53} Apart from the community based program, hospital OPD based awareness is being provided to patients, attendees from the major hospitals. A total of 31,520 patients were a part of this program in BPMCH in 2010.⁴⁹ Government of Nepal, with the support from the NGOs and major hospitals broadcast cancer related news in local, national radio, newspaper as an awareness activity. Screening is a must for the prevention and early detection of cancer. Screening is usually done by organizing camps with the support from local health authority, local NGOs and hospitals.^{53,54} NNCTR has started breast screening camps from 2007. Till 2010, a total of 2800 women were screened for breast cancer.^{53,54} BPMCH provides screening services to women from its OPD itself where trained nurses palpate the breast systematically. Suspected cases of BC are referred to Oncologist and gynaecologist.⁴⁹

CONCLUSION AND RECOMMENDATION

Our First recommendation is to have a national guiding policy for the prevention and treatment of cancer. Though the treatment is being provided by major hospitals and some private hospitals, however in the absence of the treatment guideline it's not clear about the type and delivery of services being provided. Second, strengthening the hospital registry system needs to be prioritize, as this is the major source of cancer related data in Nepal. Third, there is no population based registry system in Nepal. The Government of Nepal should initiate, support, with the help of these hospitals and NGOs working in this field to start population based registries for all cancers in Nepal. This needs to be clearly mentioned

in the government guiding policy. Finally, the level of knowledge among Nepalese women on BC is low,^{55,56} thus measures to increase level of awareness among women is a must.

To conclude, Nepal has invested much in detection, diagnosis and treatment of breast cancer. It is high time when the resources should be diverted to primary prevention and early detection along with awareness creation. This would help to reduce the burden of disease, especially in young women and prevent the catastrophic health related complications.

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