

ORIGINAL ARTICLE

Postoperative Outcomes of Breast Cancer Surgery in Tertiary Care Hospital

UZMA JAVED GUL¹, FARUKH GULZAR KHAWAJA², MUHAMMAD ZAFAR IQBAL³, MALIK IRFAN AHMED⁴, IFTIKHAR AHMAD⁵, SAMRA RIAZ⁶

¹Assistant Professor of Surgery, Breast surgery department, CMH Rawalpindi

²Senior registrar General Surgery CMH Rawalpindi

³Associate Professor General Surgery, Rawalpindi Medical University

⁴Assistant Professor HBS, Medical College Islamabad

⁵Classified surgical specialist General surgery CMH Rawalpindi

⁶Senior registrar General surgery DHQ Hospital, RMU, Rawalpindi

Correspondence to: Farukh Gulzar Khawaja, :Emailfarukhgzulzarkhawaja@yahoo.com

ABSTRACT

Background: Breast cancer is the second most prevalent form of cancer in the world and has the highest incidence of any form of cancer. Late presentation is linked with unfavorable outcomes for patients.

Objective: To determine the postoperative outcomes of breast cancer surgery

Material and Methods: The current cross-sectional study was carried out at Breast surgery department, CMH Rawalpindi, Pakistan from March 2023 to September 2023. The approval of our study was taken from the ethical committee of the hospital. The overall sample size in our study was 200. All the information's were collected from the hospital record. The different information's that were collected includes include age, socioeconomic status, co-morbidities, type of Surgery done like mastectomy, lumpectomy, any other additional surgery, techniques used in surgery. Postoperative Outcomes, Operation risks, post- operation activities and time required for healing, readmissions, prescription of antibiotics, measures used for pain control. The data was entered and analyzed by using SPSS version 16.

Results: In our study, totally 200 patients were enrolled. The mean age ($\pm$ SD) of the patients was 47 ($\pm$ 6) years. Based on co-morbid conditions, hypertension was observed in 70 (35%) patients, 40 (20%) patients were observed with diabetes while in 90 (45%) patients no co-morbid conditions were observed. Based on postoperative complications, infection was observed in 50 (25%) patients, wound dehiscence was observed in 20 (10%) and hematoma was observed in 10(5%) patients. This association of recovery time with age and co-morbidities was significant statistically. ($p=0.001$)

Conclusion: Our study concludes that the major complications after breast cancer surgery include infection, wound dehiscence and hematoma formation. Our study also concludes that age and co-morbid conditions are significantly associated with the recovery time.

Keywords: Breast cancer; surgery; Complications; mastectomy

INTRODUCTION

Breast cancer is the second most prevalent form of cancer in the world and has the highest incidence of any form of cancer^{1,2}. Late presentation is linked with unfavorable outcomes for patients². It is important to note that there is substantial disparity between the survival rates in five years; while the survival rate in five years in the developed world is 83.2%, in developing countries like Brazil and India, it stands at 58% and 52.1%, respectively^{3,4}. Late presentation of patients in Pakistan is attributed to ignorance of the disease or just having basic facilities. Other factors such as fear of impending surgery and chemotherapy may account for the delay in presentation. It is, therefore, unrealistic to practice breast conservation in many breast cancer cases. Surgery is based on several parameters, such as the stage when presented, availability of facilities and preference of the patients⁵⁻⁸. Additionally, the diagnosis and management of breast cancer have many psychosocial implications, which may become even more challenging if there are postoperative complications. Postoperative complications can occur soon after surgery and may include wound infection, seroma, hematoma, and flap necrosis^{4,9}. The late complications that may be encountered by the patient include shoulder stiffness, brachial plexus disorder and psychosocial complications⁶⁻⁸. However, there are a number of risk factors that lead to the occurrence of postoperative complications that are not modifiable.

Latency periods for breast cancer recurrences range from years to decades. One of the latency period theories is the dormancy of cancer, which refers to a phase in cancer development where cancer is still there but does not cause symptoms^{9, 10}. The perioperative latency period has been said to be the crucial period for risk of recurrence¹¹. It is possible that the presence of complications, along with their associated

inflammatory reactions, may stimulate dormant micrometastases and lead to recurrence. Therapy designed to eliminate micro-invasive cancer cells starts after about a month following surgery, and hence it is unlikely to have much effect on the micrometastases activated by the inflammatory reaction from complications within the first month. The current study is mainly concerned with the information related to demographics, surgery, and postoperative complications that would provide best practice guidelines for care model development and improvement of surgical procedures. Thus, it will be able to contribute to the improvement of postoperative care of patients with breast cancer in Pakistan and reduction in the rate of complications. Moreover, it aims at filling the existing research gap related to an extensive analysis of postoperative outcomes of breast cancer patients in Pakistan. Therefore, the purpose of the study will be to compare the above-mentioned results with the results in other regions in order to find out the possibility of further development of the modern practices of tertiary care centers in Pakistan. The result of the study will be the enrichment of the existing knowledge base and improvement of breast cancer treatment practices in the region.

MATERIALS AND METHODS

The current cross-sectional study was carried out at Breast surgery department, CMH Rawalpindi, Pakistan from March 2023 to September 2023. The approval of our study was taken from the ethical committee of the hospital. The overall sample size in our study was 200. The target population in our study was all the post mastectomy women who underwent the surgery between June 2023 to November 2023. The inclusion criteria of our study were postmenopausal women diagnosed with breast cancer and who are waiting for breast surgery. The exclusion criteria were all the women with metastatic cancer, women who are to undergo palliative surgery and women with incomplete records. All data kept confidential throughout the study period.

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All the information's were collected from the hospital record. The different information's that were collected includes include age, socioeconomic status, co-morbidities, type of Surgery done like mastectomy, lumpectomy, any other additional surgery, techniques used in surgery. Postoperative Outcomes, Operation risks, post- operation activities and time required for healing, readmissions, prescription of antibiotics, measures used for pain control. The data was entered and analyzed by using SPSS version 16. Descriptive statistics was used for patient characteristics and postoperative status. Logistic regression was used to determine predictors of postoperative status. Binary variables like complications were determined by using logistic regression whereas continuous variables like recovery were determined by using linear regression.

RESULTS

In our study, totally 200 patients were enrolled. The mean age ($\pm$ SD) of the patients was 47 ($\pm$ 6) years. Based on socioeconomic status, 70 (35%) patients have low socioeconomic status, 90 (45%) have middle socioeconomic status while 40 (20%) patients were observed with high socioeconomic status. (Figure 1) Based on co-morbid conditions, hypertension was observed in 70 (35%) patients, 40 (20%) patients were observed with diabetes while in 90 (45%) patients no co-morbid conditions were observed. (Figure 2) Based on surgical procedure, Mastectomy was done in 110 (55%) patients and Lumpectomy was done in 90 (45%) patients. (Figure 3) Based on postoperative complications, infection was observed in 50 (25%) patients, wound dehiscence was observed in 20 (10%) and hematoma was observed in 10(5%) patients. (Figure 4) The recovery time was analyzed on the basis of age groups and co-morbidities. The mean ($\pm$ SD) recovery time was 19.15 ($\pm$ 0.04) days in patients of age group <50 years while mean ($\pm$ SD) recovery time was 24.01 ($\pm$ 1.19) days in patients of age group $\geq$ 50 years. The mean ($\pm$ SD) recovery time was 17 ($\pm$ 1.11) days in patients without co-morbid conditions while mean ($\pm$ SD) recovery time was 30 ($\pm$ 2.27) days in patients with hypertension and diabetes. This association of recovery time with age and co-morbidities was significant statistically. ($p=0.001$) (Table 1) For identification of predictors of postoperative complications and recovery time, multivariate regression analysis was used. This shows that age $\geq$ 50 years and hypertension and diabetes were significant predictors ($P\leq 0.05$) of postoperative complications, while advanced surgical techniques reduced the risk of postoperative complications and recovery time. (Table 2)

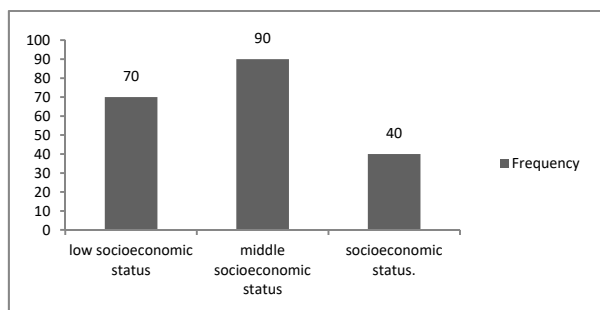


Figure 1: Distribution of patients based on socio-economic status

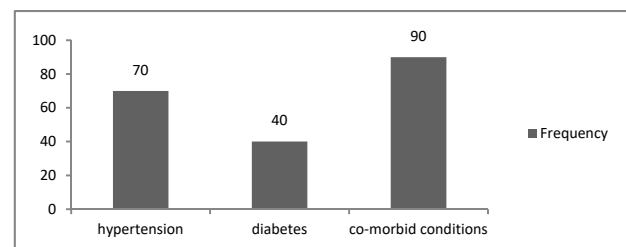


Figure 2: Distribution of patients based on co-morbidities

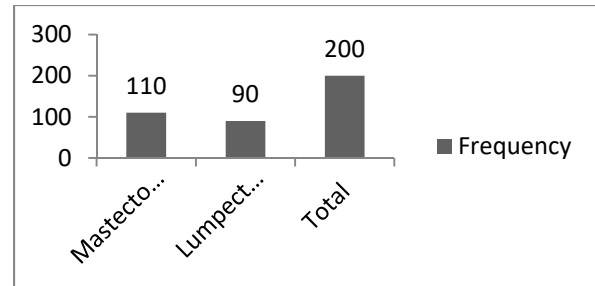


Figure 3: Distribution of patients based on type of surgical procedure

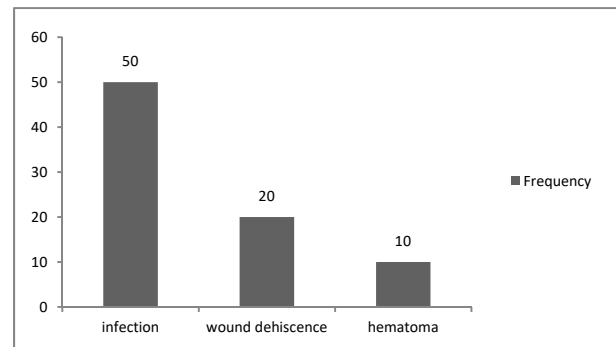


Figure 4: Distribution of patients based on post-operative complications

Table 1: Association of recovery time with age and co-morbidities

Variable		Mean ($\pm$ SD) recovery time (days)	p
Age	<50 years	19.15 ($\pm$ 0.04)	0.001
	$\geq$ 50 years	24.01 ($\pm$ 1.19)	
Co-morbid condition	No co-morbidities	17 ($\pm$ 1.11)	0.0009
	Hypertension/diabetes	30 ($\pm$ 2.27)	

Table 2: Multivariate Regression Analysis for Predictive variables

Predictors	Odd ratio (95% CI)	p
$\geq$ 50 years	1.72 (120-246)	0.002
Hypertension/diabetes	2.05 (1.42-3.21)	0.0009
Advance surgical technique	0.55 (0.42-0.95)	0.0001

DISCUSSION

The surgery for breast cancer is still one of the most significant procedures for a woman to undergo. Treatment options for breast cancer have undergone changes in the recent decades, where more and more women are being treated by breast conservation therapy along with multimodal therapy¹⁰⁻¹². Majority of them take up a treatment protocol, which involves a mixture of both chemotherapy and radiotherapy¹³. Where following such protocols rigorously could result in better surgical outcomes, a delay caused by any other diseases could affect their survival. In Pakistan, a significant number of women feel hesitant to consult the doctors about their breast-related concerns due to the nature of the isolated and local social customs prevalent there. There is hence a requirement of managing breast cancer patients psychosocially in Pakistan, from therapies to social support as well as being referred to the right healthcare center. While surgeons compete to conduct those surgeries that have good post-operative results, a combination of many factors may be required in order to attain better results from cancer surgeries^{6,12,15}.

In our study, totally 200 patients were enrolled. The mean age ($\pm$ SD) of the patients was 47 ($\pm$ 6) years. Based on postoperative complications, infection was observed in 50 (25%) patients, wound dehiscence was observed in 20 (10%) and hematoma was observed in 10(5%) patients. The rates of these complications are similar to those found in other studies done in other LMICs to highlight the various challenges faced in these health systems¹⁵.

In our study, the recovery time was analyzed on the basis of age groups and co-morbidities. The mean ($\pm$ SD) recovery time was 19.15 ($\pm$ 0.04) days in patients of age group <50 years while mean ($\pm$ SD) recovery time was 24.01 ($\pm$ 1.19) days in patients of age group $\geq$ 50 years. The mean ($\pm$ SD) recovery time was 17 ($\pm$ 1.11) days in patients without co-morbid conditions while mean ($\pm$ SD) recovery time was 30 ($\pm$ 2.27) days in patients with hypertension and diabetes. This association of recovery time with age and co-morbidities was significant statistically.

The result on direct correlation between age and complications is strongly substantiated by existing studies, which have proven that the risk of postoperative complications is directly proportional to age due to reasons such as lower physiological reserves and multiple comorbidities. In our study, for identification of predictors of postoperative complications and recovery time, multivariate regression analysis was used. This shows that age $\geq$ 50 years and hypertension and diabetes were significant predictors ($P \leq 0.05$) of postoperative complications, while advanced surgical techniques reduced the risk of postoperative complications and recovery time. These findings are in line with the findings of the previous studies who reported significant association of age and co-morbidities with the postoperative complications and recovery time^{18,19}.

The most significant limitation of this research was its nature as retrospective research, which could lead to selection bias. In other words, all data was gathered based on patients' medical records. The same methodology prevents us from conducting matching for all potential sources of confounding such as the surgeon's experience level or postoperative treatment practices that are not mentioned in medical records. Thus, future studies should have prospective design in order to gather more information about surgical results. Additionally, a multicenter study that includes primary, secondary, and tertiary centers should be conducted to identify the disparities in terms of the treatment and its results in Pakistan. Additionally, assessing the impact of various interventions, such as those used in infection prevention and control or education and training of surgeons, could be helpful to identify effective ways of improving the results of breast cancer surgery. There are many factors that can influence the results of breast cancer operations in Pakistani health care facilities, and there is a large scope of improvement left. In such a way, care processes become more efficient, the availability of new techniques of conducting surgeries increases, the needs of elderly and patients with comorbidities are taken into account, and consequently, the results of patients become better.

CONCLUSION

Our study concludes that the major complications after breast cancer surgery include infection, wound dehiscence and hematoma formation. Our study also concludes that age and co-morbid conditions are significantly associated with the recovery time. The areas which need to be addressed include infection control measures, patient suffering from other illnesses and use of contemporary surgery techniques amongst many others. This means that the standards of care have to be set as well as availability of advanced surgical practices. Future studies need to be carried out to determine the impacts of these strategies on the population in the long-run and whether this sort of protocol could be used in other tertiary care centers in Pakistan. At this stage, the

healthcare policy in Pakistan should include funding and training surgeons to perform such complicated procedures.

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