Impact of Comorbidities on Quality Of Life in Breast Cancer Patients

Monica Irukulla, Rama Vaghmare, Deepa Joseph, Syed Fayaz Ahmed, Jyothi Jonnadula, Deepthi Valiyaveettil

ABSTRACT :

Introduction: *Comorbidities are common among cancer patients and with an aging population are becoming more prevalent. These can potentially affect the stage at diagnosis, treatment and outcomes of people with cancer. Despite the intimate relationship between comorbidity and cancer, there is limited consensus on how to record, interpret or manage comorbidities in the context of cancer. Addressing the impact of comorbid conditions in cancer patients warrants improvement in the evidence base from which to make treatment decisions for those with comorbidities.*

Methods: *In this prospective study, 64 patients with breast cancer, underwent QOL assessment using FACT –B questionnaire at three time points- pre-radiation and three and six months post radiation.*

Results: *29(46%) patients had comorbidities of which 23 (35%) had cardiovascular comorbidities and 6 had other comorbidities. The co-morbidities were negatively associated with multiple domains of quality of life, including physical functioning, general health, bodily pain. Patients with diabetes and hypertension had significantly lower scores in physical functioning in comparison to patients without diabetes and hypertension, but improved after treatment. In majority of patients the overall scores were less in patients with co-morbidities compared to patients without any co-morbidity.*

Conclusion: *Comorbidities can significantly affect the quality of life in patients with comorbidities. Hence greater research into the QOL issues for better patient care and symptom management especially during the transitioning phase from active care to follow up will help clinicians improve the quality of care and interdisciplinary co-ordination.*

Key words: Quality of life, co-morbidities in breast cancer patients, impact of comorbidities.

Article received on 03 OCT 2016, published on 31 OCT 2016.

Rama Vaghmare[1], Monica Irukulla[2], Deepa Joseph[3], Syed Fayaz Ahmed[3], Jyothi Jonnadula[4], Deepthi Valiyaveettil[5],
[1, 4] MD resident, Department of Radiation Oncology,
[2] Associate Professor and HOD , Department of Radiation Oncology,
[3] Assistant Professor, Department of Radiation Oncology,
[5] Senior Resident, Department of Radiation Oncology,
Nizam's Institute of Medical Sciences, Hyderabad.
Corresponding Author: Monica Irukulla
Email: dr_monica11@yahoo.com

INTRODUCTION

Comorbidity is defined as the coexistence of disorders in addition to a primary disease of interest. Comorbidities are common among cancer patients and with an aging population are becoming more prevalent[1]. These can potentially affect the stage at diagnosis, treatment and outcomes of people with cancer. Despite the intimate relationship between comorbidity and cancer, there is limited consensus on how to record, interpret or manage comorbidities in the context of cancer. Patients with comorbidities are often less likely to receive treatment with curative intent. Evidence in this area is lacking because of the frequent exclusion of patients with comorbidities from randomized trials. Cancer itself is a chronic disease with long term consequences for health and quality of life and is more prevalent among older people. The coexistence of cancer and other chronic diseases has substantial implications for treatment decisions and treatment outcomes for both cancer and chronic disease. There are several reasons that may explain the impact of comorbidity on treatment uptake. Clinicians may be concerned that concomitant conditions will increase the toxicity and side effects of treatment, that treatments may be less effective in these groups, or that the life expectancy of these patients is insufficient to justify the use of potentially toxic agents. It is also possible that these patients themselves are more likely to decline treatment.

Breast cancer is the most commonly diagnosed cancer among women worldwide. It has been reported that each year over 1.1 million women worldwide are diagnosed with breast cancer and 410,000 die from the disease [2] .Many breast cancer patients have co existent chronic diseases or co-morbidities at the time of their cancer diagnosis. Women with breast cancer have similar risks as those without cancer for developing chronic illness or co-morbidities due to natural effects of aging [3]. However cancer survivors are at risk for chronic conditions such as obesity, hypertension,

diabetes, dyslipidemia and decreased bone mass not only because of the natural aging process, but sometimes due to the late effects of cancer treatment [4].

Addressing the impact of comorbid conditions in cancer patients warrants improvement in the evidence base from which to make treatment decisions for those with comorbidities. This in turn requires improvement in the measurement of comorbidities, improving integration and coordination of care, preventing the occurrence of new comorbidities and limiting exacerbations of existing conditions[6]. This will lead to development of better clinical decision making tools and strengthen research collaborations between specialties.

MATERIALS & METHODS:

We conducted a prospective study in patients of breast cancer who reported for receiving adjuvant radiation therapy. Structured interview tool was used to gather demographic, medical, and clinical information regarding breast cancer diagnosis, stage of disease, type of surgery and chemotherapy and the complications. Co-morbidities were self-reported by the patients at the time of cancer diagnosis and prior to cancer treatment.

Quality of life was assessed with the help of FACT B scale [7] at three points of time, baseline (before starting radiation) and at 3 and 6 months post completion of radiation. Characteristics of the participants were summarized using descriptive studies (means, standard deviations for continuous variables, and frequency distributions, and proportions for qualitative variables. All statistical tests were conducted at the 0.05 significance levels.

At baseline and at 3months post radiation there were 64 patients available for analysis and at 6 months after the treatment only 60 patients were available for analysis. 3 patients developed metastatic disease within six months and one patient could not be assessed.

The median age at diagnosis was 52.5 years, ranging from 29 years to 86 years. 42 (81%) women were married, 10 (16%) were widowed, 2 (3%) were unmarried. 22 patients (34.3%) were obese (BMI>25) and 21 (32%) were overweight (BMI 23-24.9).The disease was left sided in 52% , right sided in 42% , bilateral in 6% patients.

76% patients underwent mastectomy, 24% patients had undergone breast conserving surgery. Infiltrating ductal carcinoma (IDC) was the predominant histo-pathological finding in 89% cases. 53 (83%) patients received adjuvant chemotherapy. 5 patients received neo adjuvant chemotherapy. No chemotherapy was given in six patients of which three patients did not receive chemotherapy due to comorbidities.

There were no associated comorbidities in 35(54%) patients. 29 (46%) patients had co-morbidities like diabetes mellitus (DM), hypertension, coronary artery disease or thyroid disorders. One patient had Wolf Parkinson White syndrome and one had rheumatic heart disease. 23 patients had cardiac co-morbidities, 6 had other co-morbidities. Among 64 patients predominant co morbidity was DM in 30% patients, hypertension in 28% patients, arthritis in 15% patients, 7% had thyroid problems. 13(20.3%) had more than one comorbidity .The comorbidities were self-assessed and did not change during treatment or until six months post radiation. The demographic data and few relevant parameters are given in the Table I.

No significant difference in the physical and functional well being was observed between baseline and post treatment scores. Emotional well being and symptoms like pain, and upset by hair loss, systemic therapy side effects improved significantly during follow up. There was deterioration in the social well being scores compared to pre treatment which was statistically not significant. The arm symptoms were increased compared to baseline and persisted. Impaired body image and decrease in the sexual functioning was observed in all patients. There was moderate distress due to fear of cancer recurrence and resuming normal life. Fatigue was predominant especially in the first and second week of RT treatment. Majority of patients (70%) reported that fatigue decreased in intensity but was sustained even at 3 and 6 months following treatment. The comparison of all the scores is given in the Table II

The comorbidities were negatively associated with multiple domains of quality of life including physical functioning, general health and bodily pain. Emotional and functional well being were improved (p=0.001 and p=0.002 respectively). The scores is in patients with comorbidities is shown in the Table III

Patients with diabetes and hypertension had significantly lower scores in physical functioning in comparison to patients without diabetes and hypertension, but they improved after treatment. The overall scores were lower in patients with comorbidities compared to patients without any comorbidity. The scores of the patients without comorbidities are shown in Table IV.

The scores for physical well being, emotional well being, functional well being and additional concerns were improved with statistically significant differences for functional well being and additional concerns ($p<0.001$ and $p=0.013$ respectively). Emotional well being scores improved ($p=0.067$). The total FACT B scores improved compared to baseline ($p=0.081$)

At Pre RT (Baseline) of total 23 patients with cardiac comorbidity, 19 (82%) had FACT B score <100, 4 (18%) had score >100. At 3 months, 15 patients (65%) had scores <100 and 8(35%) had a score of >100. At 6 months, 11 patients (48%) had scores <100 and 12 patients (52%) had a score >100. In patients with comorbidities all the scores were improved compared to baseline with physical well being, functional well being and additional concerns being statistically significant (p values of 0.025, 0.01 and 0.003 respectively). The graphical representation of the mean scores of patients with and without comorbidities is shown in Graph I.

Table I: Demographic data in patients with and without comorbidities

morbidities	Total	no co morbidities	with co
	N=64	N=35	N=29
Age range	29 – 82	29-71	40- 82
Married	52(81%)	28(80%)	24(83%)
Widowed	10 (16%)	6(17%)	4(14%)
Unmarried	2(3%)	1 (3%)	1(3%)
	(Median 23.7)	(Median22. 3)	(Median 24.2)
Socioeconomic Status			
Upper middle	16(25%)	5(14%)	11(38%)
Lower middle	23(36%)	16(46%)	7(24%)
Lower	25(39%)	17 (40%)	8(38%)
Educated	32(50%)	18 (49%)	14(48%)
Surgery			
Mastectomy	49(76%)	27(77%)	22(76%)
BCS	15 (24%)	10(23%)	5(24%)
Laterality			
Left	33(52%)	13 (32%)	20(69%)
Right	27 (42%)	21(60%)	6(20%)
Bilateral	4(6%)	1 (3%)	3(11%)
Chemotherapy	58(90%)	30(86%)	28(96%)

Table II: The comparison of all scores in all the patients

Functioning	Baseline/PreRT Mean(SD) N=64	3monthsFU Mean(SD) N=64	6monthsFU Mean(SD) N=60	P
Physical wellbeing	18.1(3.1)	19.7(3.4)	20.2(3.8)	NS
Social well being	20.3(3.7)	19.8(3.6)	19.2(3.6)	NS
Emotional well being	16.4(3.1)	17.5(3.3)	17.7(2.7)	0.001
Functional well being	17.5(3.5)	18.4(3.2)	18.9(2.8)	NS
Additional concerns	22.1(4.8)	23.1(5.1)	23.3(5.6)	0.002
Total Score	94(14.2)	99(14.2)	101.1(13.6)	NS

Foot note: NS-not significant, After the Comparison of total FACT B scores in patients, high score indicates good quality of life

PWB-physical well being,

EWB-Emotional well being,

SWB-social well being, FWB-functional well being,

Add- Additional concerns related to breast cancer.

Table III: QOL scores comparison in patients with co-morbidities.

Variables	Pre RT With comorbidities Mean(SD) N=29	3 month FU with Co-morbidities Mean(SD) N=29	6 monthly FU with comorbidities Mean(SD) N=27	p value
PWB	17.7(3)	18.2(3.2)	19.6(3.9)	0.025
SWB	19.7(2.9)	19.8(2.9)	20.3(3.3)	0.684
EWB	16.2(3.2)	16.9(3.1)	18(2.7)	0.001
FWB	16.8(2.7)	17.8(2.2)	18(1.95)	0.349
Add	21.1(4.5)	21.9(4.7)	22.7(4.9)	0.003
FACT-B total	91.5(10.89)	96.4(11.2)	100.1(13.7)	0.00

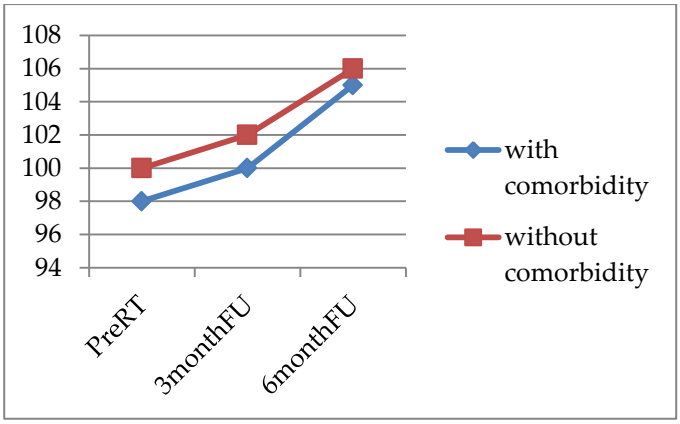
Foot note: NS-not significant, After the Comparison of total FACT B scores in patients, high score indicates good quality of life PWB-physical well being, EWB-Emotional well being, SWB-social well being, FWB-functional well being, Add- Additional concerns related to breast cancer.

Table IV: QOL Scores comparison in patients without comorbidities.

	Pre-RT Without comorbidities Mean(SD) N=35	3monthFU Without Comorbidities Mean(SD) N=35	6month FU without comorbidities Mean(SD) N=33	P value
PWB	18.8(3.18)	19.5(3.2)	21(3.6)	0.001
SWB	21.4(4.1)	21(3.9)	20.3(3.6)	0.00
EWB	16.5(3.2)	16.7(3.1)	17(2.7)	0.067
FWB	18(4.04)	19.1(3.6)	19.9(2.8)	0.00
Add	22.9(5.05)	23.6(4.8)	24.42(4.9)	0.013
FACT-B total	97.6(16)	99.5(15.2)	104(13.1)	0.081

Foot note: PWB-physical well being, EWB-Emotional well being, SWB-social well being, FWB-functional well being, Add- Additional concerns related to breast cancer.

Graph I: Graphical representation of over all scores in patients with comorbidities Vs without comorbidities



DISCUSSION: Breast cancer survivors with co morbidities can potentially have poorer outcomes and quality of life. The influence of comorbidities upon breast cancer survivors quality of life, however has not been addressed in most studies. With increased awareness of the importance of the individualized patient centered care as well as the increased rates and lengths of breast cancer survivals, quality of life becomes the focal parameter for breast cancer survivorship [8]. A few studies have reported that cancer survivors with high chronic disease burden or comorbidities report lower physical and social functioning [9, 10].

Quality of life data in metastatic breast cancer patients was found to be prognostic and predictive of survival time. Psychological distress-anxiety and depression were found to be common among breast cancer patients even years after their diagnosis and treatment. Psychological factors also were found to predict subsequent quality of life or even overall survival in breast cancer patients [11]. Supportive care-interventions such as counseling, providing social support and exercise can potentially improve quality of life. Symptoms like pain, fatigue, arm edema and menopausal symptoms are commonly reported by breast cancer patients. Recognition and management of these symptoms is an important issue as such symptoms impair health-related quality of life. Breast cancer patients especially in younger age groups suffer from poor sexual functioning that can negatively affect quality of life. Assessing quality of life in cancer patients could contribute to improved treatment outcomes and serve as prognostic markers [12].

A study on quality of life in breast cancer patients after the surgery until the completion of treatment, the baseline psychosocial status of women enrolled in a randomized trial testing two psychosocial interventions for women at the end of primary treatment [13] At the end of primary treatment for breast cancer, women in all treatment groups reported good emotional functioning but decreased physical functioning, particularly among women who have a mastectomy or receive chemotherapy. Clinical interventions to address common symptoms and psychosocial issues should be considered to improve physical and emotional functioning during post treatment survivorship care.

Limitations of our study include a short follow up period and no baseline QOL at the time of diagnosis. Long term follow up is likely to provide better insights into issues during follow up. As there is limited literature in Indian population development of instruments for measuring quality of life in breast cancer patients, or cultural adaptation and validation studies of the existing instruments need to be done.

CONCLUSIONS:

With an aging population and increasing number of patients diagnosed with cancer, the management of comorbidities will play an important role in modern health services. To address this growing challenge, we need to move beyond the present single-disease model of studying cancer and embrace the complexities of studying and managing people with complex medications. Research into the QOL issues during the transitioning phase from active care to follow up will help clinicians improve the quality of care and interdisciplinary co-ordination.

REFERENCES:

1. Dehal, A.; Abbas, A.; Johna, S. Comorbidity and outcomes after surgery among women with breast cancer: Analysis of nationwide in-patient sample database. Breast Cancer Res. Treat. 2013, 139, 469–476.

2. Stewart BW, Paul Kleihues P: World Cancer Report. 2003, Lyon, France, International Agency Research on Cancer

3. Edwards BK, Noone AM, Mariotto AB, et al. Annual Report to the Nation on the status of cancer, 1975-2010, featuring prevalence of comorbidity and impact on survival among persons with lung, colorectal, breast, or prostate cancer. Cancer. 2014;**120**:1290-1314.

4. Montazeri A, Gillis CR, McEwen J: Measuring quality of life in oncology: is it worthwhile? Part II. Experiences from the treatment of cancer. Eur J Cancer Care. 1996, 5: 168-175. 10.1111/j.1365-2354.1996.tb00229.x.

5. Sogaard M, Thomsen R, Bossen K, Sorensen HT, Horgaard M. The impact of comorbidity on cancer survival: a review. Clin Epidemiol. 2013;**5**:3-29.

6. Fried LP, Ferrucci L, Darer J, Williamson JD, Anderson G. Untangling the concepts of

disability, frailty, and comorbidity: implications for improved targeting and care. J Gerontol A BiolSciMedSci2004;**59**:255-263.CrossRef (/resolve/reference/XREF?id=10.1093/gerona/59.3.M255), PubMed

7. www.facit.org

8. Deshpande, A.D.; Sefko, J.A.; Jeffe, D.B.; Schootman, M. The association between chronic disease burden and quality of life among breast cancer survivors in Missouri. Breast Cancer Res. Treat. 2011, 129, 877–886.

9. Montazeri A, Milroy R, Hole D, McEwen J, Gillis CR: How quality of life data contribute to our understanding of cancer patients' experiences? A study of patients with lung cancer. Quality of Life Research. 2003, 12: 157-166. 10.1023/A:1022232624891.

10. Smith, A.W.; Reeve, B.B.; Bellizzi, et al comorbidities, and health-related quality of life of older adults. Health Care Financ. Rev. 2008, 29, 41–56.

11. Satariano WA, Ragland DR. The effect of comorbidity on 3-year survival of women with primary breast cancer. Ann Intern Med. 1994;120:104-110.

12. American Cancer Society (ACS). Breast Cancer Facts & Figures 2013–2014; American Cancer Society, Inc.: Atlanta, GA, USA, 2014. Available online: http://www.cancer.org/acs/groups/ content/@research/documents/document/acspc-042725.

13. Quality of Life at the End of Primary Treatment of Breast Cancer: First Results From the Moving Beyond Cancer Randomized Trial. Patricia A. Ganz, Lorna Kwan, Annette L. Stanton, Janice L. Krupnick,Julia H. Rowland, Beth E. Meyerowitz, Julienne E. Bower, Thomas R. Belin.