

# A Comparative Analysis of Quality of Life in Cervical Cancer Patients Undergoing Conventional Vs Conformal Radiotherapy

Chatharaju Swarna Kumari<sup>1</sup>, Abdul Wahab Abdullah<sup>2</sup>, Alluri Krishnamraju<sup>3</sup>

## ABSTRACT

**Introduction:** Gynaecological cancers are most common group of malignancies in women, accounting for approximately 18% of all cancers of women worldwide. However, these patients after being cured face a variety of treatment and disease related side effects frequently that affect their quality of life (QOL) during, immediately and after treatment. The aim of the present study is to compare the quality of life in cervical cancer patients after undergoing conventional vs conformal radiotherapy.

**Material and methods:** The present study was conducted in Department of Radiation Oncology; Basavatarakam Indo American Cancer Hospital and Research Institute, Banjara Hills, Hyderabad. The study was conducted from August 2015 to June 2016. The study consisted of 60 cervical cancer patients who had completed a minimum of 2 years of follow up after the completion of treatment with chemo-radiation. The Cross sectional study divided the patients of cervical cancer in two arms. In Group A/ ARM 1, patients treated by Intensity modulated Radiotherapy (IMRT) was included. In Group B/ARM 2, patients treated by conventional RT (CXRT / Conventional) were included. Quality of life of patients was assessed using EORTC QLQ-C30 and QLQ-CX24 modules. Patient's details regarding demographic history, examination findings, stage of disease and treatment received were collected from hospital records. Mean and standard deviation were used to describe results of level of quality in sample by using Windostat Version 9.2. Comparison of two arms was done using t test.

**Results:** The present study included 60 patients of cervical cancer. The most common age group at diagnosis was 45 to 55 years and the mean age at the time of diagnosis was 48 years. Squamous cell carcinoma was the most commonly seen cancer histologically. There were two cases of Stage IB in group A and 1 case each of stage IIA in Group A and Group B. No statistically significant differences between both arms were observed in global health, functioning, fatigue, constipation, diarrhoea, financial difficulties and there is no difference in EORTC QLQ-C30 QOL scores in both arms of the study.

**Conclusion:** All health care providers should address regarding sexual life and provide guidance and assurance after treatment. In our study no significant difference was found in the quality of life amongst patients undergoing conventional or conformal radiotherapy.

**Keywords:** Cancer, Gynaecological, Quality of Life, Radiotherapy, Carcinoma Cervix, IMRT.

(CC) is most common gynaecologic cancer and fourth most common cancer affecting women worldwide with 5,28,000 new cases in year 2012. It is also fourth most common cause of cancer death (2, 66,000 deaths in 2012) in women worldwide. Almost 70% of global burden fall in areas with lower levels of development. In India, CC is second most common cancer in women with an incidence of 1,22, 844 in 2012 and second common cause of cancer death in women.<sup>2</sup> Cervical cancer risk is 1% during life of a woman living in a developed country, whereas respective value for a woman living in a country without preventive programs is 5%.<sup>3</sup> Screening programs and recent advances in treatment have contributed greatly to improved overall survival in cervical cancer patients. This has made a subset of patients, known as survivors, who are in disease free-state after completion of radical treatment and live significant number of years after initial diagnosis. Improved survival is also augmented by advances in early detection and treatment of gynaecologic malignancies<sup>4</sup>, with continued improvements in surgery, radiotherapy, and chemotherapy.<sup>5</sup>

However, these patients after being cured face a variety of treatment and disease related side effects frequently that affect their quality of life (QOL) during, immediately and after treatment. Most common symptoms experienced by patients after radical chemo-radiotherapy are - fatigue, peripheral neuropathy, pain, nausea and vomiting, anaemia, emotional distress, and sexual dysfunction. The aim of the present study is to compare the quality of life in cervical cancer patients after undergoing conventional vs conformal radiotherapy.

## MATERIAL AND METHODS

The present study was conducted in Department of Radiation Oncology; Basavatarakam Indo American Cancer Hospital and Research Institute, Banjara Hills, Hyderabad. The study was conducted from August 2015 to June 2016. The study

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## INTRODUCTION

Gynaecological cancers are most common group of malignancies in women, accounting for approximately 18% of all cancers of women worldwide.<sup>1</sup> Cervical cancer

consisted of 60 cervical cancer patients who had completed a minimum of 2 years of follow up after the completion of treatment with chemo-radiation. The Cross sectional study divided the patients of cervical cancer in two arms. In Group A/ ARM 1, patients treated by Intensity modulated Radiotherapy (IMRT) was included. In Group B/ARM 2, patients treated by conventional RT (CXRT / Conventional) were included. The study included histologically confirmed cases of cervical cancer cases who were aged between 18-80 years. All the patients were informed about the study and a written consent was obtained from all in their vernacular language. The ethical committee clearance was obtained from the institute’s ethical board. Patients with any recurrent disease, previous history of radiation, chronic renal or chronic bowel disease and any other a associated psychiatric illness were excluded from the study. Patients were explained about questionnaire in detail in their own language. Quality of life of patients was assessed using EORTC QLQ-C30 and QLQ-CX24 modules. Patient’s details regarding demographic history, examination findings, stage of disease and treatment received were collected from hospital records.

**Method**

Generic HRQOL was assessed by 30 item scale of EORTC-QLQ C-30 version-3. The questionnaire covered five functional scales (physical, role, cognitive, emotional, and social), general QOL, three symptom scales (fatigue, pain and nausea and vomiting) and six single items. Single items assessed common symptoms such as dyspnea, loss of appetite, insomnia, constipation, diarrhea and perceived financial impact. Two questions were directed towards overall evaluation of health and QOL. Each item had 4- point response scale (not at all; a little, quite a bit; very much) with exception of two items measuring global health and quality of life, which have – 7 point response scales. Higher scales scores better functioning (0-100) for functional scales and global health scales. Lower score for symptom scale means better functioning. There was another questionnaire (EORTC QLQ-CX24) that consisted of multi item scales on symptom experience, body image, and sexual or vaginal functioning and single item scales on lymphedema, peripheral neuropathy, menopausal symptoms, sexual worry, sexual activity and sexual enjoyment. Each question has four response choices (not at all; a little, quite a bit; very much). Higher scores indicate worse functioning except for sexual activity and sexual enjoyment. High internal consistency, overall reliability and validity of the instrument have been demonstrated across languages and countries in numerous international trials with cancer patients, and hence selected for assessment of QOL. Higher scores for functioning items and global quality of life scale represent a better level of functioning.

**STATISTICAL ANALYSIS**

Mean and standard deviation were used to describe results of level of quality in sample by using Windostat Version 9.2. Comparison of two arms was done using t test.

**RESULTS**

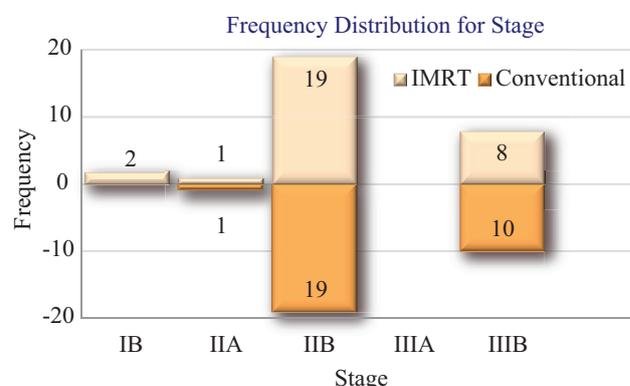
The present study included 60 patients of cervical cancer. The most common age group at diagnosis was 45 to 55 years and the mean age at the time of diagnosis was 48 years. Squamous cell carcinoma was the most commonly seen cancer histologically.

Figure 1 demonstrates the distribution of cases according to stage of cancer. There were two cases of Stage IB in group A and 1 case each of stage IIA in Group A and Group B. there were 19 cases each of stage IIB in Group A and Group B. there was no case of Stage IIIA. There were 8 cases of Group A and 10 cases of Group B that had Stage IIIB cancer.

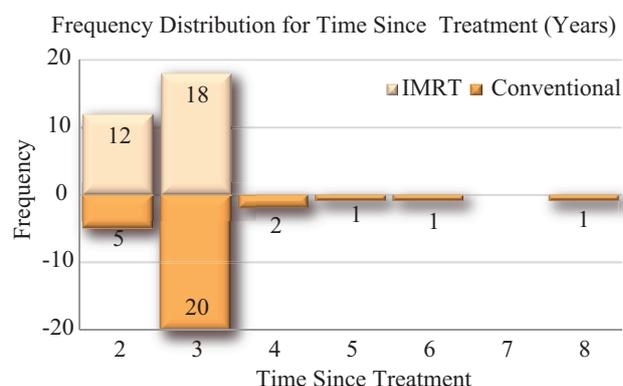
Figure 2 shows the distribution of patients according to the follow up period. There were 12 cases in Group A and 5 cases in Group B that were followed for 2 year period. Majority of cases i.e. 18 cases of Group A and 20 cases of Group B were followed for a period of 3 years. There were 2 cases in Group B that were followed for a period of 4 years and 1 case each was followed for a period of 5 years, 6 years and 8 years respectively.

Figure 3 demonstrates the number of cycles of chemotherapy each patient underwent in different groups. There was 1 patient in the conventional group that underwent 3 cycles of chemotherapy. 11 patients in the IMRT group and 14 patients in the conventional group underwent 4 cycles of chemotherapy. There were 19 patients in the IMRT group and 15 patients in the conventional group that had 5 cycles of chemotherapy.

Table 1 shows the comparison of quality of life scores by



**Figure-1:** Distribution according to stage of cancer



**Figure-2:** Distribution of patients according to follow up period

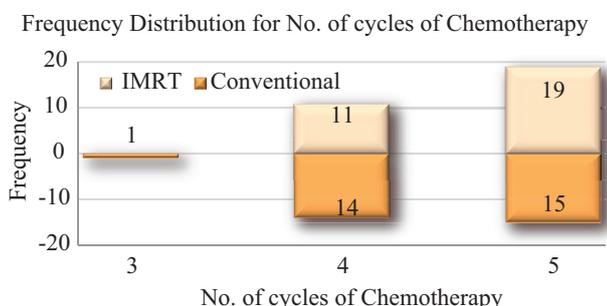
EORTC QLQ-C30 in both arms. The mean global health score was 86.388 in the IMRT arm and 83.332 in conventional group. The mean physical functioning in IMRT and conventional group were 95.111 and 11.438 respectively. The mean role functioning and emotional functioning in IMRT group were 99.444 and 96.112 respectively. The mean role functioning and emotional functioning in conventional group were 95.000 and 93.889 respectively. The mean fatigue score was 4.074 in IMRT group and 7.047 in conventional group. There were no cases of nausea and vomiting in IMRT group but the mean nausea, vomiting score in conventional group was 2.778. No statistically significant differences between both arms were observed in global health, functioning, fatigue, constipation, diarrhea, financial difficulties as shown in Table 1 and there is no difference in EORTC QLQ-C30 QOL scores in both arms of the study.

Table 2 shows the comparison of quality of life scores by EORTC QLQ-CX24 Module. The mean symptom experience

in IMRT group was 1.717 and in conventional group were 3.304. The mean sexual activity and sexual enjoyment score in IMRT group was 50.001 and 82.458 respectively. The mean sexual activity and sexual enjoyment score in conventional group was 44.445 and 91.112 respectively. No statistically significant differences between both arms were observed in terms of CC specific symptom experience, body image, sexual / vaginal functioning, menopausal symptoms, sexual activity and sexual worry as shown in Table 2. Peripheral neuropathy and lymphedema was not reported by any of the patients. No major difference in CC specific QOL mean scores related to the treatment type followed.

**DISCUSSION**

In our study it was observed that overall functioning in two arms was almost comparable. However patients in conventional radiotherapy arm reported slightly decreased functioning and in IMRT arm had slightly greater financial difficulties though not statistically significant. Nausea, pain, dyspnea, reduced appetite, insomnia and diarrhea were more in conventional arm which were also not statistically significant. Cervical cancer specific symptom experience, body image issues and menopausal symptoms were comparable between two arms. It shows cervical cancer survivors cope up well over time. According to our study the QOL in CC survivors at 2 years after pelvic irradiation by conventional RT was similar to that of conformal RT. Our study coincides with study by Jensen et al. who found that women treated with radiotherapy had persistent sexual dysfunction and adverse vaginal changes at 2 years follow up, with 85% women reporting no or low



**Figure-3:** Distribution of patients according to chemotherapy cycles

Variable	IMRT	Std.Dev.	CXRT	Std.Dev.	T Test	Probability
Global Health	86.388	7.733	83.332	11.580	1.202	0.234
Physical Functioning	95.111	7.414	90.444	11.438	1.875	0.066
Role Functioning	99.444	3.044	95.000	10.854	2.159	0.035
Emotional Functioning	96.112	4.760	93.889	8.736	1.224	0.226
Cognitive Functioning	98.889	4.229	97.777	5.764	0.851	0.398
Social Functioning	98.889	4.229	96.111	10.435	1.351	0.182
Fatigue	4.074	7.981	7.047	10.325	1.248	0.217
Nausea and Vomiting	0.000	0.000	2.778	6.319	2.408	0.019
Pain	0.000	0.000	5.001	8.917	3.072	0.003
Dyspnea	0.000	0.000	2.222	8.456	1.439	0.155
Insomnia	4.444	11.524	11.110	15.981	1.853	0.069
Appetite	1.111	6.085	6.666	16.141	1.764	0.083
Constipation	6.666	13.560	6.666	13.560	0.000	1.000
Diarrhea	0.000	0.000	7.777	14.338	2.971	0.004
Financial Difficulties	7.777	14.338	5.556	15.375	0.579	0.565

**Table-1:** Comparison of quality of life scores by EORTC QLQ-C30 in both arms

Variable	IMRT	Std.Dev.	CXRT	Std.Dev.	T Test	Probability
Symptom Experience	1.717	2.476	3.304	4.053	1.830	0.072
Body Image	2.592	4.779	4.077	9.898	0.740	0.462
Sexual/Vaginal Functioning	2.192	3.769	2.222	4.947	0.020	0.984
Menopausal Symptoms	1.111	6.085	2.222	8.456	0.584	0.561
Sexual Worry	28.205	38.520	37.778	48.529	0.809	0.422
Sexual Activity	50.001	42.661	44.445	46.596	0.482	0.632
Sexual Enjoyment	82.458	17.098	91.112	15.256	1.535	0.134

**Table-2:** Comparison of quality of life scores by EORTC QLQ-CX24 Module

interest in sexual relationship.<sup>6</sup> Sexual worry and problems in sexual activity reported by CC survivors in our study agrees with population based study by Korfage et al.<sup>7</sup> Our results agrees with those of Frumovitz et al<sup>8</sup> who compared the QOL and sexual functioning of CC survivors treated with either radical hysterectomy and lymph node dissection or RAD at least 5 years after initial treatment. Compared with SURG patients and controls using univariate analysis, RAD patients had significantly poorer scores on sexual functioning. The disparity in sexual function remained significant in a multivariate analysis. They concluded RAD is responsible for worse QOL of CC patients. Most of cancer survivors are adapted to new way of living. Our study is comparable with Scandinavian study done by Ragnhild Johanne et al. (2010). They observed three forms of adaptation - *living with tension between personal growth and fear of recurrence*: the women spoke of a deep gratitude for being alive and of basic values that had become revitalized. They also lived with preparedness for recurrence of cancer. *Feeling left alone-not receiving enough information and guidance after treatment*: the process of sorting things out, handling anxiety, bodily changes and menopause were described as a lonesome journey, existentially and psycho-socially.<sup>9</sup> This indicates psychosocial aspects of the survivors should be considered during follow up by physicians along with physical aspects. With improved survival rates of cervical cancer patients, health related QOL of survivors becomes an important issue. QOL, in this context, defined as a person's self-reported perception of physical, psychosocial, and sexual well-being. The different treatment programs affect the lives of surviving women to a varying degree in terms of physical, sexual, and psychosocial functioning.<sup>6,10-13</sup> This cross sectional study limits our ability to describe changes induced by cancer, and its treatment. Instead we describe a picture of patients' actual situation as they may present during follow up. The data from our study can be used to alert professionals of the fact that most of the patients may have not only physical but also psychological and social effects of the disease and treatment. This hospital based study can't reflect the entire cervical cancer survivors and it requires further research and a longitudinal study design.

## CONCLUSION

Cervical cancer patients should be counselled about what to expect prior to initiation of treatment which would help every patient to cope better and would return to pre-treatment status. It is important that clinicians monitor QOL during the course of the disease and treatment and utilize procedures and therapeutic agents and proactively prevent and treat relevant symptoms to improve QOL. Quality of life issues especially sexual related problems like sexual inactivity, dyspareunia, dryness of vagina are more prevalent. All health care providers should address regarding sexual life and provide guidance and assurance after treatment. In our study no significant difference was found in the quality of life amongst patients undergoing conventional or conformal radiotherapy.

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