SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Surgical Oncology

Health Related Quality of Life (HRQoL) Following APER: Early Effects on Ano Rectal Cancer Patients

Dr. Md. Tahir Hossain[1*], Dr. Ahmed Sami Al Hasan[2], Dr. Washif Shakir[3], Dr. Rajib Shil[4], Dr. Sakib Kabir[5]

[1]Assistant Professor, Department of Surgical Oncology, Enam Medical College Hospital, Savar, Dhaka, Bangladesh
[2] Associate Professor, Surgical Oncology, Dhaka Medical College Hospital
[3]Assistant Professor, Surgical Oncology, Rangpur Medical College Hospital, Bangladesh
[4]Consultant Surgical oncology, Rangpur Medical College, Bangladesh
[5]Registrar, Department of Surgical Oncology, National Cancer Research Institute and Hospital, Mohakhali, Dhaka, Bangladesh

DOI: https://doi.org/10.36347/sasjs.2024.v10i11.003 | **Received:** 24.09.2024 | **Accepted:** 31.10.2024 | **Published:** 05.11.2024

***Corresponding author:** Dr. Md. Tahir Hossain
Assistant Professor, Department of Surgical Oncology, Enam Medical College Hospital, Savar, Dhaka, Bangladesh

Abstract **Original Research Article**

***Background*:** Colorectal cancer is the third most common cancer worldwide, accounting for approximately 10% of all cancer cases and is the second leading cause of cancer-related deaths worldwide. Treatment of rectal cancer had been primarily focused on oncologic outcome, with detailed assessment of survival and local recurrence. Less attention has been given to functional outcome and quality of life (QoL). ***Methodology*:** This prospective study was conducted in the Department of Surgical Oncology, National Cancer Research Institute & Hospital, Dhaka from July, 2019 – March, 2021. Total 33 patients who fulfilled the inclusion and exclusion criteria were included in this study by purposive sampling. The scoring formulas supplied by EORTC was used for both the questionnaires (QLQ-C30 and QLQ-CR29) and in accordance to the scoring manual, the questionnaire items were grouped into scales in the categories – global health status QOL, functional scales and symptoms scales and then compiled. The p value was set as significant if $p<0.05$. ***Results*:** Mean age of the patient was 45.1±13.9 years. Physical function, role function, emotional function, cognitive function, social function and global health status were significantly ($p=0.001$) decreased after treatment group than before treatment group. Fatigue, nausea and vomiting, pain, dyspnoea, insomnia, appetite loss, constipation, diarrhoea and financial difficulties were significantly increased after treatment group than before treatment group. ***Conclusion*:** Surgical oncologist can improve the quality of life of patients by saving the neurovascular structures while performing anterior/posterior/lateral dissection of rectum. Multidisciplinary approach including "Tumour Board" as well as performing sphincter saving procedures (AR) rather than APER could drastically improve the quality of life of cancer patients. Preoperative counselling, taking time to explain and understand patients' concern results in decreased stress and improve quality of life.

Keyword: Health Related Quality of Life, Colorectal Cancer, Rectal Cancer, anterior resection, abdominoperineal excision of rectum, Sphincter preservation surgery, Sexual function, Urinary function, Oncological outcome.

INTRODUCTION

Rectal cancer (RC) treatment has been associated with considerable postoperative morbidity, causing impactful changes to bowel, anorectal and urogenital function, as well with more general complaints like fatigue, neuropathy and cognitive problems resulting in impaired quality of life (QoL) [1]. Detailed data on QoL and functional outcome, including bowel, urinary, and sexual function, are necessary in daily practice for making an optimal treatment decision and counseling patients on the presumed benefits of the WW approach [2]. In recent times, 'Cancer' is a major health concern worldwide not only because of its dramatic increase in incidence but also its effects on different aspects of quality of life (QoL). According to WHO, colorectal cancer is the third most common cancer worldwide, with nearly 1.80 million new cases diagnosed in 2018 (10.2% of all new cases – third most common cancer overall) [3]. It is the second most common cause of death from cancer in 2018 (862 000 deaths) that is approximately 9.2% of all cancer deaths irrespective of gender, [3] in Bangladesh colorectal cancer incidence is 3.7% & mortality is 4.1% per annum [3]. Survival rates for rectal cancer vary worldwide, but in general rates have improved. Improvements in earlier detection from screening programmes, reduction of risk factors and enhanced treatment modalities resulted in increased survival rates. So, there is emergence of high number of rectal cancer

survivors in the community. Treatment of rectal cancer had been primarily focused on oncologic outcome, with detailed assessment of survival and local recurrence. Less attention has been given to functional outcome and quality of life (QoL). With the increasing number of patients living with treatment effects, these factors get a more significant role in decision making for rectal cancer treatment [4]. These patients often anticipate a rapid improvement in their HRQoL after surgery and may underestimate changes in early postoperative period if the outcome is different from their expectations. To address this issue QoL parameters will be assessed according to EORTC QLQ-C30 before and after APER. The additional module EORTC QLQ-CR29 covered the rectal cancer specific scales like body image, urinary & sexual symptoms and stoma-related issues [5].

MATERIALS AND METHODS

Patients were recruited from indoor and outpatient department of NICRH, Mohakhali, Dhaka. Each subject was evaluated with history, physical examination and judicial use of investigations for diagnosis and staging as well as for the assessment of fitness for operation. All patients with diagnosis of ano-rectal cancer, who were admitted for APER at Surgical Oncology Department of NICRH with or without neoadjuvant therapy (CT/CCRT/RT) were enrolled in this study. Patients were prepared for elective surgery after pre-anaesthetic check-up, nutritional improvement, correction of anaemia and standard bowel preparation. All the patients were counselled for treatment options, operation, possible outcomes, need for stoma and consequences of possible neurovascular damage. All the patients were informed regarding the procedures of surgery and study. Written consent after elaborative explanation was taken from every patient after proper counselling in a separate room. At operation a thorough search were done for any metastasis in peritoneum, liver, pelvis. Tumour resection was performed en bloc after ligation of segmental vessels flush at their origin from the abdominal aorta, followed by lymph node dissection. The inferior mesenteric artery was ligated just 1 cm distal to the origin from aorta. The mesorectal excision was done by sharp diathermy dissection in cylindrical fashion. In all cases of APER the resected part of intestine was removed through the perineum. After removal of resected intestine, the pelvis was irrigated with normal saline. The patients who were operated within the anticipated time scale were observed and evaluated for any postoperative complications. Those who were discharged to home were advised to come for follow-up after 6 months of operation, also were advised to note and inform any complaints over phone. The HRQoL was estimated using the European Organization for Research and Treatment of Cancer (EORTC) Quality-of-Life Questionnaire C30 and CR29 after being registered online. On registration with EORTC, they have already provided questionnaire in English and Bangla format through Email for better understanding and evaluation of the patients. Data collection sheet which includes structured questionnaire were filled out after recording patient's name and particulars. First interview was held after their admission to the hospital before surgery (APER) and was labelled as A1. Second interview was taken at outpatient department after 6 months of APER, when they attend for post-operative APER and were labelled as A2. The rationale for the chosen time point (6 months after APER) will be that the patients has recovered from the immediate effects of surgery and dealing with changes in QoL caused by it.

METHODOLOGY

Patients were recruited from indoor and outpatient department of NICRH, Mohakhali, Dhaka. Each subject was evaluated with history, physical examination and judicial use of investigations for diagnosis and staging as well as for the assessment of fitness for operation. All patients with diagnosis of ano-rectal cancer, who were admitted for APER at Surgical Oncology Department of NICRH with or without neoadjuvant therapy (CT/CCRT/RT) were enrolled in this study. Patients were prepared for elective surgery after pre-anaesthetic check-up, nutritional improvement, correction of anaemia and standard bowel preparation. All the patients were counselled for treatment options, operation, possible outcomes, need for stoma and consequences of possible neurovascular damage. All the patients were informed regarding the procedures of surgery and study. Written consent after elaborative explanation were taken from every patient after proper counselling in a separate room. At operation a thorough search were done for any metastasis in peritoneum, liver, pelvis. Tumour resection was performed en bloc after ligation of segmental vessels flush at their origin from the abdominal aorta, followed by lymph node dissection. The inferior mesenteric artery was ligated just 1 cm distal to the origin from aorta. The mesorectal excision was done by sharp diathermy dissection in cylindrical fashion. In all cases of APER the resected part of intestine was removed through the perineum. After removal of resected intestine, the pelvis was irrigated with normal saline. The patients who were operated within the anticipated time scale were observed and evaluated for any postoperative complications. Those who were discharged to home were advised to come for follow-up after 6 months of operation, also were advised to note and inform any complaints over phone. The HRQoL was estimated using the European Organization for Research and Treatment of Cancer (EORTC) Quality-of-Life Questionnaire C30 and CR29 after being registered online. On registration with EORTC, they have already provided questionnaire in English and Bangla format through Email for better understanding and evaluation of the patients. Data collection sheet which includes structured questionnaire were filled out after recording patient's name and particulars. First interview was held after their admission to the hospital before surgery

(APER) and was labelled as A1. Second interview was taken at outpatient department after 6 months of APER, when they attend for post-operative APER and were labelled as A2. The rationale for the chosen time point (6 months after APER) will be that the patients has recovered from the immediate effects of surgery and dealing with changes in QoL caused by it. The scoring formulas supplied by EORTC was used for both the questionnaires (QLQ-C30 and QLQ-CR29) and in accordance to the scoring manual, the questionnaire items were grouped into scales in the categories – global health status QOL, functional scales and symptoms scales and then compiled. Then the result of the study were calculated and analyzed by standard statistical method and was presented in the forms of tables and graphs. Continuous data was expressed as mean ±SD. For analysis of data SPSS for windows (IBM SPSS, Statistical Product & Service Solutiuon, for windows, version 20.0, Armonk, NY: IBM corp) software was used.

RESULTS

Table I shows that 10(30.3%) patients belonged to age 41-50 years. The mean age was found 45.1±13.9 years with range from 20 to 75 years. Two third (66.7%) patients were male, 29(87.9%) were married, 23(69.7%) were literate, 19(57.6%) were employed and 25(75.8%) of the patients came from >10000 taka monthly income. Table II shows that physical function, role function, emotional function, cognitive function, social function and global health status were significantly decreased after treatment group than before treatment group. That is statistically significant ($p<0.001$). Table III shows that fatigue, nausea and vomiting, pain, dyspnoea, insomnia, appetite loss, constipation, diarrhoea and financial difficulties were significantly increased after treatment group than before treatment group ($p<0.001$).

Table I: Distribution of the study patients by demographic characteristics (n=33)

Demographic	Number of patients	Percentage characteristics
Age (years)		
≤20	2	6.1
21-30	3	9.1
31-40	8	24.2
41-50	10	30.3
51-60	7	21.2
61-70	2	6.1
>70	1	3.0
Mean ±SD	45.1±13.9	
Range (min-max)	20.0-75.0	
Sex		
Male	22	66.7
Female	11	33.3
Marital status		
Married	29	87.9
Unmarried	2	6.1
Widow	2	6.1
Educational status		
Illiterate	10	30.3
Literate	23	69.7
Occupational status		
Employed	19	57.6
Unemployed	14	42.4
Monthly income (Taka)		
≤10000	8	24.2
>10000	25	75.8

Table II: Cancer patients two point (before and after treatment) functional and global quality of life scores as measured by EORTC QLQ-C30 (n=33)

Functional and global quality of life	Treatment		p value
	Before	After	
	Mean±SD	Mean±SD	
Physical functioning	83.8±16.9	13.1±16.5	<0.001
Role functioning	86.9±16.5	18.0±16.5	<0.001
Emotional functioning	83.3±16.5	16.2±20.6	<0.001
Cognitive functioning	90.4±12.5	28.8±12.7	<0.001

Social functioning	91.9±14.5	27.3±17.6	<0.001
Global health status	57.1±10.2	22.2±14.8	<0.001

Table III: Cancer patients two point (before and after treatment) symptom quality of life score as measured by EORTC QLQ-C30 (n=33)

Symptom quality of life	Before treatment	After treatment	p value
	Mean±SD	Mean±SD	
Fatigue	11.8±12.1	74.8±17.2	<0.001
Nausea and vomiting	12.1±16.3	77.8±23.1	<0.001
Pain	11.6±11.4	73.2±15.6	<0.001
Dyspnoea	13.1±16.5	77.8±23.1	<0.001
Insomnia	12.1±16.3	77.8±23.1	<0.001
Appetite loss	12.1±16.3	77.8±23.1	<0.001
Constipation	12.1±16.3	77.8±23.1	<0.001
Diarrhoea	11.1±16.0	68.7±18.5	<0.001
Financial difficulties	8.1±14.5	72.7±17.6	<0.001

DISCUSSION

The purpose of this observational study is to evaluate the short term quality of life changes following APER in ano-rectal cancer patients, to find out the statistical significance in the context of our population and compare them with the literature data from other population.

In our study, observed that 10 (30.3%) patients belonged to age 41-50 years. The mean age was found 45.1±13.9 years with range from 20 to 75 years. Similar observation was found different studies Souza *et al.,* [6] reported that the mean age was 50.8±11.4 years. Aminisani *et al.,* [7] study with a mean age 57.31 ± 14.15 years (min: 27, max: 83). Majority (59.4%) were over 55 years of age. Nasvall *et al.,* [8] the median age was 71 years (35–97). Silva *et al.,* [9] reported that 43.9% were between 60 and 70 years old. Shen *et al.,* [10] also reported the mean age being 63.7±13.2 years (range: 22.2- 89.1 years). Magaji, *et al.,* [11] reported that the mean age of 62.5±13.6 years.

Regarding gender distribution, almost two third (66.7%) patients were male and 11 (33.3%) were female. Male female ratio was 2:1. Similar observation was found in comparison to different studies Souza *et al.,* revealed eighteen (62%) patients were female. Aminisani *et al.,* [7] the majority (54.2%) patients were male and 44(45.8%) were female. Nasvall *et al.,* [8] reported that 261 (57.6%) were males and 192 (42.4%) were females. Silva *et al.,* [9] reported total of 41 patients were included in this study; 53.7% were female.

Marriage life disharmony observed in this study, such as 29(87.9%) patients were married, 2(6.1%) was unmarried and 2(6.1%) were widow (divorced). Shen *et al.,* [10] also reported 37(70%) patients were married and 16(30%) were single.

Quality of life issues can be better cope up in well educated individuals. Current study showed that 23(69.7%) patients were literate and 10(30.3%) was illiterate. Souza *et al.,* [6] reported that 62.5% had primary or secondary education. Aminisani *et al.,* [7] about 44.7% of them had no education and 55.3% had literate. Wilson, *et al.,* [12] reported 94.3% patients were literate and 5.7% were illiterate.

Financial independency has a vital role in maintaining standard lifestyle. It has been observed that 19(57.6%) patients were employed and 14(42.4%) were unemployed. Aminisani *et al.,* [7] about 39.6% were out of work and 60.4% were working. In this study observed that 25(75.8%) of the patients came from >10000 taka monthly income and 8(24.2%) ≤10000 taka monthly income. Souza *et al.,* the majority lived with partners (69%), 58.6% were white, 69% had dependents and 86.2% had income of up to 4 minimum wages. Silva *et al.,* [9] reported that 29.3% had an income of less than the two monthly minimum wage.

The parameters of functional quality of life including physical function, role function, emotional function, cognitive function, social function and global health status were significantly decreased after treatment group than before treatment group. Hossain *et al.,* [13] observed global health status score was (mean±SD) 45±16, range (0-83) which was poor. Magaji *et al.,* [11] revealed that highest functioning score was reported for emotional functioning (mean=88.17) whereas role functioning (mean= 83.02) scored the lowest.

Regarding EORTC questionnaire CR29 HRQoL emotional and psychological wellbeing deteriorates following operation. Mean body image was found 82.8±16.9 in before treatment and 35.4±22.0 in after treatment. Shen *et al.,* [10] reported mean body image was found 86.5 in before treatment and 86.8 in after treatment. Magaji *et al.,* [11] reported most patients were satisfied with their body image (mean= 94.27±12.59) as it scored the highest among the functioning scales covered in colorectal cancer specific QLQ-CR29 module. Sadighi *et al.,* [14] reported mean

body image was found 65.6±23.0 in before treatment and 67.4±20.5 in after treatment.

CONCLUSION

The study result suggests that short term quality of life drastically hampers daily activities of the patients. Addressing these factors will certainly improve the current scenario in case of early effects of quality of life of APER patients. With the advancement of treatment modalities and accessibility of health care facilities including chemotherapy and radiotherapy, ano-rectal cancer patients are surviving for years and many centers like NICRH have become a center of excellence in cancer patient management. For this reason quality of life and lifestyle changes in post-treatment phase are important issues now days. These issues need to be addressed with proper guidelines and follow-up.

REFERENCE

1. Pennings, A. J., Vink, G. R., van Kuijk, S., Melenhorst, J., Beets, G. L., May, A. M., & Breukink, S. O. (2024). Quality of life and functional outcome of rectal cancer patients: A prospective cohort study. *Colorectal Disease*.
2. Custers, P. A., van der Sande, M. E., Grotenhuis, B. A., Peters, F. P., van Kuijk, S. M., Beets, G. L., ... & Wait Consortium. (2023). Long-term quality of life and functional outcome of patients with rectal cancer following a watch-and-wait approach. *JAMA surgery*, *158*(5), e230146-e230146.
3. Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*, *68*(6), 394-424.
4. WHO cancer country profile 2020, Bangladesh picture, available at: https://www.who.int/cancer/countryprofiles/BGD_2020.pdf?ua=1
5. Cella, D. F., Tulsky, D. S., Gray, G., Sarafian, B., Linn, E., Bonomi, A., ... & Brannon, J. (1993). The Functional Assessment of Cancer Therapy scale: development and validation of the general measure. *Journal of clinical oncology*, *11*(3), 570-579.
6. Souza, J. L. D. C. A. D., NAHAS, C. S. R., NAHAS, S. C., MARQUES, C. F. S., RIBEIRO, U., & CECCONELLO, I. (2018). Health-related quality of life assessment in patients with rectal cancer treated with curative intent. *Arquivos de gastroenterologia*, *55*(02), 154-159.
7. Aminisani, N., Fatemi, M., Sarbakhsh, P., Nikanfar, A., Eftekharsadat, A., & Jafari, E. (2017). Health-related quality of life and its correlates among rectal cancer survivors, Northwest of Iran. *Journal of Cancer Metastasis and Treatment*, *29*(3), 209-16.
8. Näsvall, P., Dahlstrand, U., Löwenmark, T., Rutegård, J., Gunnarsson, U., & Strigård, K. (2017). Quality of life in patients with a permanent stoma after rectal cancer surgery. *Quality of Life Research*, *26*, 55-64.
9. Silva, K. D. A., Duarte, A. X., Cruz, A. R., de Araujo, L. B., & Pena, G. D. G. (2020). Time after ostomy surgery and type of treatment are associated with quality of life changes in colorectal cancer patients with colostomy. *PLoS One*, *15*(12), e0239201.
10. Shen, M. H., Chen, L. P., Ho, T. F., Shih, Y. Y., Huang, C. S., Chie, W. C., & Huang, C. C. (2018). Validation of the Taiwan Chinese version of the EORTC QLQ-CR29 to assess quality of life in colorectal cancer patients. *Bmc Cancer*, *18*, 1-10.
11. Magaji, B. A., Moy, F. M., Law, C. W., Sii, H. L., & Roslani, A. C. (2019). Pattern of health-related quality of life and its association among patients with colorectal cancer. *Asian Pacific Journal of Cancer Care*, *4*(2), 45-52.
12. Wilson, T. R., & Alexander, D. J. (2008). Clinical and non-clinical factors influencing postoperative health-related quality of life in patients with colorectal cancer. *Journal of British Surgery*, *95*(11), 1408-1415.
13. Hossain, N., Akter, Q. M., Banu, F., & Mahmud, S. (2015). Quality of life of cervical cancer patients after completion of treatment-A study among Bangladeshi women. *Bangladesh Medical Research Council Bulletin*, *41*(3), 131-137.
14. Sadighi, S. (2017). Properties of the Iranian version of colorectal cancer specific quality of life questionnaire (EORTC QLQ-CR29). *Annals of Oncology*, *28*, iii111-iii112.