

Original Research Article

## Clinical Evaluation of Brachytherapy: A Light of Hope for Cervical Cancer Patients

Adity Bhowmik

Lecturer, Department of Pharmacy, Atish Dipankar University of Science and Technology, Dhaka 1213, Bangladesh

**\*Corresponding Author:**

Adity Bhowmik

Email: [adity\\_bhowmik@yahoo.com](mailto:adity_bhowmik@yahoo.com)

**Abstract:** The objective of this study is to exploration the part of brachytherapy in treating cervical cancer. Cervical cancer is cancer of the cervix — the lower part of the uterus, which opens into the vagina. Cervical cancer is the second-most-common type of cancer that strikes women worldwide after breast cancer. Cervical cancer patients in Bangladesh are set to receive affordable treatments with the introduction of high-tech Brachytherapy facilities at the Bangabandhu Sheikh Mujib Medical University (BSMMU). With other treatment options brachytherapy, or internal radiation therapy involves placing a source of radiation in or near the cancer. For the type of brachytherapy that is used most often to treat cervical cancer, intracavitary brachytherapy, the radiation source is placed in a device that is in the vagina (and sometimes the cervix). In brachytherapy, radiation only travels a short distance, so the main effects of the radiation are on the cervix and the walls of the vagina. Introducing its specific use and advantages, the successful rate was found 80% at BSMMU during the study.

**Keywords:** brachytherapy, cervical cancer, radiation source.

### INTRODUCTION

Human bodies are made up of billions of cells that grow, divide, and then die in a predictable manner. Cancer occurs when something goes wrong with this system, causing uncontrolled cell division and growth [1, 2]. Cancer is not a single disease; it is a group of more than 100 different and distinctive diseases. The publication ceremony of Hospital Cancer Registry Reported 2008-2010 (printed) and 2011-2013 (short draft) at the conference hall of National Institute of Cancer Research and Hospital (NICRH). As per the published report (2008-2010), from January 2008 to December 2010, 46,110 new cases attended the outpatient department of NICRH. Among them, 27,281 were confirmed as cancer cases [3-5]. Out of these 27,281 patients, 56.1 % were male and 43.9% were female. The top five organs affected in both sexes were: lung (18.1%), breast (11.7%), cervix of uterus (9.3%), oesophagus (4.9%) and stomach (4.1%). In males, the five leading cancers were: lung (28.39%), oesophagus (6.14%), liver (3.98%), larynx (3.01%) and rectum (2.17%). In females, the leading five cancers were: breast (26.0%), cervix of uterus (21.1%), lung (5%), ovary (3.3%) and oesophagus (3.3%) [6-10]. Cervical cancer patients in the country are set to receive affordable treatments soon, with the introduction of high-tech Brachytherapy facilities at the Bangabandhu Sheikh Mujib Medical University (BSMMU). A Brachytherapy machine, worth Tk 2.5 crore and

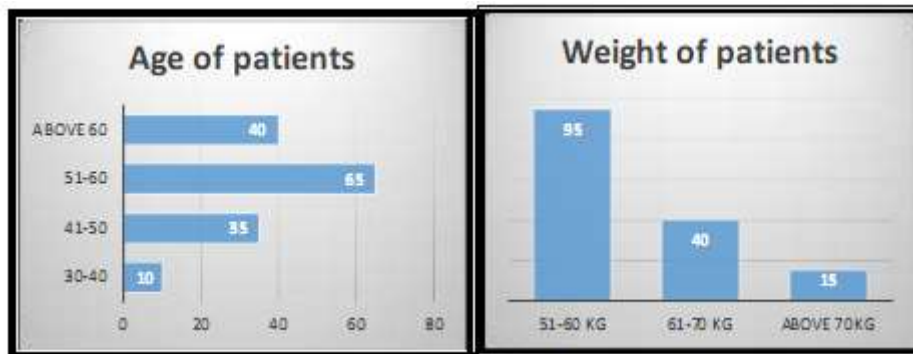
donated by the Indian government as a gesture of goodwill, will be inaugurated by Indian High Commissioner to Bangladesh Pankaj Saran at the BSMMU oncology department today. Brachytherapy – also known as internal radiotherapy – allows a physician to use a higher total dose of radiation to treat a smaller area and in a shorter time than is possible with external beam radiation treatment for cancer patients [11-15].

### METHOD AND MATERIALS

The survey conducted at the oncology department, Bangabandhu Sheikh Mujib Medical University (BSMMU) in DHAKA district and target patients were Cervical Cancer Patients. At the BSMMU the survey sample was drawn from the target population and the information obtained from the sample once by questioning them and collected the information provided by them. In Bangabandhu Sheikh Mujib Medical University, I provided with questionnaire sheets as a representative of the survey, some questionnaire were processed for patient survey and total of 180 questionnaire sheets for the patient survey were considered and also interviewed registered physician, they are all specialized individual sectors and they are responsible for patient healthcare service. The survey data were collected, from 1<sup>st</sup> March 2015 to 15<sup>th</sup> March 2015, which was used for the development of study tools, collection of data and analysis.

**RESULTS AND DISCUSSION**

**1. What is your Age & body Weight (kg)?**



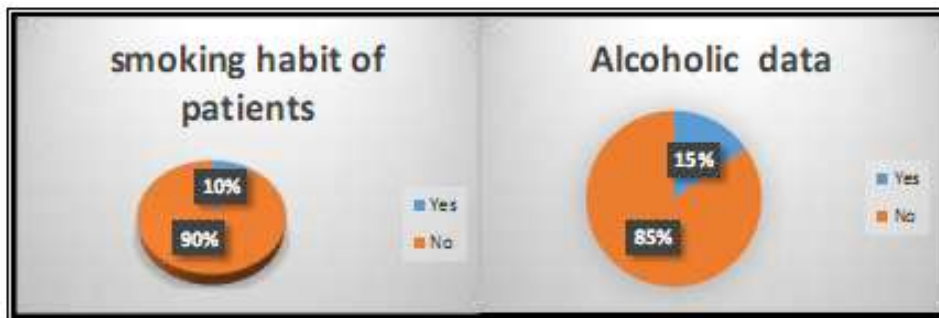
**Fig-1: Patient’s age& weight**

**2. How long are you affected by cervical cancer?**

**Table 1: The data of duration of disease (after diagnosis)**

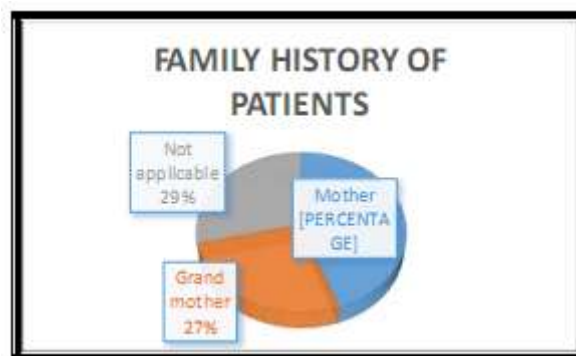
Duration	Number of patients
Less than six months	60
Six months to one year	50
More than one year	40

**3. Are you smoker, alcoholic?**



**Fig-2: The graph of smoker and non-smoker& alcoholic patient**

**4. Has anyone in your family ever been diagnosed with cervical cancer?**



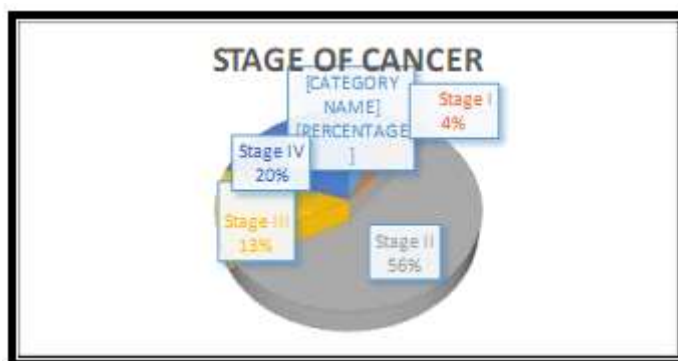
**Fig-3: The graph of patient’s family history**

**Table 2: Patient’s sign and symptoms & pathological tests**

sign and symptoms	Number of patients	Pathological tests	Number of patients
Unusual bleeding	140	Chest x-ray, Computed tomography (CT), Magnetic resonance imaging (MRI), Intravenous urography, Positron emission tomography (PET)	150
Constipation, blood in urine (haematuria), loss of bladder control (urinary incontinence)	111	<b>Cystoscopy, proctoscopy</b>	110
Hydronephrosis	48	<b>Cervical biopsies</b>	75
Loss of appetite, weight loss, tiredness and lack of energy	130	Pap test	150
Pain and discomfort during sex, an unpleasant smelling from vaginal discharge	145		

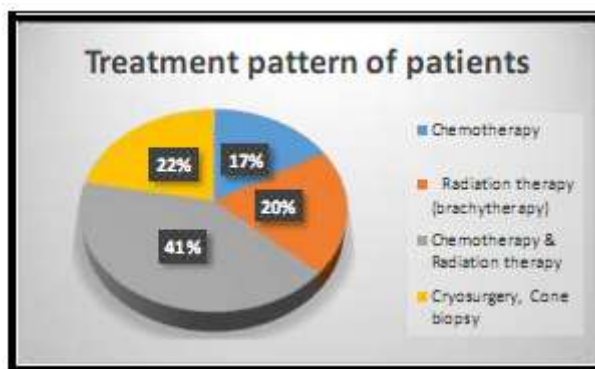
5. What types of sing and symptom& pathological tests are observed?

6. What’s the stage of your cancer?



**Fig-4: The graph of patient’s stage of cancer**

7. What about your treatment?



**Fig-5: The graph of patient’s pattern of treatment**

8. What is the percent of successful rate of your brachytherapy?

**Table 3: Patient’s successful rate of brachytherapy**

successful rate	Number of patients
Successful	120
Unsuccessful	23
Need another therapy with brachytherapy	07

## 8. What are the side effects of your brachytherapy?

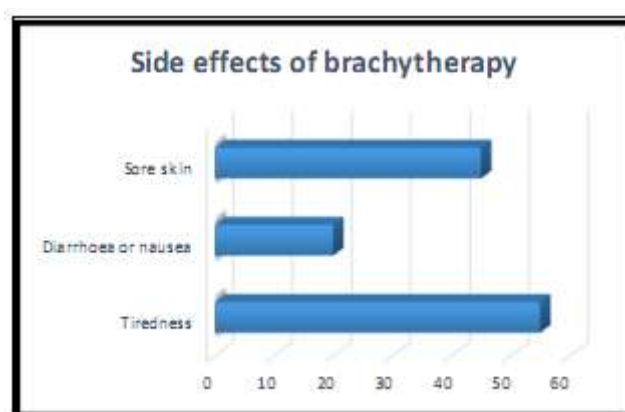


Figure 6: The graph of patient's side effects of brachytherapy

Brachytherapy is mainly applied as an intracavitary procedure, in selected cases complemented by interstitial implants. Radical brachytherapy for cervix cancer is always based on the use of intrauterine and intravaginal sources. With the best infrastructure and best Medical facilities, accompanied with the most experienced doctors and can get quality treatment at lower cost, BSMMU moves it's every steps for patient's health care. Some questionnaire was processed for patient survey and total of 180 questionnaire sheets for the patient survey were considered. The survey was 15 days long. 150 patients were identified as cancer of the cervix. In case of age factor, majority was something like 51-60 years patients were 43%, above 60 years were 27%, 41-50 years were 23% and 30-40 years were 7% of all patients respectively. Patients Weight can be explained as 51-60 kg 63%, 61-70 kg 27%, above 70 kg 10% respectively. Duration of disease after diagnosis was scanned as less than 6 months were 40%, 6 months to 1 year were 33%, more than 1 year were 27% respectively. 10% were smokers and 15% were alcoholic. When I recorded all the data of patients, family history of patients was also included like mothers were 44%, grand mothers were 27%, and not applicable was 29%. Sign and symptoms were observed like Unusual bleeding, Constipation, blood in urine (haematuria), loss of bladder control (urinary incontinence), Hydronephrosis, Loss of appetite, weight loss, tiredness and lack of energy, Pain and discomfort during sex, an unpleasant smelling from vaginal discharge etc. Pathological tests were done for identifying the stage of cancer. Common pathological tests were Chest x-ray, Computed tomography (CT), Magnetic resonance imaging (MRI), Intravenous urography, Positron emission tomography (PET), Cystoscopy, proctoscopy, cervical biopsies, Pap test etc. Cancer patients were at different stages like Stage 0 (carcinoma in situ) were 7%, Stage I were 4%, Stage II were 56%, Stage III were 13%, Stage IV were 20% etc. Depending on stage, treatment was planned like chemotherapy (17%), Radiation therapy (brachytherapy) (20%), Chemotherapy & Radiation

therapy (brachytherapy) (41%), Cryosurgery, Cone biopsy (22%) etc. Successful rate of brachytherapy was 80% with minor side effects like tiredness, diarrhea, sore skin etc. Radiotherapy should not be painful whilst it is being given to during treatment. However, that experiences some side effects that begin to appear two to three weeks after the start of treatment and can come on quite gradually.

## CONCLUSION

While most HPV infections cause no symptoms and will go away without treatment, some cases will over time cause cervical cancer. There are some useful treatment options. Radiation therapy may be necessary after surgery for cervical cancer to make sure that any cancer cells not removed during surgery are destroyed. Research has shown that radiation therapy after surgery improves outcomes in many women. In more advanced cases of cervical cancer, radiation therapy may be used after surgery to ease pain and treat bleeding.

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