ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCE
SCHOOL OF ALLIED HEALTH SCIENCE
DEPARTMENT OF NURSING AND MIDWIFERY

TREATMENT OUTCOME ANDASSOCIATED FACTORS AMONG CERVICAL CANCER PATIENTS TREATEDAT TIKURANBESA SPECIALIZSED HOSPITAL ADDIS ABABA, ETHIOPIA
A RETROSPECTIVE STUDY

INVESTIGATOR: -FIKERADDIS TARIK (BSc)

A THESIS PROPOSAL TO BE SUBMITTED TO ADDIS ABEBA UNIVERSITY,COLLEGE OF HEALTH SCIENCE SCHOOL OF ALLIEDHEALTH SCIENCES DEPARTMENT OF NURSING AND MIDWIFERY FOR PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ONCOLOGY NURSING.

ADDIS ABABA, ETHIOPIA, 2018

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MAIN ADVISOR:-TIGISTU GEBREYOHANNIS (BSc, MSc)

CO-ADVISOR:- BOKA DHUGASA (BSc, MSc)

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ACRONYMS

BT Brachytheraphy

CCRTC Concurrent Chemo-Radio-Therapy

Ds Disease

EBRT External beam radiotherapy

Hb Hemoglobin

HPV Human papilloma virus

OPD Outpatient department

RT Radiotherapy

RTC Radio therapy center

RTD Radiotherapy department

SPSS Statistical package for social sciences

STAH subtotal abdominal hysterectomy

TAH Total abdominal hysterectomy

TAOH Total abdominal ovarian hysterectomy

TASH TikurAnbessa Specialized Hospital

SUMARY

INTRODUCTION: Cervical cancer is a common cancer of the female reproductive system, specifically the cervix of the uterus. Based on the global burden of cancer 2008 estimates, about 12.7 million cancer cases and 7.6 million cancer deaths are estimated to have occurred. Among these 56% of the cases and 64% of the deaths occurred in the economically developing world. Ethiopia is one of the developing countries with 42 million female populations and 7000 new cases of cervical cancer with 5000 deaths every year. Despite this high prevalence of disease there is only one cancer treatment center at TikurAnbesa specialized hospital which provides surgery, chemotherapy and radiotherapy. The facility serve as a national referral facility for all regions associated with this most of the time it is congested with many patients waiting to be treated.

OBJECTIVES: to asses treatment outcome of cervical cancer patients and associated factor among patients treated at Tikur Anbesa specialized hospital oncology unit.

Methods and analysis: retrospective quantitative cross sectional study design was conducted using questions to collect data from medical chart of patient who were treated for the past 5 years**.** Data was analyzed by bivariate, multivariate logistic regressions using SPSS version 22computer software.

Result: In this study the treatment outcome of cervical cancer patients was cured for 3.6% patients and recurrence occurred among 26.2 % of cervical patients and 70.2% were lost from follow up. In multi logistic regression cervical patients those with stage 3b were 0.021 times **{AOR=0.012; 95% CI (0.001-0.23)}**, less likely to be cured compared to those have clinical stage 2A. Cancer patients those have positive result of pelvic node were 0.03times **{AOR=0.001; 95% CI (0.001-0.92)}** less likely to be cured compared to those have negative result of pelvic node. Cervical cancer patients with sero -positive HIV status were 2.8 times **{AOR=2.8; 95% CI (2.14- 7.65)}** more likely to have recurrence of disease compared to those with sero -negative HIV status.

Conclusion and recommendation: The study revealed that there were a relatively low number patients cured from cervical cancer, slightly high number of recurrence of disease occurred and high number patients lost to follow up**.** There is a need to design treatment outcome improving intervention plan and implementation.

Key word: Treatment outcome, cervical cancer, associated factor

1. INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Cervical cancer is a common cancer of the female reproductive system, specifically the cervix of the uterus (1). Cervical cancer arises most commonly at the squamo-collumnar junction of the cervical canal of the uterine cervix. It mostly affects postmenopausal women, and is characterized by abnormal contact bleeding and abnormal vaginal discharge(2).

There are two types of cervical cancer and the treatment may differ from one type to another, though generally the clinical appearance of invasive cervical lesion is mainly of two types: exophytic (proliferative) and endophytic (ulcerating) lesion (3).

Based on the global burden of cancer 2008 estimates, about 12.7 million cancer cases and 7.6 million cancer deaths are estimated to have occurred. Among these 56%of the cases and 64% of the deaths occurred in the economically developing world(4). Ethiopia is one of the developing countries with 42 million female populations and 7000 new cases of cervical cancer with 5000 deaths every year(5).

The use of widespread screening programs and modifying of the risk factors can be used as a tool to prevent cervical cancer. Additionally, a recent availability of vaccines against Human papilloma virus (HPV) can play a role in controlling cervical cancer (6).

The treatment protocol for optimum outcome is the combination treatment including surgery, radiotherapy, brachytherapy, and chemotherapy(2).

Prognosis after treatment depends on the stage of the cancer. With treatment, 80-90% of women with stage I cancer and 60-75% of those with stage II cancer are a live 5 years after diagnosis. Survival rates decrease to 30-40% for women with stage III cancer and 15% or fewer of those with stage IV cancer five years after diagnosis(7).

About 35% of women with invasive cervical cancer have persistent or recurrent disease after treatment. Recurrent cervical cancer detected at its earliest stages might be successfully treated with surgery, radiation, chemotherapy, or a combination of the three(8).

Different literatures are suggesting factors contributing for good treatment outcome. While some literatures suggesting factors contributing for poor treatment outcome among this combination treatment of radiotherapy with chemotherapy and diagnosis at early stage are cited as good prognostic factor while advanced stage at presentation, anemia, poor nutrition and prolonged treatment duration are cited as poor prognostic factor.

Despite the high prevalence of disease the available screening and treatment center are rare. so the aim of this study will be to asses' treatment out come and associated factors of cervical cancer patients (5).

1.2. STATEMENT OF THE PROBLEM

Cervical cancer is a major public health problem throughout the world, and despite important declines in incidence and mortality observed in developed countries in the last 20 years, those indicators remain almost unchanged in developing countries(9).

Every year, almost 500,000 women worldwide are estimated to be newly diagnosed with cervical cancer (10). The majority of cases are found in developing countries; in Africa almost 60,000 women die of the disease each year (11). In 2004, cervical cancer contributed to 3.4 million years of life lost worldwide and was the greatest single cause of death from cancer in women from low-income countries(12). This mainly reflects the absence of enough national cancer control programs, such as vaccination, screening, and early detection, in most African countries.

Cancer patients in sub-Saharan Africa tend to seek medical attention with advanced disease due to distant place of residency from health institution, un able to recognize a symptom or un able to seek healthcare even with advice in the presence of symptoms (13).Despite this, in 2010 radiotherapy was available in only 23 of 52 African countries—mostly in the northern and southern states of the continent. Brachytherapy was available in only 20 countries (14).

Ethiopia is the second most populated country in sub-Saharan Africa, with more than 42 million females (15). It is one of the least urbanized countries in the world, with only 16% of the population living in urban areas(16). An estimated 7,000 new cases of cervical cancer are diagnosed per year; of which nearly 5,000 people are estimated to die of the disease per year(5). Treatment option for patients with cervical cancer involves radical hysterectomy at early stages and radiation can be given combined with chemotherapy. This combination therapy has been found to have good prognostic factor (2).

Cancer patients need to wait for a considerable period of time to get treatment due to the fact that there is only one cancer center having a single radiotherapy and brachytherapy machine in the country.

Given the above facts and the high incidence and mortality rate, there is limitation of studies on treatment outcome among cervical cancer patients in the country. Therefore, this study aims to explore information on the treatment outcome and associated factors among cervical cancer patients at TikurAnbesa specialized hospital, Addis Ababa, Ethiopia, 2017/2018.

1.3. SIGNIFICANCE OF THE STUDY

This study will help to understand the treatment outcome and associated factors among patients treated at TikurAnbesa Specialized Hospital, Oncology Center. The results from this retrospective study will also be used as a source of information related to factors that affect treatment outcome, early screening, and early diagnosis so as to guide health providers especially to provide patients counseling. In Ethiopia, cervical cancer patients usually visit health facilities while the case gets to its advanced stage. This late stage presentation leads to high morbidity and mortality. Related to this fact, this study can be used as an input for policy makers to develop awareness creation programs related early screening, expanding cancer centers, early treatment of precancerous lesions, and possibly surgery among early cases. Moreover, the study will serves as a base line data for further related studies.

2. LITERATURE REVIW

2.1. DISTRIBUTION OF CERVICAL CANCER

Cervical cancer is one of the most common gynecological malignancies, with nearly 500,000 newly diagnosed cases each year of which more than 90% cases are found in developing countries(17). The highest incidence of cervical cancer occurs in Central and South America, Eastern Africa, South and South-East Asia, and Melanesia (18). Invasive cervical cancer is the most common cause of cancer deaths in Africa accounting for 10.4%, which represents one in five of all cancer deaths in African women (19). The main reasons for higher incidence and mortality of the cervical cancer in developing countries include lack of awareness of cervical cancer in the general population and health care providers and lack of effective screening program to detect and treat early stage of the disease(20). There are many clinic pathological factors affecting recurrence in cervical cancer which become the main reason for decreased survival rate and these include, clinical stage, histological grade, and treatment adopted (21, 22). In developing countries, few studies are available describing the incidence of cervical cancer, disease stage, management and treatment outcome of these patients(23, 24).

2.2. TREATMENT OUTCOME AND ASSOCIATED FACTORS OF CERVICAL CANCER

According to a study conducted in Washington Adventist hospital radiotherapy department(RTD) with review of 85 patient with recurrent cervical cancer ,among this 17 patient with recurrence were treated with radical surgery ,18 patient with radiotherapy and 29 patient with chemotherapy and 21 cases were not received no further treatment. Survival was presented according to the site of recurrence and mode of therapy; all patients were followed for a minimum of 24 months after treatment and the result shows from the total group 14% were live with no evidence of the disease, 29 % die with metastasis disease not involving the pelvis, 45 % die of metastasis to pelvis. Over all 22% were living more than 2 years and only 2% were living more than 5 years(25).

A retrospective longitudinal study on the prognostic factors related to cervical cancer survival in Mexico showed that 27.8% died from invasive cervical cancer at the end of the follow-up period. The overall survival rate was 66.6%.The study also shows that age, histological type, tumor grade and clinic pattern do not show a difference in survival at 5 years. Meanwhile survival is affected by those

conditions that indicate a more advanced neoplastic process , The tumor size , lymph-vascular invasion and therapeutic scheme combined with surgery, radiotherapy and chemotherapy have a lower survival, meanwhile factors which may be prevent illness advance such as the Pape smear show a higher survival(26).

According to a study conducted ShaikhZaid Hospital, Lahore using retrospectives cross sectional study design with sample of 618 patients. Case files of all patients presenting with invasive carcinoma of uterine cervix during 1993-2002 were studied in respect to personal profile, disease related risk factors, pathological characteristics, treatment administered and outcome in the form of tumor response and survival. The result shows Out of 618 patients presenting with invasive cervical cancer, 65% presented in advanced stages II and III. Apart from advanced stage at presentation, anemia, poor nutrition, and ignorance about self-hygiene and lack of follow-up were main causes of treatment failure. Outcome of treatment was improved when chemotherapy was added to radiation(27).

According to retrospective cross sectional study conducted in Saudiarebia 60 pt with stage IB –IVA between January 2004 and December 2010 it shows that most patient 83% had squamous cell carcinoma. Stage IIB was the most common presentation 68%. 78% of patient takes cisplatin concurrent with radiotherapy. The 2^{nd} and 4^{th} year over all survival was 82% and 79% respectively. Prolongation of the overall treatment time for greater than 56 days, advanced stage and pretreatment hemoglobin < 10mg/dl are negatively predicted risk factor. Vaginal infiltration and brachytherapy were significant factor for relapse. Pathological tumor grade were the only predictive factor for indicating distant metastasis .grade 3 or 4 late rectal reaction were noted in 3% of pt and no pt develop grade 3 or 4 urinary reaction(26).

According to a study conducted in Brazil Amazon to asses five year survival and associated factor in women treated for cervical cancer at Reference hospital with record review of 339 patient admitted and treated in Belem, Para brazil from 2005to 2010 shows that the survivals rate was 84% and disease stage, readmission and metastasis had significant influence on patient outcome (28).

A study was conducted in morocco national institute of oncology of Rabit hospital with review of all women diagnosed with invasive cervical carcinoma between January 2006 and December 2006 .Outcomes and prognoses are analyzed in patients who received at least one treatment. The analysis included 646 women. Median age was 50 years (23–85 years). Bleeding was the most frequent

symptom (95 %). The most predominant histology was Squamous cell carcinoma (94 %). The majority of patients were diagnosed at locally advanced stages (88 %). Among patients who received treatment (n= 550), the management was based on concurrent chemo radiotherapy in 69.7 % of cases. The median duration of follow-up was 60 months (range 2–78 months). Overall survival, progression free survival, and loco regional recurrence free survival were 63.2, 60.7 and 79.1 % respectively. Significant poor prognostic factors in univariet analysis included stage, tumor size, lymph node involvement, anemia and absence of response to radiotherapy. The prognostic significance of response to radiotherapy and stage were retained in multivariate analysis(29).

According to a retrospective study conducted in Egypt on treatment outcome of cervical cancer and prognostic factors from January 2005 to 2013 on a total of 83 patients, as initial 16 patients were treated with surgical resection and 61 patients received definitive radiotherapy and the remaining 6 patients have stage 4 diseases and underwent palliative treatment. Among 61 pt who received definitive radiotherapy 46 pt received chemotherapy concurrently with radiotherapy. External beam boost were given to 43 pt and while brachytherapy were given to 18 pt. 13 pt had residual diseases after definitive radiotherapy, nine of whom undergo salvage surgery the remaining 4 pt undergo palliative therapy. A total of 16 pt that undergo surgery receive radiotherapy. The result shows after a median follow-up period of54 months 37 pt failed from treatment. The pattern of failure includes isolated local recurrence in 21 pt isolated distant metastasis in 13 pt. and mixed in 3pt. Five year over all survivals an disease free survival were 53.7% and 46.3% respectively. In univariet analysis tumor size, stage and type of initial treatment were significant prognostic factor. Clinical stages were the only spastically significant prognostic factor. In multivariate analysis advanced stage was independent prognostic factor for poor overall survival (30).

According to a prospective cohort study conducted to assess overall survival from cervical cancer with underlining factor among women taking radiotherapy in Kenya between 2008 and 2013 with355 histological confirmed invasive cervical cancer at Kenyatta national hospital data was collected using structured questioner which contain socio demographic condition, tumor response and overall survival from combination of chemotherapy, radiotherapy and brachy therapy Shows that 42 %(146) pt Were lost to follow up, 18 %(16) pts die during two years period,80.5% of patient were presented with advanced stage IIB and above. Only 6.75% of patients receive optimal combination therapy. Kaplan merry curve projected the two years survival <20%(31) .

2.3. IMPACT OF SOCIO-DEMOGRAPHIC FACTORS

According to a study conducted on 1961 cases of cervical cancer diagnosed between 2005 and 2010 in the Danish Gynecological Cancer database, with information on prognostic factors, treatment and lifestyle. Age, vital status, co morbidity and socioeconomic data were obtained from nationwide administrative registers. Associations between socioeconomic indicators (education, income and cohabitation status) and mortality by all causes were analyzed in Cox regression models with inclusion of possible mediators. Median follow-up time was 3.0 years (0.01–7.0).the result shows All cause of mortality was higher in women with shorter rather than longer education (hazard ratio (HR), 1.46; 1.20–1.77), among those with lower rather than higher income (HR, 1.32; 1.07–1.63) and among women aged 60 years without a partner rather than those who cohabited (HR, 1.60; 1.29–1.98). Socioeconomic differences in survival were partly explained by cancer stage and less by co morbidity or smoking (stage- and co morbidity- adjusted HRs being 1.07; 0.96–1.19 for education and (1.15; 0.86–1.52 for income)(32).

In line with study Poor social status leading to anemia is a common finding in cervical cancer patients. It has been shown that women who had a low Hb at start of radiotherapy showed poor disease control, probably due to large hypoxic cell population in such tumors which has been associated with development of resistance to ionizing radiation and some forms of chemotherapy leading to enhanced malignant progression and metastasis, potentially impacting long-term survival(21).

2.4. IMPACT OF TREATMENT DURATION

A study was conducted in Rabat morocco from January 2011- December 2011 with all patient diagnosed with cervical cancer and treated with concurrent radiotherapy were retrieved. Treatment duration was calculated from the first day of radiotherapy to the last day of radiotherapy. Whichever lasts to complete 8 weeks or 56 days set as limit. Impact of treatment duration on survival was calculated. The result shows the median time to complete pelvic RT was 37 days (32-42days).a median of 15 days was the time between the last RT to the start of brachytherapy. A median time to complete RT –BT was 55 days. While the median total treatment duration was 61 days, which is more than 56dayswhich was a significant factor impacting treatment outcome. In multivariate analysis total treatment duration was independently associated with prognosis (33).

2.5. IMPACT OF TUMOR STAGE

According to a study conducted to compare treatment outcome of Adenocarcinoma and squamous cell carcinoma with 423 pt in locally advanced cervical carcinoma patient from medical records of patient with stage IIB-IVA pt completed treatment between 1995- 2008. Adeno carcinomas were matched with spumes carcinoma with tumor size, treatment modality. The result shows most of the pt shows stage IIB .The overall complete response between ACA and SCA 86.4% and 94.7%respectively.pelvic recurrency and distant failure were 2.1% and 14.9%in ACA and 3.9% and corresponding with15.6% in SCC .the 5 year over all survival rate of ACA compared to SCC was 59.9% to 61.7%respectively.from this study ACA had poorer response rate from treatment(34).

A cohort study on Prognostic factors in adeno-carcinoma of the cervix in Netherland shows a 5-year survival rates for stages I and II were, respectively, 79% and 37%. The 5-year survival rates for stages III and IV were less than 9%.Using univariet analysis stage and grade of cervical cancer were significant prognostic factors. Younger patients (age< 35 years) had a significantly better survival than older patients (>65years). Histological type (adeno-carcinoma vs. adeno-Squamous vs. clear cell carcinoma) showed significant difference in survival .The patients without lymph node metastases had a 5-year survival of 91% compared to 34% when positive lymph nodes were found. The survival was significantly better in patients undergoing primary surgical treatment in stages I and IIA when compared to primary radiation therapy. Using multivariate analysis, only stage, grade and lymph node metastases remained significant independent predictors for survival. Longest survival was for patients with early stage disease, younger patients and after primary surgery. They found FIGO stage, grade and lymph node metastases of significant prognostic value for survival in cervical adeno-carcinoma (33).

In Ethiopia there is no study on treatment outcome and associated factor among cervical cancer patients, this study aims to explore information regarding this issue at TikurAnbesa specialized hospital oncology unit.

2.6. CONCEPTUAL FRAMEWORK

The conceptual frame work of this study is constructed by reviewing different literatures and articles done in different parts of the world at different time. The variables which were listed as prognostic

factor are assembled together and a diagram is constructed to show as all these variables or factors affect treatment outcome of cervical cancer patient (35).

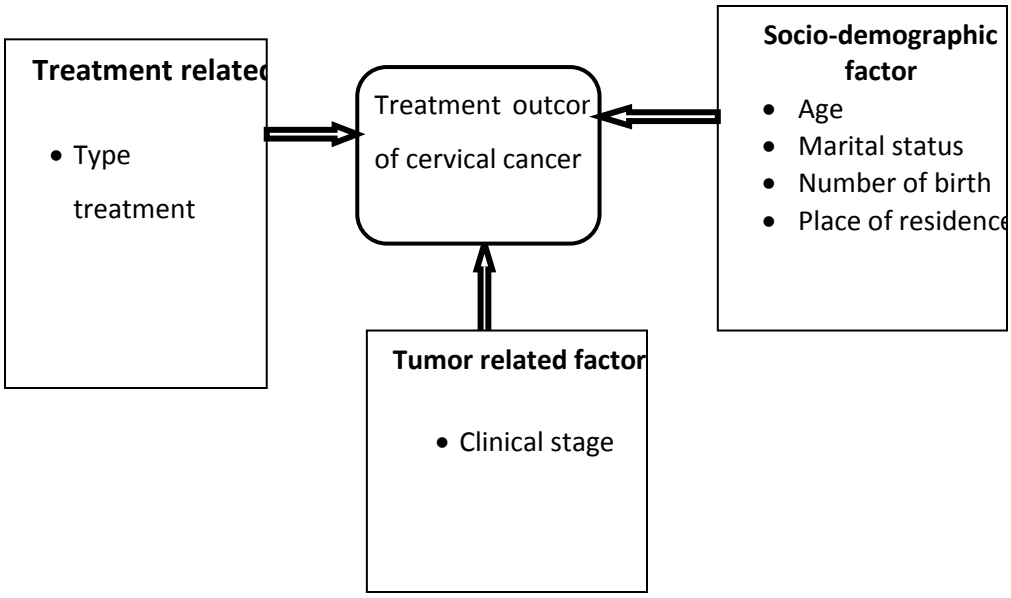

Fig.1 Shows Conceptual frame work which is adapted from Imogene Kings model

3. OBJECTIVES

3.1. GENERAL OBJECTIVE

The general objective:

- To assess the treatment outcome of cervical cancer patients and associated factor in TikurAnbesa Specialized Hospital Oncology center Addis Ababa, Ethiopia.

3.2. SPECIFIC OBJECTIVES

- To determine treatment outcome of cervical cancer patients in terms of cured, recurrence, and lost of follow up of cervical cancer patients treated at Tikur Anbesa Specialized hospital oncology center.
- To identify factors associated with treatment outcome in terms of socio demographic, treatment related and tumor related of cervical cancer patients treated at TikurAnbesa specialized hospital oncology center.
- To describe follow up proportion of women treated for cervical cancer.

4. METHODOLOGY

4.1. STUDY AREA

The study area of this research was Addis Ababa city administration of cancer center in TASH, this is the largest of all the Hospitals in Ethiopia and provides a tertiary level referral treatment and is also open 24 hours for emergency services.

The hospital was established in the year 1973 for the memorial of prince Mekonnen. Duke of Harare, who is the son of his imperial majesty Hailesilassie I, by an organized committee comprised of higher government officials of that period, with the fund contributed by the Ethiopian people, the budget allotted by the government and donation from countries. The hospital totally hold 123000m.sq area of land, and its buildings has settled on 45000m.sq area there are 1262 various rooms from the basement to the eight floor, the hospital was attempted to occupy 500 beds, and had modernly planned and accommodated and facilitated with the out patients department (OPD), as well it had seven x-ray nine surgical and two laboratory diagnostic rooms in the 1980's due to the existed war of envision in the country, the service being rendered by the hospital had been fallen in to a great tension. Subsequently the problem occurred compelled the medical bedrooms of patients should include more beds. As of that period, the hospital was compelled to accommodate more than 700 patients this hospital administered by different stake holder at different time but know the hospital is administered by Addis Ababa University and is the largest teaching hospital among all in Ethiopia providing teaching for about 300 medical students and 350 Residents every year. The hospital offers diagnosis and treatment for approximately 370,000- 400,000 patients a year and is situated at the heart of the capital city on Churchill Avenue.

The study was conducted at TikurAnbessa specialized hospital, oncology centre. It is referral teaching hospital that it has the sole cancer center at the capital city of Ethiopia for all cancer patients that are coming from different regions of Ethiopia which accounts a total of 99.4 million people. The radiotherapy center of TASH is the only center in the country with only one functional radiotherapy machine serves more than 6000 new cancer cases per year (5).

4.2. STUDY PERIOD

This study was conducted starting from February 2010 to June 2010 E.C.

4.3. STUDY DESIGN

Institutional based retrospective Cross-sectional study design was conducted by review medical records of histological proven and who started treatment of cervical cancer patients in the past five years from 2005 – 2009 E.C.

4.4. POPULATION

4.4.1. SOURCE POPULATION

All cervical cancer patients who were diagnosed in TikurAnbesa specialized hospital for the past five years were the source of population.

4.4.2. STUDY POPULATION

The study population was all cervical cancer patients who started treatment at oncology ward for the past five years.

4.5. INCLUSION AND EXCLUSIVE CRITERIA

4.5.1. INCLUSION CRITERIA

- Chart of Patients who fulfills the following criteria will be included:
  - Patients who start treatment.
  - Patients' with confirmed histological cervical cancer.

4.5.2. EXCLUSION CRITERIA

- Chart of patient excluded from study:
  - Patient who doesn't start cancer treatment.

4.6. SAMPLE SIZE DETERMINATION

Sample size was calculated using single population proportion formula. Since there is no research conducted on treatment outcome of cervical cancer patients in Ethiopia 50% of the proportion of the population was taken by assuming level of significance <0.05 at 95% level of confidence, and 5% margin of error.

$$N=\frac{Za/_2^2(p(1-p)}{d2} = (1.96)^2\ 0.5(1-0.5)/(0.05)^2 = 384$$

Since the total population was less than 10000 the correction formula was utilized:

$$n_{final} = \frac{n}{1+\frac{n}{N}}$$

=384/1+384/600=234.146

By adding non response rate of 10%, final sample size was 257.

4.7. SAMPLING PROCEDURE

To select the study area purposive sampling was used and to select the study subject simple random sampling was employed. That means from a total of 13 public hospitals TikurAnbesa specialized hospital was selected purposely, since it's the only cancer treatment center in the country and to select the study subject, from all cervical cancer patient study subjects were selected by using simple random sampling technique, first those started treatment were collected with their card number and then from listed number of patients within one year study subjects were selected by simple random sampling technique.

4.8. STUDY VARIABLE

4.8.1. DEPENDENT VARIABLE

- Treatment outcome of cervical cancer patients.

4.8.2. INDEPENDENT VARIABLES

- Socio demographic characteristics
    - Age
    - Marital status
    - Number of birth
    - Place of residence
- Tumor related factors
    - Clinical Stage
- Treatment related
    - Type of treatment

4.9. DATA COLLECTION TOOLS

The questionnaire was adapted from other study which has conceptually the same or nearly the same variable by making some modifications was used which have a total of 24 questions (4 question for socio-demographic background and the remaining 20 question for treatment related, follow up related and clinical and pathological related questions) (36).

4.10. DATA COLLECTION METHODS

Medical records of cervical cancer patients who were treated at TikurAnbesa specialized hospital oncology center was selected Using, patients file number of which is registered in the registrations book. Two trained research assistants were recruited to assist the principal investigator. In the study research assistants was responsible for collecting and sorting out the files after having the file numbers extraction of information from the files and filling up of the questions was done by the Principal Investigator. The Principal Investigator cross-checks the lists of files with the selected files for the study to ensure quality control during data collection.

The files of women with confirmed diagnosis of cervical cancer undergoing treatment at oncology center for the past five years was collected from medical records. Then, all relevant information required was transferred from the files to the questions.

4.11. OPERATIONAL DEFNATION

For this study purpose patient is:

1. **Treatment outcome;** in this study treatment outcome refers to the statues of patients after starting of treatment (cured, recurrence, lost from follow up).
2. **Associated factors;** in this study refers to any positive or negative barrier which has relation with treatment outcome (treatment related, tumor related, socio-demographic).
3. **Tumor stage:** in this study implies a diagnosis stage of tumor with pathological confirmation (from stage IA to stage IVB).
4. **Type of treatment:** In this study it tells that treatment modalities such as surgery, radiation, chemotherapy.

4.12. DATA PROSSESING AND ANALYSIS

The collected data was cleaned and checked for any missing and inconsistency, then it was entered to computer software program and analyzed SPSS version 22. Descriptive statistics include cross tabulation and simple frequency and proportions was used to describe the socio demographic characteristic and the treatment outcome of cervical cancer patient .Cross tabulation and simple frequency was used to describe the treatment outcome of cervical cancer patient. In addition bivariate logistic regression was used to assess the association between dependent and independent variables. To control confounding effect those variable having p value <0.2was entered to multivariate logistic regression. Then those variables having p value <0.05 were considered as having significant association.

4.13. ETHICAL CONSIDERATION

Ethical clearance and approval was obtained from the Ethical review Committee of Department of Nursing and Midwifery, College of Health Sciences School of Allied Health. Official letters was obtained from department of nursing and midwifery, TASH. Permission letter was submitted to oncology center. To guarantee confidentiality and anonymity, names of patients was excluded on the questions since a distinct study identification code was assigned to each questions and the collected data was locked in secured place.

4.14. DISSEMINATION OF THE RESULT

The final report of the study will be submitted and presented in the form of soft and hard copy to Addis Ababa university Department of nursing and midwifery .In addition, it will be presented in different conference and seminars. Further efforts will be made to send for national and international journal for possible publication.

5. RESULT

5.1 SOCIO DEMOGRAPHIC CHARACTERISTICS OF THE STUDY PARTICIPANTS

A total of 257 cervical cancer patients were targeted for the study, of which 252 respondents making the response rate 98.05%.Age distribution of the study participants showed 75 (29.8%) were aged between 50 and 59 years, and 67 (26.6%) aged between 40 and 49, 58 (23%) between 30 and 39 years respectively. About 200 (79.4%) of study participants were married and more than half of the study participants were lived in urban area. The child bearing distribution of cervical cancer patients indicates that majority 87 (34.5%) had three to four birth while 42 (16.7%) had seven to eight number of birth (Table 1).

Table 1: socio demographic characteristics of the respondents in Tikuranbesa specialized Hospital, Addis Ababa, Ethiopia, 2018 (n=252).

Variables		**Frequency**	**Percentage**
Age	20-29	8	3.2%
	30-39	58	23%
	40-49	67	26.6%
	50-59	75	29.8%
	≥60	44	17.5%
Marital status	Single	4	1.6%
	Married	200	79.4%
	Widowed	30	11.9%
	Divorced	18	7.1%
Place of residence	Rural	102	40.5%
	Urban	150	59.5%
Number of birth	<2	75	29.8%
	3-4	87	34.5%
	5-6	48	19%
	7-8	42	16.7%

5.2 CLINICAL AND PATHOLOGICAL CHARACTERISTICS

Regarding to clinical stage 44.8%, 15.9%, 15.5% of the patients were diagnosed with stage III b, stage IVA and stage IIB respectively. No one patients are coming with stage 1A cervical cancer case. Two hundred forty eight (98.4%) of participants have squamous cell carcinoma of histological cell type whereas 4 (1.6%) adenocarcinoma. In relation to recurrence of the disease 154 (61.1%) of the cervical cancer patients got recurrence of the symptoms. One hundred sixty (63.5%) of the participants disease were metastasized and during diagnosis on clinical or radiological examination of the cervix 198 (78.6%) of participants were presented with tumor. During diagnosis on pelvic node status 201 (79.8%) of participants results was positive. Findings further reveal that only 32.9 % of the patients had HIV/ AIDS (Table 2).

Table 2: Clinical and pathological characteristics of the respondents in Tikur anbessa Hospital, Addis Ababa, Ethiopia, 2018 (n=252).

Variables		Frequency	Percentage
Histological cell type	squamous cell carcinoma	248	98.4%
	adenocarcinoma	4	1.6%
HIV status	Positive	83	32.9%
	Negative	133	52.8%
	Unknown	36	14.3%
Clinical FIGO stage	stage 1B	4	1.6%
	stage 2A	10	4%
	stage 2B	39	15.5%
	stage 3A	32	12.7%
	stage 3b	113	44.8%
	stage 4A	40	15.9%
	stage 4b	14	5.6%

Pelvic node status	Positive	201	79.8%
	Negative	51	20.2%
recurrence of symptoms	Yes	154	61.1%
	No	94	37.3%
	Unknown	4	1.6%
clinical or radiologi	presence of tumor	198	78.6%
examination of the cerv	no tumor seen	54	21.4%
during dx			
Metastasize to other body	Yes	160	63.5%
	No	92	36.5%

5.3 FOLLOW UP VISIT STATUS OF CIRVICAL CANCER PATIENTS IN TIKUR ANBESSA HOSPITAL ADDIS ABABA, ETHIOPIA 2018

About 152 (60.3%) of the patients came for follow up for more than three times during the first year, while 27 (10.7%) twice and 7 (2.8%) were visited once. In the fifth year 167 (66.3%) of cervical cancer patients were not visited at all, while only 3 (1.2%), 4 (1.6%) were visited three times and more than three times respectively (Table 3).

Table 3: Follow up visit status of respondents in Tikur anbessa Hospital, Addis Ababa, Ethiopia, 2018 (n=252).

Variables		Frequency	Percentage
number of first year visit	Once	7	2.8%
	Two	27	10.7%
	Three	66	26.2%
	More than three	152	60.3%
number of second ye	not at all	78	31
visit	Once	50	19.8
	Twice	45	17.9
	Triple	36	14.3
	More than three	43	17.1
Number of third year vis	not at all	137	54.4
	Once	42	16.7
	Twice	47	18.7
	Triple	11	4.4
	More than three	15	6
number of forth year visi	not at all	147	58.3
	Once	47	18.7
	Twice	46	18.3
	Triple	10	4
	More than three	2	0.8
number of fifth year visi	not at all	167	66.3%
	Once	61	24.2%
	Twice	17	6.7%
	Triple	3	1.2%
	More than three	4	1.6%

5.4 DISTRIBUTION OF TREATMENT GIVEN TO CIRVICAL CANCER GIVEN AT TIKURANBESSA HOSPITAL 2018

One hundred fifty four (61.1%) of the cervical cancer patients were treated only by EBRT, while 39(15.5%) of patients treated by EBRT and chemo. Among all the participants 32(12.7%), 24(9.5%), 3 (1.2%) are treated by surgery and EBRT, surgery, EBRT and chemo, surgery only respectively. Regarding to cease of chemotherapy cycle 25(9.9%), 19(7.5%), 13(5.2%), 9(3.6%), 2(0.8%) patients cease from chemotherapy cycle in second, fourth, third, sixth and fifth cycle respectively.

Table 4: Type of treatment given to cervical cancer patients in Tikuranbessa Hospital, Addis Ababa, Ethiopia, 2018 (n=252).

Variables		Frequency	Percentage
Cease of chemothera	Second	25	9.9%
cycle	Third	13	5.2%
	Fourth	19	7.5%
	Fifth	2	0.8%
	Sixth	9	3.6%
mode of treatment given	EBRT	154	61.1%
	EBRT and chemo	39	15.5%
	surgery and EBRT	32	12.7%
	surgery, EBRT and chem	24	9.5%
	surgery only	3	1.2%
Type of surgery	TAH	22	8.7%
	STAH	2	0.8%
	TAOH	10	4%
	Wertheim's hysterectomy	26	10.3%
surgery as a prima	No surgery	4	1.6%
treatment	Undergone surgery	57	22.6%
Chemotherapy as	concurrent radiotherapy	39	15.5%
primary treatment	adjuvant without RT	5	2%

	Palliative	13	5.2%
	adjuvant with RT	10	4%
radiotherapy as a prima	radical RT	19	7.5%
treatment	adjuvant to surgery	8	3.2%
	palliative RT	99	39.3%
	single shoot RT	126	50%

5.5 TREATMENT OUT COME

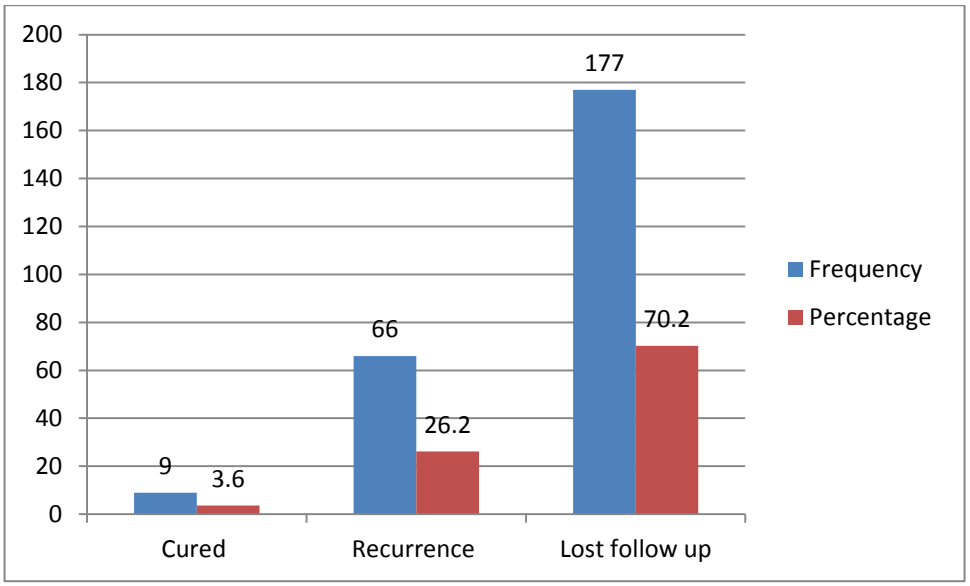

Fig 1: Status of cervical cancer patients in Black Lion Hospital, Addis Ababa, Ethiopia, 2018 (n=252).

One hundred seventy seven (70.2%) patients were lost from follow up, while only 9 (3.6%) of the cervical cancer patients were cured at the time of five years and 66 (26.2%) got recurrence of disease (Fig 1).

5.6 FACTORS ASSOCIATED WITH TREATMENT OUTCOME CURED

Bivariate and multivariate analysis was performed between cured outcome among study participants (dependent variable) and factors (independent variable). Binary Logistic regression was performed to assess the association of each independent variable with cured. The factors that showed association at p value less than 0.2 were added to multivariate regression model and the significant association was checked at p value < 0.05.

In the binary logistic regression, cervical cancer patients those with stage 2B, stage 3A and stage 3bwere 0.03 times **{COR=0.03; 95% CI (0.003-0.32)}**, 0.039 times **{COR=0.039; 95% CI (0.004-0.39)} and 0.011**times **{COR=0.011; 95% CI (0.001-0.107)}** less likely to be cured compared to those have clinical stage 2A respectively.

Cervical cancer patients those have positive result of pelvic node were 0.18 times **{COR=0.18; 95% CI (0.04-0.72)}** less likely to be cured compared to those have negative result of pelvic node.
Cancer patients those treated by EBRT and chemo were 0.07 times **{COR=0.007; 95% CI (0.009-0.67)}** less likely to be cured compared to cervical cancer patients those treated by surgery and EBRT.

In multi logistic regression cervical patients those with stage 3bwere 0.021 times **{AOR=0.012; 95% CI (0.001-0.23)}**, less likely to be cured compared to those have clinical stage 2A. Cancer patients those have positive result of pelvic node were 0.03times **{AOR=0.001; 95% CI (0.001-0.92)}** less likely to be cured compared to those have negative result of pelvic node.

Table 4 : Factors associated with disease free survival (cured) in Black Lion Hospital, Addis Ababa, Ethiopia, 2018 (n=252).

Variables		COR, 95% CI	AOR, 95% CI	P value
Clinical stage	stage 1B	0.7 (0.45, 2.62)	0.75 (0.53, 3.21)	0.24
	stage 2A	1	**1**	
	stage 2B	**0.03 (0.003, 0.328)**	0.02 (0.013, 1.02)	0.54
	stage 3A	**0.039 (0.004, 0.39)**	0.03 (0,002, 1.001)	0.06
	stage 3b	**0.011 (0.001, 0.107)**	**0.021 (0.001, 0.23)**	**0.004**
	stage 4A	0.03 (0.003, 0.31)	0.04 (0.003, 0.54)	0.07
	stage 4b	0.05 (0.04. 3.24)	0.13 (0.02, 3.91)	0.08
Pelvic node status	Positive	**0.18 (0.04, 0.72)**	**0.03 (0.001, 0.92)**	**0.03**
	Negative	1	1	
mode of treatme	EBRT	0.47 (0.03, 6.32)	0.57 (0.036, 6.23)	0.63
given	EBRT and chen	**0.07(0.009, 0.67)**	0.07(0.009, 1.18)	0.08
	surgery a	1	1	
	EBRT surgery, EBI and chemo	1.8 (0.8, 9,07)	2.3 (0.92, 9.64)	0.067
	surgery only	1.03 (0.04, 3.08)	1.52 (0.14, 4.12)	0.707
Number of fif visit	not at all	**1**	1	
	Once	2.8 (0.8, 10.3)	2.9 (0.07, 11.2)	0.21
	Twice	**6.9 (1.5, 32.1)**	4.3 (0.09, 33.5)	0.34
	Triple	**16.2 (1.25, 20.9)**	0.47 (0.006, 36.3)	0.15
	More than three	10.8 (0.9, 12.2)	11.2 (0.95, 12.73)	0.06

5.7 FACTORS ASSOCIATED WITH RECURRENCE OUTCOME

In a binary logistic regression analysis it was found that Cervical cancer patients those have positive result of pelvic node were 1.2 times **{COR=1.2; 95% CI (1.03-2.67)}** more likely to have

recurrence of disease compared to cervical cancer patients those have negative result of pelvic node. Cervical cancer patients with Sero positive HIV status were 2.4 times **{COR=2.4; 95% CI (1.93-7.37)}** more likely to have recurrence of disease compared to those sero-negative HIV status.

In multi logistic regression Cervical cancer patients with sero -positive HIV status were 2.8 times **{AOR=2.8; 95% CI (2.14- 7.65)}** more likely to have recurrence of disease compared to those with sero -negative HIV status (Table 5).

Table5: Factors associated with recurrence of disease in Black Lion Hospital, Addis Ababa, Ethiopia, 2018 (n=252).

Variables		COR, 95% CI	AOR, 95% CI	P value
Pelvic node statu	Positive	**1.2 (1.03, 2.67)**	1.62 (0.26, 3.45)	0.54
	Negative	1	**1**	
HIV status	Positive	**2.4 (1.93, 7.37)**	**2.8 (2.14, 7.65)**	**0.02**
	Negative	1	1	
	Unknown	0.45 (0.02, 3.89)	0.57 (0.21. 4.14)	0.56
Number of fif	not at all	1	1	
visit	Once	1.63 (0.90, 2.97)	0.41 (0.15, 1.11)	0.06
	Twice	3.5 (0.24, 10.05)	0.65 (0.14, 2.92)	0.34
	Triple	1.2 (0.56, 2.76)	1.34 (0.67, 2.87)	0.45
	More than three	0.34 (0.76, 3.24)	0.45 (0.82, 3.64)	0.13

6. DISCUSSION

This facility based retrospective study has attempted to assess the treatment outcome and associated factors among cervical cancer patients treated at TikurAnbesa Specialized Hospital Addis Ababa, Ethiopia.

The study revealed that the treatment outcome of cervical cancer patients was cured for 3.6% patients and recurrence occurred among 26.2 % of cervical patients. The result was incomparable with the disease free outcome reported in Korea where relatively high numbers (31.3%) of cervical patients were cured (37) and 69% in the study conducted in Japan (38). The difference of the result might be due to difference of study population and due to accessibility and availability early detection program that can increase better outcome of cervical cancer by initiating early treatment. Among the total participants more than three fourth were married and less than one out of ten of marital status were single. This finding was in line with the finding in the study conducted in Tanzania where eight out of ten of cervical cancer patients were married and the least number were single (36).

Concerning to age of the respondents, more than half of cervical cancer patients those presented at hospital were age greater than forty years. This was comparable with other study done in Tanzania where Majority of the admitted patients was above 40 years old (36).

In relation to histological type, majority of the study participants were had squamous cell carcinoma. The same finding was reported in the study done in Tanzania where more than ninety percent of cervical patients were reported with squamous cell carcinoma (36).

In the present study majority of cervical cancer patients were come for treatment at stage IIb and above. A comparable finding was reported in the research conducted in Tanzania where more than three quarters of patient presented to the hospital with disease at stage IIb and above (36).

In the regression model HIV status was the factor that was significantly associated with recurrence of disease. Those patients with cervical cancer and HIV sero – positive were more likely to have recurrence of disease compared to those cervical cancer patients with sero negative HIV status {AOR=2.8; CI (2.14-7.65} p= 0.02. This finding was consistent with the finding in Tanzania where Patients with cervical cancer and known to be HIV sero-positive were more likely (P<0.001) to have recurrence of disease than patients with sero -negative HIV status. The association between known HIV sero-positive and negative HIV sero-status was a significant predicting factor for cured outcome (36).

Stage of cervical cancer was significantly associated with treatment outcome (cured). Cervical patients with stage III were {AOR=0.012; 95% CI (0.001-0.23}, less likely to be cured compared to cervical patients with stage II. This finding was in agreement with studies in Japan where there is an association with clinical stage (p=0.0003), Patients with clinical stage II were less likely to be cured compared to cervical patients with clinical stage I (39).

7. STRENGTHS AND LIMITATIONS

7.1 STRENGTHS

- Found base line information for future health plan.
- Resources for next researchers.

7.2 LIMITATIONS

- The main limitation of this study was absence of full information on the document i.e. those lost follow up does not known whether they are died or cured.
- Presence of very limited similar studies in the country for comparison purpose.

8. C**ONCULATION AND RECOMONDATION**

8.1 CONCLUSION

The study found that there were a relatively low number patients cured from cervical cancer, slightly high number of recurrence of disease occurred and high number patients lost to follow up. And clinical stage and pelvic node status had significantly associated with treatment outcome of cured, whereas HIV status had association with recurrence of disease. The number of patients those didn't come at all for visit was decreased from year to year. There is a need to design treatment outcome improving intervention plan and implementation.

8.2 RECOMMENDATION

- To promote good outcome of treatment early detection is important as a result health care providers should inform and educate women about prevention.
- Federal ministry of health should consider more early detection service in the country.
- Creating awareness during follow up to come for all visit
- Other research should be conducted by considering prospective study design to identify the treatment outcome.

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ANNEX- QUESTIONER

TREATMENT OUTCOME AND ASSOCIATED FACTOR OF CERVICAL CANCER PATIENTS AT TIKUR ANBESA SPECIALIZED HOSPITAL ONCOLOGY CENTER

INSTITUTE: TIKUR ANBESA SPECIALIZED HOSPITAL

Enrolment date ____ _____ ____ Code No

STUDY QUESTIONAR

A: SOCIO-DEMOGRAPHIC DATA:

1. What is the Age of the patient?

   A 20-29 C 40-49 D ≥60

   B 30-39 D 50-59

2. What is the marital status of the patient?

   A) Single C) Widowed

   B) Married D) Divorced

3. What is Place of residence of the patient?

   A) Rural B) Urban

4. How many birth has the patient?

A) No birth B) 1 C) 2 D) 3 E)>3 F) Unknown

B: CLINICAL AND PATHOLOGICAL CHARACTERISTICS

5. What is the HIV status of the patient?

A) Positive B) Negative C) Unknown

6. What is the Histological cell type of the patient?

   A) Squamous cell carcinoma B) Adenocarcinoma C) Adenosquamous

7. Level of Histological differentiation of tumor cell grading of the patients?

   A) Well differentiated C) Poorly differentiated

   B) Moderately differentiated D) Undifferentiated E) Unknown

8. What is Clinical stage (FIGO) during diagnosis diagnosis?

   A) Stage 1 C) Stage 3 E) Unknown

   B) Stage 2 D) Stage 4

9. What is Pelvic node status of the patients?

A) Positive B) Negative C) Unknown

10. What is Clinical or Radiological examination of the cervix during diagnosis of the patients?

A) Presence of the tumor B) No tumor seen

11. Have recurrence of symptoms of the patient?

A) Yes B) No C) Un known

12).Is it metastasize of the disease to other body part?

A) Yes B) No C) Unknown

C: TREATMENT RELATED CHARACTERISTICS

13). taking of full cycle radiotherapy treatment?

A) Yes B) No C) Unknown

14. Which type mode of treatment is given?

A) Radiotherapy (EBRT) only
B) Chemotherapy only
C) EBRT& Chemotherapy
D) Surgery& EBRT
E) Surgery, EBRT & Chemotherapy
F) Surgery only

15. Which type of surgery performed if done?

A) TAH
B) STAH
C) TAOH
D) Wertheim's hysterectomy
E) Others specify

16) Is the patient take Surgery as a primary treatment?

A) No surgery B) Undergone surgery C) Unknown

17) Which type of chemotherapy taking as primary treatment?

A) No chemotherapy taking
B) Concurrent radio chemo
C) Adjuvant without RT
D) Palliative
E) Adjuvant with RT
F) Unknown

18) Which type of radiotherapy taking as primary treatment?

A) Radical radiotherapy
B) Adjuvant to surgery
C) Palliative Radiotherapy
D) Single shoot RT
E) unknown

D: FOLLOWUP RELATED DATA

19. How many follow up visits within the first year?

A) One B) Two C) Three D) More than three

20. How many visits in the second year post treatment?

A) Not at all B) Once C) Two D) Thrice E) More than three

21. How many visits made in the third year post treatment?

A) Not at all C) Twice E) More than three

B) Once D) Three

22. How many visits made in the fourth year post treatment?

A) Not at all C) Twice E) More than three

B) Once D) Three

23. How many visits made in the fifth year post treatment?

A) Not at all C) Twice E) More than three

B) Once D) Three

24. What is current Status of the patient?

A) Cured

B) Disease recurrence

C) Lost from follow u