UNIT 4 SCREENING FOR COMMON CANCERS

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4.0 INTRODUCTION

In the previous unit, you learnt about congenital malformations. In this unit, we shall be discussing about Cancers.

Cancer is a group of diseases characterised by uncontrolled cell multiplication which can occur in any living tissue in any site in the human body. Cancer develops in several phases depending on the type of tissue affected.

Incidence of cancer is the most reliable indicator of occurrence of cancer and is generated from population based cancer registries (PBCRs). Prevalence (number of persons living with the disease at any given time) of cancer can be estimated using the information on cancer incidence and survival.

In this unit, we shall discuss global and Indian scenario of common cancers, warning signs, diagnosis and treatment, stages of cancers, approaches in cancer prevention and control in detail.

4.1 OBJECTIVES

After going through this unit, you shall be able to:

- enhance knowledge about common cancers;
Screening for Common Cancers

• recapitulate high risk factors for occurrence of cancers;
• participate in screening for common cancers;
• educate community regarding preventive measures;
• identify common risk factors using skills necessary for early detection of oral; cervical and breast cancer; and
• provide services possible for cancer detection and prevention.

4.2 GLOBAL AND NATIONAL SCENARIO

Global scenario: In the year 2012-14, 14.1 million new cases were diagnosed and 8.2 million deaths. Of these 56% new cases and 63% of deaths occurred in developing countries. WHO projections—by 2020, there will be 22 million new case and 13 million deaths cases diagnosed per year with 70% of the cases occurring in developing countries with only 5% of resources. Cancer is emerging as a major problem globally; both in more developed and in less developed countries.

National scenario: In the year 2012-10.15 lakh new cases were reported from our country and approximately 6.8 lakh people died of cancer in the same year.

4.3 DIAGNOSIS AND TREATMENT

Let us now learn about various methods of diagnosis of different cancers in detail as given below:

4.3.1 Diagnostic Methods

The diagnostic procedures in oncology are for diagnosis, determining the extent of the disease, deciding the treatment options available and evaluating the patient during follow-up. Clinical evaluation is the first and the most important step in the diagnosis of malignancy. It requires the health professional to be alert to the early warning signals. A thorough history and clinical examination of any suspicious symptom or sign is mandatory. Clinical suspicion of malignancy can be confirmed by various diagnostic methods described below:

i) Radiological Evaluation: Various imaging methods are:

- X ray
- Fluoroscopy
- Mammography
- Ultrasound
- C.T.Scan
- Magnetic Resonance Imaging (MRI)
- Positron Emission Tomography (PET)
- Radio nuclide scan and Radioactivity uptake studies e.g. Thyroid, Bone

ii) Biochemical Evaluation

This is generally done to know the organ functions, like liver function tests, and renal function tests.
Overview of Common Surgical Conditions - Referral and Follow-up Care

iii) Endoscopy
- Detect the site of primary cancer
- Evaluate the extent of lesion
- Perform biopsy
- Perform certain therapies like end prosthesis for esophageal stenosis, laser therapy, etc.

iv) Pathological Evaluation

Pathological evaluation is an important method for confirmation of clinical diagnosis and includes:

- **Haematological Examination**: Examination of peripheral blood smear and bone marrow.

- **Cytological Examination**:
  - **Exfoliate cytology**: Examination of exfoliated cells; e.g. female genital tract, oral cavity, urinary tract (urine examination), gastrointestinal lesions (gastric lavage) etc.
  - **Fine Needle Aspiration Cytology (FNAC)**: To obtain material from organs that do not shed cells spontaneously. Example: Breast, Thyroid, etc.
  - **Aspiration of body fluids**: To rule out or confirm malignant effusions. Example: pleural fluid, peritoneal fluid.
  - **Biopsy**: A small chunk of tissue is removed from the suspicious site and subjected to histopathological examination. It may be:
    - Excisional biopsy in small tumours
    - Incisional / Punch biopsy in skin and mucosal lesions, Cone biopsy in uterine cervix
    - Needle biopsy in bone marrow, solid tumours of abdomen and pelvic organs.

v) Immunological Evaluation

Some cancers release biologic or biochemical substances, in the form of hormones, enzymes and antigens, into the circulation. The measurement of these substances in blood can be useful in the detection and diagnosis of some types of cancers. Such chemicals are called tumour markers.

4.3.2 Staging of Cancer

Staging is used to assess the extent of the spread of the disease in the body. It is an indication of prognosis, and is used as a guide to determine the type and extent of treatment required.

**TNM classification** - The TNM classification for tumours has been adopted by the International Union against Cancer, and has been extended for many sites of cancer. This is a detailed clinical staging which is arrived at by the clinician by ascertaining the extent of the primary tumour (T), lymph node involvement (N),
and presence of metastases (M). The information so obtained is scored. The details of scoring are specific to each type of cancer. This may be denoted as:

- **T**: Tumor
- **N**: Node (Lymph)
- **M**: Metastasis

### 4.3.3 Principles of Treatment

The primary goals of cancer treatment are:

- cure ideally,
- prolongation of useful life if possible, and
- improvement in quality of life always.

The principal methods of treatment are surgery, radiotherapy, and chemotherapy (including hormonal manipulation). Each of these modalities has a well-established role, and can be used for cure or for palliation (Palliative Care). Appropriate combination and sequencing of these modalities can be adopted for specific cancers. Let us now go through these treatment modalities in detail as given below:

i) **Surgery**

Surgery plays an important role in the diagnosis, staging and treatment of localised cancers.

Indications for Surgery are:

- Removal of tumour masses.
- In early stage solid tumours, surgery that encompasses a sufficient margin of normal tissue is curative. Such as early stage cancers of the breast, oral cavity, uterine cervix, colon, prostate and the skin.
- Post chemotherapy or radiotherapy to provide local cancer control and better chances for adjuvant therapy.
- In certain solid tumours, surgery is critical for reducing bulk (cytoreduction).
- Apart from treatment, surgery for reconstruction and rehabilitation can improve function.
- Cosmetic appearance.
- Enhance quality of life for patients.

Surgery requires the support of other specialties including anaesthesiology, blood transfusion services, pathology (especially oncopathology) and critical care nursing.

ii) **Radiotherapy**

Radiotherapy is one of the most important methods of curing local cancer. Radiotherapy is the method of treating diseases with “ionising radiation”. The ionising radiation causes damage to certain vital structures within the cells. The cells are either damaged or are rendered in capable of further multiplication. These damaging effects on normal cells are less and reversible whereas the damage in the abnormal cell is irreversible. It is also often administered before or after surgery.
Palliative radiotherapy is of value in cases of pain secondary to bone metastasis and tumours causing bleeding or compressive syndromes.

Radiotherapy can cause various side effects. Patients may notice loss of appetite, nausea, and occasionally vomiting persisting for a week. The symptoms are mild in nature and seen in about 10% of patients, and are easily controlled by medicines. Other side effects depend on the site irradiated and can include mucositis and bone marrow depression.

iii) **Chemotherapy**

Chemotherapy is the use of cytotoxic drugs against cancer. Cancer cells are damaged to the extent that they cannot survive. Normal cells are also damaged but to a lesser degree. Chemotherapy is curative in certain cancers e.g. Hodgkin disease, high-grade non-Hodgkin lymphomas; palliative in many cancers, and used as adjuvant therapy for some cancers including breast cancer, ovarian cancer and colorectal cancer.

The goal of adjuvant therapy is to avoid metastases, prolong life and improve quality of life.

Acute side effects of chemotherapy are usually self-limited and reversible. Fall in blood count, hair loss, nausea; vomiting, constipation, diarrhoea, anaemia, and depression of the immune system are some of the side-effects. There may be drug specific side effects like cardiotoxicity, nephrotoxicity, neurotoxicity.

iv) **Palliative care**

Palliative care is an approach that improves the quality of life of patients and their families facing a life-threatening illness. This is done through prevention and relief of suffering by means of early identification, accurate assessment and treatment of pain and physical, psychosocial and spiritual problems. Palliative care involves a multidisciplinary team approach.

### Check Your Progress 1

1) Explain TNM classification for tumors.

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2) List the indications for surgery of cancer.

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   ................................................................................................................

3) Discuss palliative care of treatment.

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4.4 COMMON CANCERS

After going through various diagnostic methods, let us now learn about common cancers, risk factors early detection and management.

4.4.1 Cancer of the Oral Cavity

Oral cancer is one of the ten most common cancers in the world. In India, oral cancer, including cancers of the lip, tongue, gum and floor of mouth, is one the most common cancers. Oral cancer is both preventable and curable. There is usually a long natural history and most cases of oral cancer arise from pre-cancerous lesions. Therefore there is ample opportunity for intervention before actual malignancy develops. Also oral cancer responds well to surgery and radiation if detected early.

Risk factors: Risk factors for oral cancers are as given below:

• Tobacco chewing is the single most important risk factor,
• Alcohol use,
• Betel nut chewing,
• Chronic trauma to oral mucosa by sharp tooth or ill-fitting dentures,
• Chronic exposure to these risk factors causes changes in the oral mucosa are visible as pre-cancerous lesions. Over time, malignancy may develop in these lesions.

Pre-cancerous lesions

Pre-cancerous lesions or conditions are local or generalised disturbances that predispose to malignancy in a particular site. Leucoplakia, erythroplakia, palatal changes associated with reverse smoking or beedi smoking and sub mucous fibrosis are local pre-cancerous lesions.

Fig. 4.1: Leucoplakia

Leucoplakia is a white patch Fig. 4.1 shows leucoplakia involving dorsum and right lateral border of tongue in the oral cavity. Diagnosis is confirmed by biopsy.

Erythroplakia is a bright, velvety area sometimes surrounded by faint plaques. About 90% of these lesions show cellular dysplasia or malignancy. The risk of malignancy in erythroplakia is higher than in leucoplakia. (Fig. 4.2).
The most common cancer seen in the oral cavity is **squamous cell carcinoma**. It presents as a painless ulcer, mass or fissure. As the disease advances, patient may have excessive salivation, trismus, and difficulty in chewing, swallowing or cervical lymphadenopathy. Distant metastases are uncommon in oral cancers.

**Early detection for oral cancers:** This is important for detecting oral lesions at an early stage.

**Examination of oral cavity:** Fig. 4.3 illustrates the various steps for examination of Oral Cavity.

You as health care provider should utilise every opportunity to examine the oral cavities of tobacco users. All parts of the oral cavity should be examined; oral cavity includes lip, anterior 2/3 of tongue, floor of mouth, buccal mucosa, gingival mucosa, hard palate and retro molar trigone as shown in Fig. 4.3.

**Management of Oral Cancer:** Management may be through surgery, radiotherapy, chemotherapy, or a combination of modalities.

Fig. 4.4 presents a flow chart of management of any person with a suspicious oral lesion.

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**Flow chart for management of patient with an oral lesion**

1. Clinical examination by health professional
2. Investigate for possibility of malignancy
   - Malignant
     - Refer for appropriate treatment
   - Not-malignant
     - Treat lesion


4.4.2 Cancer of the Uterine Cervix

Cervical cancer is the third most common cancer among women in the world and the leading cause of death from cancer among women in developing countries. In India more than 100,000 new cases of cervical cancer occur each year and nearly 75,000 women die annually from this disease.

Human Papilloma Virus (HPV) infection, which is a sexually transmitted infection, is the primary cause of this cancer. HPV prevalence increases with multiple sexual partners for both spouse, and poor genital hygiene of both partners.

Symptoms of cancer of the uterine cervix:

In the early stages, there will be no symptoms. By the time symptoms appear, disease may have already spread. Common symptoms are:

- Post-menopausal bleeding
- Post-coital bleeding
- Intermenstrual bleeding
- Blood stained discharge per vaginum
- Excessive seropurulent discharge
- Backache
- Lower abdominal pain

Screening for Cervical Cancer:

Screening for cervical cancer can be considered in women aged 30 to 59 years, as the chances of detecting pre-cancerous lesions are maximum in this age group. Regular population based Screening using Pap Smear cytology is internationally accepted screening method for cervical cancer. In low resource setting, Visual Inspection with Acetic Acid is a useful alternative to categorise women as “high risk” and “low risk”.

1) Pap smear

The ectocervix and the endocervix are scraped to collect cells that are spread on a glass slide, stained in the laboratory and examined under microscope. Depending on the features of the cells seen under microscope the cytopathologist (or a trained technologist) can report the smear as ‘negative’ (normal) or ‘positive’ (abnormalities suspicious of low grade or high grade CIN). Most abnormal Pap tests are caused by viral infections, such as human papilloma virus (HPV) infection, or other types of infection, such as those caused by bacteria, fungi (yeast), or protozoa (Trichomonas). Natural cervical cell changes (atrophic vaginitis) related to menopause can also cause an abnormal Pap test. In some cases, untreated cervical cell changes that cause abnormal Pap tests may progress to precancerous or cancerous changes (Fig. 4.5).
CIN: Cervical Intraepithelial neoplasia
LEEP: Loop Electrosurgical Excisional Procedure

2) **Visual Inspection using 4% Acetic acid (VIA)**

Acetic acid causes dehydration of the cells and some surface coagulation of proteins thereby reducing the transparency of the epithelium. These changes are more prominent in abnormal epithelium and can be easily distinguished on naked eye inspection as aceto whitening.

Table 4.1 gives the detailed criteria for categorising VIA test results as negative or positive or invasive cancer.

**Article Required for the procedure:**
- Examination gloves
- Speculum (Cusco’s self-retaining type preferred)
- Cotton tipped swabs
- Freshly prepared 5% acetic acid (to be produced at least once a week by diluting 5 ml of glacial acetic acid with 95 ml of distilled water)
- Focusing light (with halogen bulb preferred)

**Procedure:** Let us now learn the procedure
- Explain the procedure to the woman.
- Tell woman to lie down on her back with legs folded (lithotomy position not required).
• Insert the speculum gently and expose the cervix.
• Note any abnormal discharge, bleeding or growth in the cervix.
• Apply adequate amount of acetic acid to the cervix using the cotton swabs.
• Wait for 1 minute to note the changes.
• Identify the squamo-columnar junction (SCJ) as the line joining the pink smooth squamous epithelium with the red velvet like columnar epithelium.

Results
• Look for white patches. Fig. 4.6 showing normal cervix and 4.7 white lesions.
• If there are no white patches in the ectocervix the test is negative.
• All the aceto-white patches are not considered positive.
• If there is a white patch, its density, margin and the relationship to the SCJ should be noted.

![Fig. 4.6: Normal cervix](image)

![Fig. 4.7: Aceto white lesion on VIA](image)
Table 4.1: Visual inspection with criteria for categorising VIA test results as negative or positive or invasive cancer

<table>
<thead>
<tr>
<th>VIA category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>• No aceto-white lesions&lt;br&gt;• Transparent lesions or faint patchy lesions without definite margins&lt;br&gt;• Nabothian cysts becoming aceto-white&lt;br&gt;• Faint line like aceto-whitening at the junction of columnar and squamous epithelium&lt;br&gt;• Aceto-white lesions far away from the transformation zone</td>
</tr>
<tr>
<td>Positive</td>
<td>• Distinct, opaque aceto-white area&lt;br&gt;• Margin should be well defined, may or may not be raised&lt;br&gt;• Abnormality close to the squamocolumnar junction in the transformation zone and not far away from the os</td>
</tr>
<tr>
<td>Invasive Cancer</td>
<td>Obvious growth or ulcer in the cervix. Acetowhite area may not be visible because of bleeding</td>
</tr>
</tbody>
</table>

Management of women with abnormal tests

- All cases of suspicious smears or visual inspections should be subjected to colposcopy for better visualisation.
- Biopsy, either by endocervical curettage or cervical cone biopsy should be done in all suspicious cases on colposcopy.
- For such investigations, women should be promptly referred to the nearest centre performing these investigations.

Fig. 4.8 depicts the sequential management of women with abnormal test results on Pap and VIA.

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**CIN**: Cervical Intraepithelial neoplasia

**LEEP**: Loop Electrosurgical Excisional Procedure
4.4.3 Cancer of the Breast

Breast cancer is the commonest cancer among women all over the world. In India, it is the second most common cancer among women after cancer of the uterine cervix and is emerging as the commonest cancer in urban centres. Data from Hospital Based Cancer Registry (HBCR) shows that only about 15% of patients present in localised stage. Regional Lymph nodes are involved in around 75% at the time of presentation and about 10% have distant metastases at the time of presentation.

Risk factors

Some of the risk factors for breast cancer are as follows:

**Reproductive and hormonal factors:** The older a woman when she has her first child, the greater is her chance of having breast cancer. Women who begin menstruation early (before age 12), have menopause late (after age 55) or never had children are also at greater risk.

Women who take menopausal hormone therapy (oestrogen and progesterone) for five years or more after menopause also appear to have an increased risk.

**Family History:** Risk of cancer increases in women with a first-degree relative with bilateral breast disease.

**Other factors:** Being obese after menopause.

**Physical inactivity:** Women who are physically inactive throughout life.

**Alcohol intake:** Some studies suggest that the risk of breast cancer increases with increased intake of alcoholic beverages.

Prompt diagnosis of breast cancer in the early stage is very important. This is possible by increasing the level of awareness among women and health care professionals. The following methods may be used for early detection.

i) **Breast awareness and breast self-examination (BSE):** The first person to detect any lump in the breast is the woman herself. For this, it is essential that every woman be aware of the size, shape and consistency of her breasts, and know when there is an abnormal change in any of these.

Every woman should be aware of the following signs as given below:

- A change in size
- A nipple that is pulled in or changed in position or shape
- A rash on or around the nipple
- Discharge from one or both nipples
- Puckering or dimpling of skin
- Lump or thickening in the breast
- Constant pain in the breast or armpit

In case a woman notices any such change, she should promptly visit the health centre or a health professional.

Breast Self-Exam (BSE) Best time to do:

- Once a month.
• 10 days after your menstrual period.
• If not menstruating, pick a certain day—such as the first day of each month.
• If taking hormones then do it 1–2 days after withdrawal bleeding.

**Five Steps of Breast Self-Exam (BSE):**

**Step 1:** Stand in front of the mirror with your shoulders straight and your arms on your hips and look at your breasts (Breast awareness) and look (Fig. 4.9):

- at their usual size, shape, and colour
- that they are evenly shaped without visible distortion or swelling

![Fig. 4.9: Standing in front of mirror](image1)

Consult doctor if there is:

- Dimpling, puckering, or bulging of the skin
- changed position or an inverted nipple (pushed inward instead of sticking out)
- redness, rash, or swelling of the breasts.

**Step 2:**

- Now, raise your arms and look for the same changes (Fig. 4.10)
- Look for any dimpling of Skin or in-drawing nipple.

![Fig. 4.10: Raising arms and looking for changes](image2)
Step 3:
- While you are at the mirror, gently squeeze each nipple between your finger and thumb (Fig. 4.11).
- Consult doctor if nipple discharge is milky or yellow fluid or blood.

![Fig. 4.11: Squeezing nipple between finger and thumb](image1)

Step 4:
- Lie down and use your right hand to feel your left breast and then your left hand to feel your right breast (Fig. 4.12).
- Use a firm, smooth touch with the first few fingers of your hand, keeping the fingers flat and together.
- Cover the entire breast from top to bottom, side to side—from your collarbone to the top of your abdomen, and from your armpit to your cleavage.
- Be sure to feel all the breast tissue.
- Follow a pattern (Fig.4.13) to be sure that you cover the whole breast. Begin at the nipple, moving in larger and larger circles until you reach the outer edge of the breast. Also move your fingers up and down vertically, in rows. Begin examining each area just beneath your skin with a very soft touch, and then increase pressure so that you can feel the deeper tissue, down to your ribcage using fingers only (Fig.4.14).

![Fig. 4.12 : Feeling breast with hands](image2)  ![Fig. 4.13: Pattern for BSE](image3)  ![Fig. 4.14](image4)
Step 5:

- Feel your breasts while you are standing or sitting (Fig. 4.15).
- It is easier to feel the breasts when their skin is wet and slippery (like while taking bath).
- Cover your entire breast, using the same hand movements described in Step 4.

Fig. 4.15: Feeling breast while standing

ii) **Clinical Breast Examination (CBE):** This is to be performed by a physician, trained nurse or a health worker. It is recommended that women may be examined for any lump in the breast when they have come for other reasons.

iii) **Mammography:** This is an X-ray image of the breast taken with low dose radiation. Two films per breast are taken. This investigation is good for picking up micro calcifications. Mammography is advised once at the age of 40 years to establish the baseline and then every 3 years.

iv) **Ultrasonography:** For women less than 40 years of age when indicated ultrasound of the breast is usually done as their breasts are dense and mammography is not advisable for them.

**Management of breast cancer**

Breast cancer is managed by surgery, radiotherapy, chemotherapy (including hormone therapy), or a combination of the three.

**Check Your Progress 2**

1) List the risk factors for Oral Cancers.

2) Explain the early symptoms for early detection of Oral Cancers.
3) Enumerate common symptoms for cervical cancer.

4.5 PREVENTION OF CANCER

Being an extremely prevalent and lethal disease, it is essential to study the prevention, control and care of clients with Cancer. Hence, let us discuss the approaches and care of patients at Sub-centre with diagnosis of cancer.

4.5.1 Primary Prevention

Primary Prevention aims to reduce the incidence of disease by risk factor modification. A risk factor for a disease is an attribute or exposure that increases the probability of getting the disease. As exogenous risk factors including personal habits play a major role in the aetiology of cancer, modifying risk factor exposure may prevent many cancers. Among the activities for prevention, emphasis should be placed on:

- Identify risk factor
- Tobacco control
- Health education relating to sexual and reproductive factors associated with cancer
- Avoiding alcohol use
- Healthy diet
- Physical activity and avoidance of obesity

4.5.2 Vaccination

The health ministry wants to introduce human papilloma virus (HPV) vaccine in the universal immunisation programme at the earliest. The virus is believed to be responsible for most cervical cancer cases — more than 80 per cent, according to some estimates. The government wants to introduce the HPV vaccine, at least on a pilot basis, as soon as possible. Three doses of the cervical cancer vaccine — two varieties are currently available in India — are essential for immunity to HPV. HPV vaccination programme has been launched in Delhi on 1st March 2016. The HPV vaccination programme will target girls between the age of 9 and 13 next year. In the current year, Delhi government is focused on vaccinating girls Class VI girl students. India has a population of 436.76 million women aged 15 years and older who are at the risk of developing cervical cancer, as per HPV, India Report.

4.5.3 Approaches in Cancer Control

The various approaches in Cancer control include the following:

- Tobacco control/ cessation/ alcohol control
Overview of Common Surgical Conditions- Referral and Follow-up Care

- Early detection Oral/Breast/Cervix – Propagation of awareness and self-examination
- Opportunistic examination
- Diagnostic support
- Diagnosis and treatment
- Proper Infrastructure
- Referral practices
- Palliative care– Oral morphine availability for advanced cancers
- Human resource development
- Community participation

Let us discuss these in detail.

a) **Tobacco control**

Tobacco is the single most important modifiable risk factor for cancer. Of all cancers in India, 34% are due to tobacco (48% of cancers in men and 20% of cancers in women). Tobacco smoke contains approximately 4000 chemicals of which at least 438 can cause cancer. Tobacco smoking causes cancer of the lung, larynx and oesophagus. Smoking is also associated with cancers of the pancreas, bladder, and pelvis of the kidneys, ureter and squamous cell carcinoma of the uterine cervix. Tobacco chewing is the most important risk factor for cancer of the oral cavity. Inhalation of secondary smoke, known as “passive smoking” is a unique feature of smoking. It results in increased risk of cancers among non-smokers exposed to tobacco smoke.

b) **Alcohol**

Increasing alcohol consumption is associated with cancers of the mouth, pharynx (excluding nasopharynx), larynx, oesophagus and liver. The risk relationship between cancer and alcohol is nearly a linear relationship with the risk increasing with increasing amount of alcohol consumed. Co-existence of tobacco habits can have a multiplicative effect on development of cancer.

Control of alcohol requires actions similar to those for tobacco control. The actions should be targeted towards individual and community and include taxation, general public education, encouraging highly vulnerable groups like young people to avoid starting consumption etc.

c) **Sexual and Reproductive Factors**

Sexual and reproductive factors are associated with cancer of the uterine cervix and breast.

Sexual behaviour factors, like young age at first sexual activity, multiple sexual partners and poor sexual hygiene, are associated with cancer of the uterine cervix. Human Papilloma Virus (HPV) has now been identified as the etiological agent responsible for cervical cancer. HPV prevalence increases with high risk sexual behaviour and poor sexual hygiene.

Late age at marriage, null parity, and late menopause have been linked to breast cancer, but the underlying mechanism is probably uninterrupted exposure to oestrogen for prolonged periods in all these cases.

Education regarding sexual hygiene and safe sexual behaviour may be provided for prevention of cancer cervix. Safe sexual behaviour protects
women from the risk of cervical cancer by preventing infection with HPV. Breast cancer is not preventable to any large extent. Early detection of breast cancer is the main strategy for improving survival in breast cancer.

d) **Diet**

Diets rich in animal fats, especially red meats, increase the risk for cancer. Diets high in fresh vegetables and fruits, and fibre reduce risk for cancer.

Certain basic measures may help in reducing risk of cancer:

- Avoid being underweight or overweight
- Engage in regular physical activity
- Consumption of alcohol is not recommended
- Limit consumption of salted foods
- Choose predominantly plant based diets rich in fruits and vegetables

e) **Occupation**

Occupational cancers constitute 5–10% of all cancers. Increased risk of lung cancer has been seen in workers engaged in manufacture of rubber tyres in developing countries, textile workers, ship and dockyard workers and wood workers. Higher risk of bladder cancer was seen in workers of chemical and pharmaceutical plants. Limiting exposure to potentially carcinogenic substances through protective gear, frequent rotation of workers, mechanised handling of such chemicals and similar mechanisms may help reduce cancers from occupational exposures.

f) **Infection**

Infections with various agents are implicated in the aetiology of certain cancers. Control of cancers caused by or associated with infections depends upon success in combating the infection concerned. Measures include eliminating reservoirs and source of infection, preventing transmission, increasing host immunity through vaccination, and effective treatment of those infected.

g) **Early Detection**

Early detection of cancer is the detection of disease at a stage in its natural history where the chance of cure is high. Early detection is only part of a wider strategy that includes diagnosis, treatment and follow-up.

Many cancers that are potentially curable at early stages are detected only in advanced stages.

Diagnosis of such cancers at a stage where treatment is effective could have a major impact on the disease outcome. Certain symptoms and signs may be early indicators of some cancers called warning signals for Cancer as under:

- Change in bowel or bladder habits
- A wound that does not heal
- Unusual Bleeding or discharge
- Thickening or Lump in the breast or elsewhere
- Indigestion or difficulty in swallowing
- Obvious change in a wart or mole
- Naging cough or hoarseness of voice
All people should be aware of these warning signs. The presence of any of these features do not mean a definitive diagnosis of cancer. Such changes may occur in other benign conditions also. However, any such sign not responding to appropriate treatment warrants immediate medical attention and prompt management.

It is also important to train people to detect cancers in the early stage with self-examination of the oral cavity and breast.

h) Screening

Screening is the presumptive identification of unrecognised disease or defects by means of tests, examination or other procedures that can be applied rapidly. Screening is based on the concept that there is a detectable pre-clinical phase of the disease being screened, and detection at this stage markedly alters disease prognosis. The success of screening depends on having sufficient numbers of trained personnel to perform the screening tests with adequate coverage of target populations, and on the availability of facilities that can undertake subsequent diagnosis, treatment and follow-up.

Remember:
Screening is recommended for cancers of uterine cervix and breast, only if resources permit.

Cervical smear cytology is the standard screening test for cervical cancer. It is an easy and effective method revealing the presence of pre-cancerous lesions as well as in situ or very early invasive cancer. Screening should preferably begin at 35 years of age. The important requirement for cervical cytology is the availability of good laboratory services so that accurate diagnosis is possible. Cervical cancer can be effectively managed if detected on time as there is a gap between when early normal cells begin to show some changes and by the time it becomes cancer and spreads outside cervix.

4.6 ISSUES THAT NEED TO BE KEPT IN MIND FOR ALL CANCERS

- Prompt referral of patients with any suspicion of cancer for appropriate management
- Compliance of the patient with medical advice
- Provision of psychosocial services for the patient, and the family
- Rehabilitation: Physical, psychological and social rehabilitation so that the affected individual is able to take care of self, be emotionally stable, and be able to work and socialise, to the extent possible.

4.6.1 Key Messages

Primary prevention
- Avoid use of tobacco in any form
- Avoid alcohol
- Promote physical activity
• Eat plenty of fruits and vegetables
• Practise Safe sexual behaviour

Early detection of cancers
• Breast awareness
• Awareness in community regarding early warning signs of common cancers (Oral/Breast/Cervix)
• Opportunistic check-up for oral, breast and cervical cancer
• Prompt referral and appropriate management
• Prompt referral of any suspicious case is the most important step towards cure.

Diagnostic methods
• Clinical history and examination – first and most important
• Radiological examination
• Pathological examination
• Diagnostic procedures help us to know:
  The type of cancer
  The extent (staging) of cancer
  Treatment options and prognosis

Follow-up evaluation

4.6.2 Role of Health Professionals in Cancer Prevention and Control

Health professionals have the following roles to play for prevention and control of Cancer.

Prevention of cancers
• Create awareness about the ills of tobacco and advocate avoidance
• Encourage and assist habitual tobacco users to quit the habit
• Promote healthy dietary practices and physical activity

Early detection of cancers
• Create awareness about the early warning signs of cancer
• Encourage breast awareness
• Encourage oral self-examination
• Create awareness about symptoms of cervical cancer
• Examine, as a routine, the oral cavity of patients with history of tobacco use
• Offer clinical breast examination to any woman over 35 years presenting to the health centre
• If facilities exist, perform a Pap smear test for every woman at least once in her lifetime, between 35 and 40 years of age
• Promptly refer any person with a suspicious lesion for accurate diagnosis and appropriate treatment
Overview of Common Surgical Conditions - Referral and Follow-up Care

Treatment of cancers
- Ensure that every patient complies with therapy advised
- If follow up care is required at the health centre level, make sure that detailed instructions are provided by the treating institution

Palliative care
- Ensure that the patient is free from pain as far as possible. Refer to the appropriate centre for oral morphine
- Achieve control of unwanted symptoms to the extent possible
- Provide psychological support to the patient to accept the diagnosis and treatment
- Involve the family in diagnosis, treatment and care as far as possible

Check Your Progress 3

1) Enumerate strategies for primary prevention of Cancer?
   ................................................................................................................
   ................................................................................................................
   ................................................................................................................

2) What are the common approaches in cancer control?
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   ................................................................................................................
   ................................................................................................................

3) What are the warning signs of Cancer? Warning signals for Cancer.
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   ................................................................................................................
   ................................................................................................................

4) What are the modalities for management of breast Cancer?
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   ................................................................................................................
   ................................................................................................................

4.7 LET US SUM UP

In summary, primary prevention, early detection, prompt diagnosis and appropriate treatment, and palliative care are the main strategies for cancer control. Tobacco-related cancers like cancers of the lungs, pharynx, and oral cavity are highly amenable to primary prevention. Early detection and treatment is possible for cancers of the oral cavity, uterine cervix, and breast. Palliative care is a key intervention for all types of cancers. Cancers of the oral cavity, uterine cervix, and breast are discussed in detail subsequently in view of the opportunity they offer for early detection and treatment with curative intent.
Check Your Progress 1

1) TNM classification- The TNM classification for tumours has been adopted by the International Union against Cancer, and has been extended for many sites of cancer. This is a detailed clinical staging which is arrived at by the clinician by ascertaining the extent of the primary tumour (T), lymph node involvement (N), and presence of metastases (M). The information so obtained is scored. The details of scoring are specific to each type of cancer. This may be denoted as:
   - T: Tumor
   - N: Node (Lymph)
   - M: Metastasis

2) Indications for Surgery are:
   - Removal of tumour masses.
   - In early stage solid tumours, surgery that encompasses a sufficient margin of normal tissue is curative. Such as early stage cancers of the breast, oral cavity, uterine cervix, colon, prostate and the skin.
   - Post chemotherapy or radiotherapy to provide local cancer control and better chances for adjuvant therapy.
   - In certain solid tumours, surgery is critical for reducing bulk (cytoreduction).
   - Apart from treatment, surgery for reconstruction and rehabilitation can improve function.
   - Cosmetic appearance.
   - Enhance quality of life for patients.

Surgery requires the support of other specialties including anaesthesiology, blood transfusion services, pathology (especially oncopathology) and critical care nursing...

3) Palliative care is an approach that improves the quality of life of patients and their families facing a life-threatening illness. This is done through prevention and relief of suffering by means of early identification, accurate assessment and treatment of pain and physical, psychosocial and spiritual problems. Palliative care involves a multidisciplinary team approach.

Check Your Progress 2

1) Risk factors: Risk factors for oral cancers are as given below:
   - Tobacco chewing is the single most important risk factor
   - Alcohol use
   - Betel nut chewing
   - Chronic trauma to oral mucosa by sharp tooth or ill-fitting dentures
   - Chronic exposure to these risk factors causes changes in the oral mucosa are visible as pre-cancerous lesions. Over time, malignancy may develop in these lesions.
2) Early detection for oral cancers: This is important for detecting oral lesions at an early stage

Examination of oral cavity – Fig. 4.16 illustrates the various steps for examination of Oral Cavity.

You as health care provider should utilise every opportunity to examine the oral cavities of tobacco users. All parts of the oral cavity should be examined; oral cavity includes lip, anterior 2/3 of tongue, floor of mouth, buccal mucosa, gingival mucosa, hard palate and retro molar trigone as shown in Fig. 4.16.

3) Symptoms of cancer of the uterine cervix:

In the early stages, there will be no symptoms. By the time symptoms appear, disease may have already spread. Common symptoms are:

- Post-menopausal bleeding
- Post-coital bleeding
- Intermenstrual bleeding
- Blood stained discharge per vaginum
- Excessive seropurulent discharge
- Backache
- Lower abdominal pain

Check Your Progress 3

1) Strategies for primary prevention of Cancer

Tobacco control
- Health education relating to sexual and reproductive factors associated with cancer
- Avoiding alcohol use
- Healthy diet
- Physical activity and avoidance of obesity

2) Approaches in cancer control

Tobacco control/ cessation/ alcohol control

Early detection Oral/Breast/Cervix – Propagation of awareness and self-examination
Screening for Common Cancers

Opportunistic examination
Diagnostic support
Diagnosis and treatment
Proper Infrastructure
Referral practices

3) Warning signs of Cancer are:
C change in bowel or bladder habits
A wound that does not heal
U unusual Bleeding or discharge
T thickening or Lump in the breast or elsewhere
I indigestion or difficulty in swallowing
O obvious change in a wart or mole
N aging cough or hoarseness of voice

4) Management of breast cancer
Breast cancer is managed by surgery, radiotherapy, chemotherapy (including hormone therapy), or a combination of the three.

4.9 REFERENCES


2) Reading material for ASHA, BOOK NO8, Role in prevention and control of non communicable diseases, MOHFW, 2009.


