

Prevention and Early Detection of Breast and Cervical Cancer in Women

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Abstract—Cancer is the second leading cause of death globally. The International Agency for Research on Cancer, the GLOBOCAN project has predicted that the cancer burden in India will rise from nearly one million new cases in 2012 to over 1.5 million i e., 1,569,196 by 2035. Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervix and thyroid cancer are the most common among women. Breast cancer is the most frequent cancer among women, impacting 2.1 million women each year, and also causes the greatest number of cancer-related deaths among women. In 2018, it is estimated that 627,000 women died from breast cancer – that is approximately 15% of all cancer deaths among women. While breast cancer rates are higher among women in more developed regions, rates are increasing in nearly every region globally. According to current evidence, between 30% and 50% of cancer deaths could be prevented by modifying or avoiding key risk factors, including avoiding tobacco products, reducing alcohol consumption, maintaining a healthy body weight, exercising regularly and addressing infection-related risk factors. In order to improve breast cancer outcomes and survival, early detection is critical. There are two early detection strategies for breast cancer: early diagnosis and screening. Early diagnosis strategies focus on providing timely access to cancer treatment by reducing barriers to care and/or improving access to effective diagnosis services. The goal is to increase the proportion of breast cancers identified at an early stage, allowing for more effective treatment to be used and reducing the risks of death from breast cancer. Screening consists of examining women to identify cancers before any symptoms appear. Various methods have been evaluated as breast cancer screening tools, including breast self-exam (BSE), clinical breast exam (CBE) and mammography. Prevention Control of specific modifiable breast cancer risk factors as well as effective integrated prevention of non-communicable diseases which promotes healthy diet, physical activity and control of alcohol intake, overweight and obesity, could eventually have an impact in reducing the incidence of breast cancer in the long term. Cancer of cervix When cancer develops in the cervix of female it is termed as cervical cancer or cancer cervix. Cervix is the lower part of the uterus and connects the body of the uterus to the vagina (birth canal). Cervical cancer is the fourth most common cancer in women worldwide and second most common cancer in women living in India. **Primary prevention: reduce the risk of HPV infection:** It begins with HPV vaccination of girls aged 9-14 years, before they become sexually active. Other preventive interventions

may be recommended as appropriate are: Education about safe sexual practices, including delayed start of sexual activity, Promotion and provision of condoms for those already engaged in sexual activity, Warnings about tobacco use, which often starts during adolescence, and which is an important risk factor for cervical and other cancers. Screening tests for cervical cancer Screening tests are done in apparently healthy women to diagnose changes in the cervix which are pre-cancerous so that they can be treated and prevented from progressing to cancer. There are 3 different types of screening tests available: 1. Pap smear test 2. Visual inspection with Acetic Acid (VIA) 3. HPV testing for high-risk HPV types.

Introduction

Cancer is a disease caused by uncontrolled division of cells in any part in the human body. Normally the cell growth is kept under control by the body's immune system. It is only when these cells start to divide uncontrollably, forming lumps or growths, that Cancer is caused. Growths like this are called tumours. There are two types of tumours-malignant (cancerous) and benign (non-cancerous). A malignant tumour never stops growing and can spread into the surrounding tissue, destroy the surrounding tissue, and cause other tumours to develop.

Malignant tumours can be life-threatening. Benign tumours usually do not cause much damage and are not normally life-threatening.

Burden of common Cancers in India

In India, it is estimated that the new cancer cases will rise from nearly one million new cases in 2012 to over 1.5 million by 2035. Breast cancer has emerged as one of the leading causes of cancer among women (14.3%) in India with 1,44,937 new cases and 70,218 deaths reported in 2012. In 2018, 1,62,468 new cases and 87,090 deaths were reported for breast cancer in India.

Cervical cancer in India is the second most common cancer in women (12.1%).

Every year, around 1.23 lakh new women are diagnosed with cervical cancer and 67,500 of these women die of the disease in India.

Risk Factors for breast cancer

Women are more affected than men. Men can have breast cancer, too, but this disease is about 100 times more common in women than in men

- Family History
- Early onset of menstrual period (before age 12 years)
- Late age at first child birth (after age 35 years)
- No pregnancy- never having a full-term pregnancy
- Shorter duration or no breastfeeding
- Late menopause (after age 55 years)
- Previous treatment using radiation therapy
- Being overweight/obese especially after menopause
- Smoking and second-hand smoke
- Lack of physical activity
- Consumption of alcohol
- Using combination hormone therapy after menopause - Hormone therapy with estrogen (often combined with progesterone) during/and after menopause for more than ten years raises the risk for breast cancer.

Although these risk factors increase the chance of developing breast cancer, many women these risks do not develop this disease.

Common warning signs of Breast Cancer

- Lump in the breast or underarm area (armpit).
- Thickening or swelling of part of the breast.
- Irritation or puckering/dimpling of breast skin.
- Redness or flaky skin in the nipple area or the breast.
- Pulling in of the nipple or change in position or shape and pain in the nipple area.
- Nipple discharge other than breast milk, including blood.
- Any change in the size or the shape of the breast.
- Constant pain in any area of the breast or armpit.

Screening tests:

Breast self examination

- Menstruating women: 5 to 7 days after the first day of menstruation.
- Menopausal women and pregnant women: Same date each month.

- Takes about 10 minutes
- Perform BSE at least once a month
- Examine all breast tissue
- Should start as early as 20 years.

Clinical Breast Examination

- Performed by doctor or trained nurse.
- Women > 40 years: Annually
- More frequent examination for high risk patients.
- Should be done as mentioned below:
 - 20-30 yrs : Every 3 years
 - 40 yrs: Every yearly.

Steps of Breast self-examination (BSE)

Step 1: Begin by looking at the breasts in the mirror with shoulders straight and arms on hips.

What to look for:

- Any change from the usual size, shape, and colour
- Any visible distortion or swelling of the breast.

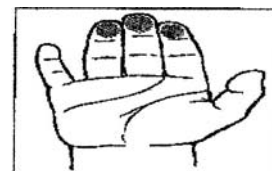
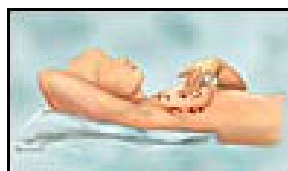
If any of the following changes are seen, should be reported:

- Dimpling, puckering, or bulging of the skin
- A nipple that has changed position or an inverted nipple (pushed inward instead of sticking out)
- Redness, soreness, rash, or swelling

Step 2: Same changes to be looked for with arms raised.

Step 3: Also look for any signs of fluid coming out of one or both nipples (this could be a watery, milky, or yellow fluid or blood).

Step 4: Next, feel breasts while lying down, using the right hand to feel the left breast and then the left hand to feel the right breast. The fingers can be wet with soap and water. Use a firm, smooth touch with the finger pads of your hand, keeping the fingers flat and together. Use a circular motion, about the size of a quarter.



Pad of 3 middle fingers, hand bowed up. Slide between palpations without lifting fingers.

Cover the entire breast from top to bottom, side to side - from your collarbone to the top of the abdomen, and from the armpit to your cleavage.

Follow a pattern to be sure that the whole breast is covered.

Dial of clock method/ Wedge shape / Spoke of a wheel

Palpation is done in each segment until entire breast is covered.

- Pads of finger (not tips of fingers) of middle three fingers (index, middle and ring) with hand held in slightly bowed position is used for palpation.



- In the “dial of a clock” method the whole breast is palpated as if it was a dial of a clock, 12 O’ clock being the highest point at upper edge of breast just below the midclavicular point and 6 O’ clock being at the inframammary crease.
- The palpation is begun at 12 O’clock from periphery to the nipple by describing small circles of about 3 cm in diameter. Following circular movement of the “pad of fingers” 3 times with increasing pressure and without lifting the fingers, the next circle is felt towards the nipple, overlapping with the previous circle to about half in diameter.
- Once the areola and nipple area is reached, the next segment /sector is palpated at 1-O’clock. The procedure of palpation with “pad of 3 fingers” is repeated sequentially at 2 O’ clock, 3 O’, 4 O’, 5 O’, 6 O’, 7 O’, 8 O’, 9 O’, 10 O’ and 11 O’.
- The palpation of mammary ducts is done by gently rolling the ducts between the index finger and the thumb. Any thickening, tenderness or discharge is noted while palpating the mammary ducts. In case of retraction of the nipple an attempt is made to pull the nipple forward to see

if the nipple could be brought forward or not and if any lump is present underneath the areola, whether the nipple and the ducts are tethered to the lump or not.

- The skin overlying the lump is gently pinched and moved with the fingers to see if the skin could be moved freely from /off the lump. If the skin is free from the lump but the movement of lump away from skin causes dimpling of skin, the skin is considered “tethered”. If no movement of skin is possible, it is considered “fixed”. The fixity of lump to underlying pectoralis major muscle is ascertained by requesting the lady to push her hand against the hip to contract the muscle and then moving the lump.

The same steps are repeated for the other breast.

Cervical Cancer

The cervix is the lower, narrow end of the uterus (the organ where a foetus grows) in the human female reproductive system. Cervical cancer occurs when abnormal cells develop and spread in the cervix. 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.

However, there are other factors that may cause Cervical cancer.

Risk factors for cervical cancer

- Human papilloma virus (HPV) infection
- Smoking
- Young age at first sexual activity
- Multiple sexual partners
- Unprotected sex or poor sexual hygiene
- Early marriage⁵⁹
- Early child birth- in women younger than 17 years
- Frequent child birth
- Weakened immune system such as HIV/AIDS

Although these risk factors increase the chance of developing cervical cancer, many women with these risks do not actually develop this disease.

Common Signs and Symptoms of cervical cancer

In the early stages, there may not be any symptoms. By the time symptoms appear, the disease may have already spread. Common symptoms are:

- Vaginal bleeding between periods
- Menstrual periods that are longer or heavier than usual
- Post-menopausal bleeding

- Bleeding after sexual intercourse
- Pain during sexual intercourse
- Smelly vaginal discharge
- Unusual vaginal discharge tinged with blood
- Backache
- Lower abdominal pain
- Fatigue/extreme tiredness
- Unexplained weight loss
- Pain in legs
- Pain during urination

Screening for Cervical Cancer

Screening for cancer is conducted before a person has any symptoms. Screening for cervical cancer is important, since during the early stages, women may experience no symptoms. When abnormal tissue or cancer is found early, it may be easier to treat. By the time symptoms appear, cancer may have begun to spread.

Cervical cancer is one of the most successfully treatable cancers when detected at early stage as the chances of detecting pre-cancerous lesions are maximum.

Screening of cervical cancer is done through a simple test known as Visual Inspection with Acetic Acid (VIA). This test helps to detect abnormal cells in the cervix.

PAP Smear:

Women who are 30 years of age and above should be screened by a trained physician or staff nurse at least once in five years except in the following situations- menstruation, pregnancy, within 12 weeks of delivery/ abortion and previous history of treatment for Cancer of the Cervix.

Prevention: Cervical cancer can be prevented by two doses of HPV vaccine in young school girls from 9-14 years of age. In Sweden cervical cancer has been totally eradicated.

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