Cancer

Key facts

- Cancer is a leading cause of death worldwide, accounting for 7.6 million deaths (around 13% of all deaths) in 2008 (1).
- Lung, stomach, liver, colon and breast cancer cause the most cancer deaths each year.
- The most frequent types of cancer differ between men and women.
- About 30% of cancer deaths are due to the five leading behavioral and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, alcohol use.
- Tobacco use is the most important risk factor for cancer causing 22% of global cancer deaths and 71% of global lung cancer deaths.
- Cancer causing viral infections such as HBV/HCV and HPV are responsible for up to 20% of cancer deaths in low- and middle-income countries.
- About 70% of all cancer deaths in 2008 occurred in low- and middle-income countries.
- Deaths from cancer worldwide are projected to continue rising, with an estimated 13.1 million deaths in 2030 (2).

Cancer is a generic term for a large group of diseases that can affect any part of the body. Other terms used are malignant tumours and neoplasms. One defining feature of cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs. This process is referred to as metastasis. Metastases are the major cause of death from cancer.

The problem

Cancer is a leading cause of death worldwide and accounted for 7.6 million deaths (around 13% of all deaths) in 2008. The main types of cancer are:

- lung (1.37 million deaths)
- stomach (736 000 deaths)
- liver (695 000 deaths)
- colorectal (608 000 deaths)
- breast (458 000 deaths)
- cervical cancer (275 000 deaths) (3).

About 70% of all cancer deaths occurred in low- and middle-income countries. Deaths from cancer worldwide are projected to continue to rise to over 13.1 million in 2030.

Cancer causes

Cancer arises from one single cell. The transformation from a normal cell into a tumour cell is a multistage process, typically a progression from a pre-cancerous lesion to malignant

tumours. These changes are the result of the interaction between a person's genetic factors and three categories of external agents, including:

- physical carcinogens, such as ultraviolet and ionizing radiation;
- chemical carcinogens, such as asbestos, components of tobacco smoke, aflatoxin (a food contaminant) and arsenic (a drinking water contaminant); and
- biological carcinogens, such as infections from certain viruses, bacteria or parasites.

WHO, through its cancer research agency, International Agency for Research on Cancer (IARC), maintains a classification of cancer causing agents.

Ageing is another fundamental factor for the development of cancer. The incidence of cancer rises dramatically with age, most likely due to a build up of risks for specific cancers that increase with age. The overall risk accumulation is combined with the tendency for cellular repair mechanisms to be less effective as a person grows older.

Risk factors for cancers

Tobacco use, alcohol use, unhealthy diet and physical inactivity are the main cancer risk factors worldwide. Chronic infections from hepatitis B (HBV), hepatitis C virus (HCV) and some types of Human Papilloma Virus (HPV) are leading risk factors for cancer in low- and middle-income countries. Cervical cancer, which is caused by HPV, is a leading cause of cancer death among women in low-income countries.

How can the burden of cancer be reduced?

Knowledge about the causes of cancer, and interventions to prevent and manage the disease is extensive. Cancer can be reduced and controlled by implementing evidence-based strategies for cancer prevention, early detection of cancer and management of patients with cancer. Many cancers have a high chance of cure if detected early and treated adequately.

Modifying and avoiding risk factors

More than 30% of cancer deaths could be prevented by modifying or avoiding key risk factors, including:

- tobacco use
- being overweight or obese
- unhealthy diet with low fruit and vegetable intake
- lack of physical activity
- alcohol use
- sexually transmitted HPV-infection
- urban air pollution
- indoor smoke from household use of solid fuels.

Tobacco use is the single most important risk factor for cancer causing 22% of global cancer deaths and 71% of global lung cancer deaths. In many low-income countries, up to 20% of cancer deaths are due to infection by HBV and HPV.

Prevention strategies

- Increase avoidance of the risk factors listed above.
- Vaccinate against human papilloma virus (HPV) and hepatitis B virus (HBV).
- Control occupational hazards.
- Reduce exposure to sunlight.

Early detection

Cancer mortality can be reduced if cases are detected and treated early. There are two components of early detection efforts:

Early diagnosis

The awareness of early signs and symptoms (for cancer types such as cervical, breast colorectal and oral) in order to get them diagnosed and treated early before the disease becomes advanced. Early diagnosis programmes are particularly relevant in low-resource settings where the majority of patients are diagnosed in very late stages and where there is no screening.

Screening

Screening is defined as the systematic application of a test in an asymptomatic population. It aims to identify individuals with abnormalities suggestive of a specific cancer or pre-cancer and refer them promptly for diagnosis and treatment. Screening programmes are especially effective for frequent cancer types for which a cost-effective, affordable, acceptable and accessible screening test is available to the majority of the population at risk.

Examples of screening methods are:
- visual inspection with acetic acid (VIA) for cervical cancer in low-resource settings;
- PAP test for cervical cancer in middle- and high-income settings;
- mammography screening for breast cancer in high-income settings.

Treatment

Cancer treatment requires a careful selection of one or more intervention, such as surgery, radiotherapy, and chemotherapy. The goal is to cure the disease or considerably prolong life while improving the patient's quality of life. Cancer diagnosis and treatment is complemented by psychological support.

Treatment of early detectable cancers

Some of the most common cancer types, such as breast cancer, cervical cancer, oral cancer and colorectal cancer have higher cure rates when detected early and treated according to best practices.

Treatment of other cancers with potential for cure

Some cancer types, even though disseminated, such as leukemias and lymphomas in children, and testicular seminoma, have high cure rates if appropriate treatment is provided.

Palliative care

Palliative care is treatment to relieve, rather than cure, symptoms caused by cancer. Palliative care can help people live more comfortably; it is an urgent humanitarian need for people worldwide with cancer and other chronic fatal diseases. It is particularly needed in places with a high proportion of patients in advanced stages where there is little chance of cure.

Relief from physical, psychosocial and spiritual problems can be achieved in over 90% of advanced cancer patients through palliative care.

Palliative care strategies

Effective public health strategies, comprising of community- and home-based care are essential to provide pain relief and palliative care for patients and their families in low-resource settings.

Improved access to oral morphine is mandatory for the treatment of moderate to severe cancer pain, suffered by over 80% of cancer patients in terminal phase.

WHO response

In 2008, WHO launched its Noncommunicable Diseases Action Plan which includes cancer-specific interventions.

WHO and the International Agency for Research on Cancer (IARC), the specialized cancer research agency of WHO, collaborate with other United Nations organizations and partners to:

- increase political commitment for cancer prevention and control;
- coordinate and conduct research on the causes of human cancer and the mechanisms of carcinogenesis;
- develop scientific strategies for cancer prevention and control;
- generate new knowledge, and disseminate existing knowledge to facilitate the delivery of evidence-based approaches to cancer control;
- develop standards and tools to guide the planning and implementation of interventions for prevention, early detection, treatment and care;
- facilitate broad networks of cancer control partners and experts at global, regional and national levels;
- strengthen health systems at national and local levels to deliver cure and care for cancer patients; and
- provide technical assistance for rapid, effective transfer of best practice interventions to developing countries.

References

1, 2, 3. Globocan 2008, IARC, 2010