Cancer – General Guidelines

Pooja Somani

ABSTRACT

Cancer is a disease which occurs when changes in a group of normal cells within the body lead to uncontrolled growth causing a lump called a tumour; this is true of all cancers except leukaemia (cancer of the blood). If left untreated, tumours can grow and spread into the surrounding normal tissue, or to other parts of the body via the bloodstream and lymphatic systems, and can affect the digestive, nervous and circulatory systems.

INTRODUCTION

1.Tumours (lumps) can be benign or malignant.

2. Benign tumours are not cancerous and rarely threaten life.

3. They tend to grow quite slowly, do not spread to other parts of the body and are usually made up of cells quite similar to normal / healthy cells.

4. They will only cause a problem if they grow very large, becoming uncomfortable or press on other organs -for example a brain tumour inside the

Skull (1,2)

5. Malignant tumours are faster growing than benign tumours and have the ability to spread and destroy neighbouring tissue. Cells of malignant tumours can break off from the main (primary) tumour and spread to other parts of the body through a process known as metastasis. Upon invading healthy tissue at the new site they continue to divide and grow. These secondary sites are known as me tastases and the condition is referred to as metastatic cancer (3,4)

GENETICS OF CANCER

Only a small number of the approximately 35,000 genes in the human genome have been associated with cancer. (See the Genomics unit.) Alterations in the same gene often are associated with different forms of cancer. These malfunctioning genes can be broadly classified into three groups. The first group, called proto-oncogenes , produces protein products that normally enhance cell division or inhibit normal cell death. The mutated forms of these genes are called oncogenes.

The second group, called tumor suppressors , makes proteins that normally prevent cell division or cause cell death. The third group contains DNA repair genes, which help prevent mutations that lead to cancer. Proto-oncogenes and tumor suppressor genes work much like the

accelerator and brakes of a car, respectively. The normal speed of a car can be maintained by controlled use of both the accelerator and the brake. Similarly, controlled cell growth is maintained by regulation of proto-oncogenes, which accelerate growth, and tumor suppressor genes, which slow cell growth. Mutations that produce oncogenes accelerate growth while those that affect tumor suppressors prevent the normal inhibition of growth. In either case, uncontrolled cell growth occurs (5,6)

CANCER PREVENTION

India is the one of the few developing countries that has formulated a National Cancer Control Programme. The programme envisages control of tobacco related cancers; early diagnosis and treatment of uterine cervical cancer; and distribution of therapy services, pain relief and palliative care through augmentation of health infrastructure. Suggested surrogate outcome measures include change in tobacco use, 'Knowledge, Attitude, Practice'(KAP) pattern, compliance to screening programmes, changes in referral practices and shift in stage distribution (7,8)

CURRENT STATUS

Recent times have seen an increase in the incidence of cancer. This is mainly attributed to urbanization, industrialization, lifestyle changes, population growth and increased life span (in turn leading to an increase in the elderly population). In India, the life expectancy at birth has steadily risen from 45 years in 1971 to 62 years in 1991,indicating a shift in the demographic profile. It is estimated that life expectancy of the Indian population will increase to 70 years by 2021–25. This has caused a paradigm shift in the disease pattern from communicable diseases to non-communicable diseases like cancer, diabetes and hypertension. Among men, lung, esophagus, stomach, oral and pharyngeal cancers are more prevalent, while in women; cancers of cervix and breast are most common, followed by those of stomach and esophagus (9)

CANCER CONTROL IN INDIA

India is one of the first few developing countries where a Nation-wide Cancer Control Program was launched. Government of India took its first initiative in 1971. The National Cancer Control Program for India was formulated in 1984 with four major goals

1. Primary prevention of tobacco related cancers.

2. Early detection of the cancers of easily accessible sites

3. Augmentation of treatment facilities

4. Establishment of an equitable pain control and palliative care network throughout the country.

Department of Zoology,

Mahatma Jyoti Rao Phoole University, Jaipur

REFERENCES

1. U.S. Preventive Services Task Force. Screening for Oral Cancer: Recommendation Statement. Rockville, MD: Agency for Healthcare Research and Quality; 2004. AHRQ Pub No. 05-0564-A.

3. World Health Organization. International Classification of Diseases for Oncology. 3rd ed. Geneva: World Health Organization; 2000.

4. van der Waal R, van der Waal I. Oral non-squamous malignant tumors; diagnosis and treatment. Med Oral Patol Oral Cir Bucal. 2007;12(7):e486–91. [PubMed]

5. Brocklehurst P, Kujan O, Glenny AM, Oliver R, Sloan P, Ogden G, et al. Screening programmes for the early detection and prevention of oral cancer. Cochrane Database Syst Rev. 2010;(11):CD004150. [PubMed]

6. Warnakulasuriya S, Johnson NW, van der Waal I. Nomenclature and classification of potentially malignant disorders of the oral mucosa. J Oral Pathol Med. 2007;36(10):575–80. [PubMed]

7. Kademani D. Oral cancer. Mayo Clin Proc. 2007;82(7):882–87.

8. Petti S. Pooled estimate of world leukoplakia prevalence: a systematic review. Oral Oncol. 2003;39(8):770–80. [PubMed]

9. Napier SS, Speight PM. Natural history of potentially malignant oral lesions and conditions: an overview of the literature. J Oral Pathol Med. 2008;37(1):1–10. [PubMed]

Scully C, Bagan J. Oral squamous cell carcinoma overview. Oral Oncol. 2009;45(4-5):301–08. [PubMed]