Research Article

Study of incidence and pattern of cancers among patients attending to tertiary care hospital Mandya Institute of Medical Sciences, Mandya, Karnataka, India

Venkatesh Nagaraju, Narashimhaswamy Pandit, Lingaraju Narasimaiah*,
Murali Mohan Rajanna

Department of General Surgery, Mandya Institute of Medical Sciences, Mandya, Karnataka, India

Received: 07 April 2016

Accepted: 13 April 2016

*Correspondence:

Dr. Lingaraju Narasimaiah,

E-mail: lingu1983@yahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Cancer is one of the leading causes of adult deaths worldwide. Epidemiological studies have shown that many cancers may be avoidable. It is widely held that 80-90% of human cancers may be attributable to environmental and lifestyle factors such as tobacco, alcohol and dietary habits. As per Indian population census data, the rate of mortality due to cancer in India was high and alarming with about 806000 existing cases by the end of the last century. The objectives of this study to determine the incidence and pattern of cancer distribution among patients attending general surgical and oncosurgery OPD at Mandya Institute of Medical Sciences, Mandya and comparing with existing data.

Methods: Registration data from all registered cancers diagnosed between October 2014 and March 2016 were obtained from the Hospital Cancer Registry. Data from the registries were combined to produce incidence rate by age, sex and cancer status. Incidence rates were calculated for all cancer combined and for specific cancer sites.

Results: From the cancer registry of the institution, it was reported that 240 cancer cases was recorded between October 2014 and March 2016. Male cancers accounted for 34.1% while female cancers were 65.33%. Following the statistical analysis, it was found that gynaecological malignancy topped the incidence chart with 60 patients (25%). This was followed by breast, head and neck and carcinoma lung. Other types of malignancy are urogenital, soft tissue tumour and cutaneous malignancy.

Conclusions: Tobacco and alcohol related cancers predominated in males. In females, cervical cancer predominated over breast cancer. Cancer is an emerging public health problem especially in developing country. Epidemiological data based studies like this often provides research foundation for the establishment of suitable strategies to assist in national cancer control program where the cancer is a crucial public health problem. With adoption of behaviours and life style associated with economic development such as smoking, unhealthy diet and physical inactivity couple with aging and growth of the population. Hence a well-coordinated cancer control programme is essential through public education to prevent cancer, screening programmes to facilitate early diagnosis and the need for high quality population based cancer registry for better understanding of the cancer burden and cancer control planning.

Keywords: Cancer, Incidence, Epidemiological data

INTRODUCTION

Cancer is an increasingly important public health problem in developing countries and occupies second position in the causes of death. Incidence of cancer has been increasing throughout world in the recent decade.

There exists a wide variety of reasons behind this including exposure to chemicals and pesticides, ionizing radiation, infection, hormonal imbalance, decreased immunity, heredity, tobacco, alcohol consumption, dietary habits and behavioural factors etc. It is estimated that around 2.5 million, with over 8,00,000 new cases and

5,50,000 deaths occurring due to cancer each year in India. Deaths from cancer in the world are projected to continue to rise, with an estimated nine million people expected to die from cancer in 2015 and 11.4 million in 2030. Study of the magnitude and pattern of cancer is the first step in determining clues to the causes of cancer and in having a baseline to plan and assess control measures.¹⁻³ With this background this study was started to determine the incidence and pattern of cancer distribution among patients attending surgical and oncosurgery OPD at MIMS Mandya.

METHODS

From the cancer registry of the MIMS Mandya records of all diagnosed cases of cancers between October 2014 and March 2016 were obtained, and confirmed from their outpatient and inpatient records. The study population was from the rural area around Mandya which includes Maddur, Malavalli, Srirangapattana, T. Narasipura, Channapattana, Ramanagara etc. Many of cases were

referred from primary health centers around Mandya. All records were studied and analyzed. A total of 240 patients were treated during the period studied. A proforma was used to collect data such as age, sex, place of residence, type of cancers and treatment given.

RESULTS

Table 1: The percentage distribution of various cancer cases.

Type of cancer	Number of patients	(%)
Carcinoma of breast	50	20.83%
Gastrointestinal malignancy	25	10.41%
Head and neck malignancy	45	18.75%
Gynaecological malignancy	60	25.0%
Urogenital malignancy	15	6.25%
Carcinoma lung	25	10.41%
Soft tissue tumour	15	6.25%
Cutaneous malignancy	5	2.08%

Table 2: Sex wise distribution of cancer cases.

Type of cancer	Male (%)	Female (%)	Total (%)
Carcinoma of breast	1 (0.41)	49 (20.41)	20.83%
Gastrointestinal malignancy	18 (7.5)	7 (2.91)	10.41%
Head and neck malignancy	25 (10.41)	20 (8.33)	45.75%
Gynaecological malignancy	nil	60 (25)	25.0%
Urogenital malignancy	8 (3.33)	7 (2.91)	6.25%
Carcinoma lung	20 (8.33)	5 (0.20)	10.41%
Soft tissue tumour	9 (3.75)	6 (2.5)	6.25%
Cutaneous malignancy	1 (0.41)	4 (1.66)	2.08%
	82 (34.14%)	158 (65.33%)	240 (100%)

Table 3: Age wise distribution of cancer cases.

Age group(in yrs)	Ca. breast	GI cancer	Gynaec cancer	Head and neck	Urogenital	Lung cancer	STS	Skin cancer	Total
10-20	-	-	-	-	-	-	-	-	-
20-30	3	-	-	-	-	-	-	-	03
30-40	3	2	2	2	-	-	6	-	15
40-50	25	3	6	5	2	2	3	1	47
50-60	12	15	35	28	7	18	3	2	120
60-70	4	4	13	8	4	3	2	2	40
70-80	2	1	1	2	2	2	1	-	11
>80	1	-	3	-	-	-	-	-	4
	50	25	60	45	15	25	15	5	240

DISCUSSION

The term cancer refers to a group of diseases which share similar characteristics. Cancer can affect all living cells in the body, at all ages and in both genders. The causation is multifactorial and the disease process differs at different

sites. Modern civilization, urbanization, industrialization, changes in daily life, population growth and ageing all have contributed to epidemiological changes in cancer, in India and other countries. Tobacco has been identified as the most important cause of cancer followed by alcohol consumption, dietary practices, inadequate physical

activity, infections due to viruses and sexual behavior. Cancer sites associated with tobacco form 35 to 50% of all cancers in men and about 17% of cancers in women.

These cancers are amenable to primary prevention and can be controlled to a large extent.

The results of various epidemiological studies carried out in the country on cancer and diet have highlighted that intake of vegetables or fruits were significantly low in cases of oral/oropharyngeal and oesophageal cancers. Risk was found to be higher for low intakes of beta-carotene, thiamine, riboflavin, folic acid, iron, magnesium and copper.^{5,6}

Other micro-nutritional deficiencies such as vitamins A and E, folate, zinc and selenium were also documented. For nasopharyngeal cancer, though viral aetiology is a well-established causative factor, salted foods and salted fermented fish appear to increase the risk while vegetables and fruits decrease the risk. For stomach cancer, though *Helicobacter pylori* infection is an important factor, high consumption of chili, high temperature food and salted foods were found as risk modifiers. Studies amongst breast cancer patients revealed a higher energy intake and also higher levels of triglycerides and total cholesterol. Studies in precancerous lesions of uterine cervix suggest poor intake of vitamin A, C and E as compared to controls. Lower levels of selenium and folate in plasma were also observed amongst cervical cancer cases as compared to controls.⁷⁻⁹

India has a National Cancer Control Programme (NCCP) which was established in 1975-76. This has contributed to the development of Regional Cancer Centers (RCCs), oncology wings in medical colleges and support for purchase of teletherapy machines.

Results of the present study showed that tobacco and alcohol related cancers predominated in males. In present study head and neck, carcinoma of lung and GI cancer (26.24%) cancer was the most frequent cancer diagnosed in men and cervical cancer (32.10%) was the most frequent in women. Cancers, namely those of oral and lungs in males and cervix and breast in females, account for over 50% of all cancer deaths in India. In hospital based study from Karnataka; Kalyani et al, reported predominance of Oral cavity and upper gastrointestinal cancers in both genders and in females' predominance of cervical cancer over breast cancer.⁴

Early marriage, lower socioeconomic status of women, education, age at first childbirth and parity among the local population are important risk factors for cervical cancer. Higher prevalence of oral cavity cancers is due to increased tobacco use in rural areas of India and the high prevalence of the use of smokeless tobacco among younger adult men. In rural area chewing tobacco is also very popular in a mixture such as pan masala or pan

chewed with salted lime, chewed with araca nut and guthka.

Cancer is one of the most important causes of morbidity and the magnitude of the problem is gigantic. Its burden on the economy for providing health care will be substantial. For the treatment of cancer patients, hospitals, beds, sophisticated equipment, machinery, drugs and other health care facilities such as trained nurses, oncologists, large number of hospital days are required. In addition to this, the indirect costs such as loss due to premature deaths, loss due to hindrance of productivity, economic dependence, etc. cannot be quantified. Hence cancer prevention and control is the most appropriate measure. There is a need to popularize the following dietary guidelines for prevention of cancer;

Dietary guidelines

- It is essential to maintain appropriate weight for height, thus avoiding both under and over-nutrition.
- Physical activity needs to be promoted to avoid obesity and accumulation of fat.
- Intake of protective foods such as vegetables and fruits, preferably fresh, need to be increased to avoid deficiency and protection against environmental insults.
- Plant foods such as cereals, pulses, roots and tubers, green leafy and yellow vegetables, other vegetables/ fruits and spices providing nutrients, as well as fiber and protective phytochemicals, should be preferable items in the diet.
- Animal foods (meat and fat) except fish should be curtailed. It is necessary to avoid salted, pickled, smoked and charred food substances.
- Mouldy and damaged foods should be totally eliminated from the diet.

CONCLUSION

Cancer is an emerging public health problem in india, with adoption of behaviors and life style associated with economic development such as smoking, unhealthy deity and physical inactivity couple with aging and growth of the population. Hence a well-coordinated cancer control programme is essential through public education to prevent cancer, screening programmes to facilitate early diagnosis and the need for high quality population based cancer registry for better understanding of the cancer burden and cancer control planning.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Stewart BS, Kleihues P. Cancers of female reproductive tract in: world cancer report, world

- health organization, international agency for research in cancer, Lyon, France: IARC Press 2003.
2. Nandakumar A. National cancer registry program, Indian council of medical research, consolidated report of the population based cancer registries, New Delhi, India: 1990-96.
 3. WHO 2012. Available at <http://www.who.int/mediacentre/factsheets/fs297/en/index.html>. Assessed on 10th May 2012.
 4. Kalyani R, Das S, Bindra Singh MS, Kumar H. Cancer profile in the department of pathology of sri devaraj Urs medical college, Kolar: a ten years study. *Indian J Cancer.* 2010;47:160-5.
 5. Krishnaswamy K, Polasa K. Diet, nutrition and cancer -The Indian scenario. *Indian J. Med. Res.* 1995;102:200-9.
 6. Krishnaswamy K, Prasad MPR, Shetty P, Gopalan C. Profile of cancers in India; possible role of dietary factors. In diet, nutrition and chronic disease: an Asian perspective. Smith-Gordon, UK.1995:61-7.
 7. Mathew A, Gangadharan P, Varghese C, Nair MK. Diet and stomach cancer: a case- control study in South India. *Eur. J. Cancer Prev.* 2000;9:89-97.
 8. Love RR, Newcomb PA, Donegan, WS, Spratt JS, Saunders WB. Prevention of breast cancer. In *Cancer of the Breast.* Eds Co.1995:142-56.
 9. Kumar A, Sharma S, Murthy NS, Das DK, Dutta Gupta C, Plasma folate, vitamin B12 and the risk of cervical intraepithelial neoplasia: a preliminary report. *J. Bas. Appl. Biol.*1995;23-6.

Cite this article as: Nagaraju V, Pandit N, Narasimaiah L, Rajanna MM. Study of incidence and pattern of cancers among patients attending to tertiary care hospital MIMS Mandya. *Int Surg J* 2016;3:505-8.