

ORIGINAL ARTICLE

A SURVEY BASED CANCER STATISTICS FOCUSED ON INCIDENCE AND PREVALENCE FROM DIFFERENT POPULATIONS IN INDIA

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ABSTRACT:

Tobacco is the most important identified cause of cancer followed by dietary practices, inadequate physical activity, alcohol consumption, infections due to viruses and sexual behavior. The total number of fresh cancer cases is increasing speedily, due to growth in size of the population, and increase in the proportion of elderly persons as a result of improved life expectancy following control of communicable diseases. Knowledge based on epidemiological patterns and trends would be of great help in distinguishing persons at high risk for the development of a particular cancer. The public education on 'tobacco and its health hazards', recommended dietary guidelines, safe sexual practices, and lifestyle modifications form the scientific basis for planning and organizing prevention, diagnosis and treatment of cancer in a community. Moreover, incorporating screening for cervical, breast and oral cancers into peripheral health infrastructure can have a significant effect on reducing mortality from these diseases. This article emphasizes on the incidence and prevalence based epidemiological cancer statistics and prevention measures as pertinent to India.

Keywords: Prevalence, Tobacco, Epidemiology.

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INTRODUCTION

In India, the International Agency for Research on Cancer (IARC) estimated indirectly the number of people died from cancer as 8% of all projected global cancer deaths and about 6% of all deaths in India.^[1-3] Due to such changes in age structure, population would face an increase in incidence of cancers and some other non-communicable diseases, which have a higher chance of occurrence among elderly. India is brutally facing a variety of nontransferable diseases or epidemics like cancer that needs immediate attention any ways.

Oral cancer is sixth most common cancer reported globally with an annual incidence of over 3,000,000 cases, of which 62% arise in developing countries.^[4] There is a significant difference in the incidence of oral cancer in different regions of the world. The age-adjusted rates of oral cancer vary from over 20 per 100,000 populations in India, to 10 per 100,000 in the U.S., and less than 2 per 100,000 in the

Middle East.^[5-6] Formerly, a number of epidemiological studies paid attention on major cancers viz., oral, kidney, prostate, breast, lung, esophageal have been reported.^[7-9] Murthy have described epidemiology of cancers, its control and prevention measure applicable to Indian population.^[10] Tobacco, alcohol, dietary habits and behavioral factors are considered as the major risk factors for cancers. On an average, up to 30% of all cancers in occurred in developing countries are tobacco related as stated by WHO.^[11-12]

AVERAGE INCIDENCE PATTERN OF CANCER IN INDIA

Literature search of the risk factors pertaining to different Indian situation reveals little information.^[12-14] Nonetheless, the relative incidence of Lung, oesophagus, stomach, oral and pharyngeal cancers are much higher in men while in females the cancers of cervix and breast are predominant forms followed by those of stomach and oesophagus.

Relatively, oesophagous cancers are frequently noticed in the southern Indian cities such as in Bangalore and Chennai and also in Mumbai whereas stomach cancers are more common in southern most India with the maximum incidence rate in Chennai city. Mouth cancers are high in Kerala while the

pharyngeal cancers in Mumbai. Moreover, the tumors arising from thyroid among women are more common in Kerala whereas Gall bladder cancer is more common in Delhi and Kolkata cities.^[15,16] [Table 1-2]

Table 1: Prevalence of cancer in several districts of Uttar Pradesh^[38]

City	Prevalence of the population	Male	Female	Male and female	Male	Female
Agra	15.33	50.00	50.00	3.46	3.29	3.76
Banda	15.33	-	100.00	13.33	-	28.83
Firozabad	13.33	50.00	50.00	8.15	7.54	8.86
Jhansi	13.33	50.00	50.00	9.54	8.92	10.25
Lalitpur	20.00	-	100.00	20.46	-	43.62

Table 2: Age-adjusted (world population) incidence rates (AAR) per 100,000 males of 10 leading cancers in India^[13]

Table 2a:

Delhi		Mumbai		Bangalore	
Site	AAR	Site	AAR	Site	AAR
Lung [C33-C34]	14.0	Lung [C33-C34]	14.5	Stomach [C-16]	10.3
Larynx [C-32]	9.2	Oesophagus [D-00]	10.8	Oesophagus [D-00]	8.8
Hodgkin's disease	6.9	Hypopharynx [C-13]	8.3	Lung [C33-C34]	8.1
Lymph [C-77]	6.2	Larynx [C-32]	8.2	Hypopharynx [C-13]	5.8
Oesophagus [D-00]	6.0	Prostate [C-61]	7.9	Hodgkin's disease lymph C-77	5.0
Tongue [C-01]	5.8	Stomach [C-16]	7.7	Prostate [C-61]	4.7
U. Bladder [C-67]	5.7	Tongue C-01	6.5	Larynx [C-32]	4.3
Prostate [C-61]	5.5	Mouth [D-10]	6.2	Tongue [C-01]	3.5
Leukaemia [C-90-95]	4.6	U. Bladder [C-67]	4.8	Leukaemia [C-90-95]	3.5
Mouth [D-10]	4.3	NHL [C-82]	4.1	U. Bladder [C-67]	3.3
Brain [D-43]					

Table 2b:

Chennai		Nagpur		Pune	
Site	AAR	Site	AAR	Site	AAR
Stomach [C-16]	15.9	Hypopharynx [C-13]	6.7	Oesophagus [D-00]	8.3
Lung [C33-C34]	12.6	Oesophagus [D-00]	5.8	Lung [C33-C34]	7.7
Oesophagus [D-00]	10.5	Mouth [D-10]	3.8	Mouth [D-10]	7.1
Mouth [D-10]	7.5	Penis [C-60]	3.3	Prostate [C-61]	6.7
Hypopharynx [C-13]	6.5	Larynx [C-32]	2.5	Larynx [C-32]	6.3
Tongue [C-01]	5.8	Rectum [C-20]	2.6	Stomach [C-16]	5.4
Larynx [C-32]	5.1	Tongue [C-01]	2.3	Hypopharynx [C-13]	4.6
Rectum [C-20]	3.8	Leukaemia [C-90-95]	1.9	Tongue [C-01]	4.3
NHL [C-82]	3.7	Liver [C-22]	1.8	Brain [D-43]	4.2
Prostate [C-61]	3.6	Hodgkin's disease Lymph [C-77]	1.4	Hodgkin's disease Lymph [C-77]	4.2

Data over sufficient duration enabling study of time trends is available only from Mumbai registry where the Population-based cancer registry (PBCR) has been operating since 1964. Trend analysis of cancer incidence data for the period 1964–96 showed that the overall rates of cancer are increasing with greater increase among females.^[17]

According to the National Cancer Registry Program (2002), there are around 48,000 people living with lung cancer alone in India at any given time. Although 70 percent of the population reside in rural areas, but currently the available data on incidence and patterns are mainly from urban population available from the different cancer registries. Albeit, the geographic area and populace covered by these registries are literally small (about 20 percent urban and 1.5 percent rural), yet they give a fair idea of the cancer problem in selected parts of the country.^[18] Conversely, results based on these fragmentary statistics cannot be generalized for the whole country.

CANCER CONTROL AND PREVENTION IN INDIA

Cancer mortality is a key measure of the cancer burden in a given country and provides an important basis for implementing public health preventive measures. India is the first of the emerging economies to join IARC in 2006, and is an active participating state of the global cancer research agency.^[19-20] Cancer is frequently considered as one of the most imperative causes of morbidity and its global burden on the financial system for providing health care will be substantial accordingly.^[21-22] Well equipped hospitals, beds, sophisticated apparatus, machinery, drugs and other health care facilities such as trained nurses, oncologists, large number of hospital days are required for the successful management of cancer patients. The primary prevention primarily focused on health education concerning hazards of tobacco consumption, genital hygiene, and sexual and reproductive health whereas the secondary prevention aims at early diagnosis of cancers of uterine cervix, breast and oro-pharyngeal cancers by screening methods. Other state boards were suggested at the state levels called as State Cancer Control Board (SCCB) for the proper co-ordination of activities which was headed by the National Cancer Control Board. Several states have formulated SCCB. During the period 1990–91, a demonstration project named district cancer control

programme (DCCP) was initiated in selected districts of the country for early detection of cervical, oral and breast cancers at the doorsteps of rural community.^[23-24]

CANCER PREVENTION STRATEGIES

Widespread convincing health education needs to be directed to control/reduce the tobacco habit. School going children are the best target population for this purpose as most of them pick up habits at this time. The school curricula should involve messages for a healthy lifestyle and warn about the harmful effects of tobacco and alcohol. Suitable lawmaking actions should be done to check the sale of tobacco to youngsters, to help in protection of the nonusers of tobacco – ‘passive smokers’ and for stopping advertisements on tobacco. Though there is a ban on advertisement of cigarettes, cigarette smoking is glamorized in various ways. Existing rules and regulations concerning smoking in public places of entertainment and public transport need to be rigidly enforced. In addition to the above, more strategies are needed for control of tobacco related cancers.^[25-27]

The best suited recommendations for Indian scenario would be the (i) health education of public, (ii) practice of tobacco control and (iii) encouragement for tobacco control. The results of an eight-year primary prevention follow-up study of oral cancer among Indian villagers have shown that through extensive and persuasive health education programme, it is possible to control the tobacco habits in the community.^[28-30] Public education on tobacco and its health hazards, price increase and legislative measures form the main features of primary prevention of tobacco-related cancers.^[31-33] There is a need to popularize the following dietary guidelines for prevention of cancer.^[34-36] The imperative dietary guidelines includes the maintenance of proper weight for a particular body height (Body –mass Index), regular body workout to avoid obesity and accumulation of fat, □ intake of plant foods (green leafy and yellow vegetables). In India, the prevention of exposure to Human Papilloma Virus (HPV) by vaccination may prove to be most efficient and feasible option for the prevention of pre-cancerous and cancerous lesions of cervix however with the introduction of hepatitis B vaccination into basic immunization vaccination schedule would definitely help in the development of liver cancer. Recently, a gene test that can

identify people at risk for mouth cancer has been developed by British researchers. the test detects precancerous cells in patients with benign-looking mouth lesions and could lead to earlier treatment for at-risk patients and improve their chances of survival, according to the team at Queen Mary, University of London.^[36-39] Unfortunately, the existing treatment facilities for cancer in India are sadly inadequate to take care of even the present load. More than 80% of the patients usually report to cancer care centers in advanced stages of disease.

CONCLUSION

Epidemiological data based studies often provides research foundation for the establishment of suitable strategies to assist in national cancer control program in India where the cancer is a crucial public health problem. The presented epidemiological review on cancers not only provides valuable information on patterns of cancer prevalence and incidence, but unquestionably in accurate identification of risk factors allied with different types of cancers. Nevertheless, a combined strategy of traditional and advanced molecular epidemiology, increase in the taxation across the range of tobacco products, and adequate utilization of mass media would be highly effective in cancer control and prevention program.

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