Original Article
IASR Journal of Medical and Pharmaceutical Science
Website: https://iasrpublication.com/ijmps

Myths of High Incidence of Cancer in North-East India

Dr. Vikramendra Kumar
Assistant Professor, Department of Sociology, Delhi School of Economics, University of Delhi, New Delhi

A B S T R A C T
Cancer's spread in North-East India is a result of a combination of lifestyle choices, low or no awareness, and delayed diagnosis. Aside from that, the region lacks the necessary amenities, such as experienced oncologists and treatment infrastructure, such as hospitals, diagnostic centres, and so on, for cancer patients. In comparison to the national average of ‘‘80-110 cases per lakh population,’‘ the Northeast has a higher rate of ‘‘150-200 patients per lakh.’‘ Certain districts in the region, such as Papumpare (Arunachal Pradesh) and Aizwal (Mizoram), have the highest age-adjusted cancer incidence rates. Apart from these locations, the state of Nagaland comes in second place, with a population of little over 20 lakhs and over 1,300 cancer cases reported each year.

Keywords: *Cancer, health-care infrastructure, human resources for health, Northeast India, specialized cancer facilities*

Corresponding Author
Dr. Vikramendra Kumar
Assistant Professor, Department of Sociology, Delhi School of Economics, University of Delhi, New Delhi

INTRODUCTION

Cancer fatalities and incidence are steadily increasing in the northeastern part of India. In this location, there has been a significant rise in the number of cancer cases. Compared to the rest of India, cancer incidence in the NE-States of India has a distinct pattern. For both sexes (male and female), most of the N.E. locations are in the top spots for various cancer sites in India and the rest of the world. There is an abundance of cancer in these areas of the digestive tract and oesophagus as well as thyroid, oesophageal, hepatocellular and gallbladder.

In India's north east area, a distinct pattern of cancer incidence has emerged. The purpose of this article is to provide readers with a clearer picture of cancer in the Northeast, as well as the gaps that exist in the delivery of cancer care and possible solutions that could lead to a healthier region. The survival rate in NE is poorer, with a higher proportion of cases of metastasis during diagnosis, according to data collected in 2018. To add insult to injury, this area lacks the necessary facilities for treatment. To prevent this dynamic region from becoming a hotbed of a terrible disease like cancer, a method that takes into account the needs of multiple levels, dimensions, and disciplines is necessary.

Cancer is the world's second leading cause of death, accounting for roughly one in every six deaths, with the vast majority of these deaths occurring in low and middle-income countries. With a mortality incidence of 90 per 100,000 women and 65.8 per 100,000 men, cancer is the top cause of death for women in India. According to Sharma et al.[1], cancer was responsible for 635,000 deaths in India in 2008, accounting for 8% of global cancer mortality. India is anticipated to see an increase in the overall number of cancer-related fatalities due to expanding populations and longer life expectancies. India has a wide range of cultural diversity, from urban to rural areas, and a wide range of mortality rates for adults of various ages. That's why understanding the social and geographic dispersion of malignancies and the factors that contribute to that dispersion is critical in developing effective cancer prevention strategies.

The National Cancer Registry Program (NCRP), the NCRP, and the Indian Council of Medical Research (ICMR) collected and reported incidence and death data from population-based cancer registries in India in terms of AARs, crude rates, and AAMRs. The Population-Based Cancer Registries 2012–2014 3-year report was recently released. All cancer sites in India's northeast (N.E.) states have the highest AAMR and AAR per 100,000 residents. In the N.E. states, four of the 10 high-incidence locations for females and seven for males were found. In men, “Aizawl district (270.7/100,000), Papum Pare district (230.4/100,000), East Khasi Hills (218.3/100,000), Mizoram state (211.5/100,000), Kamrup Urban districts, and Meghalaya (206.0/100,000)’‘ were found to have the highest AAR (NCRP 2016). Females in Papum Pare district (249.0/100,000), Kamrup Urban, Aizwal, Mizoram state, and Delhi had the highest incidence of states. This is a fresh register and statistics have yet to mature. Because of this, it is clear that cancer incidence is higher in N.E. states of India, as compared to the rest of the country.

In contrast to the rest of India, the north-east Indian cuisine culture, palate, and dietary habits are all unique. Banana bushes (known as Posola in Assam) and banana flowers (known as Koldil in Assam) are widely used throughout Northeast India as food sources. There are several special banana plants in Assam where it is eaten. Assam is, however, the only state in the N.E. that eats wild banana trees and flowers, as well as fermented millet and rice beer, bamboo shoots, the wild solid flavour of precious herbs, and fermented millet and rice beer, which is used by the majority of the tribes in the N.E. for all their ethnic occasions, such as Apong or apong. Tuibur (smokeless water), Paan (betel leaf), and Tamul (raw betel nut) are all widely drank in the Northeast, whether separately or in combination.

Distribution of cancer in different zones

The incidence of esophageal cancer in both sexes is significantly greater in the North-East than anyplace else in the country. Men in East Khasi Hills, Meghalaya, Aizwal District, Kamrup urban District, and the entire state of Mizoram had the highest AAR of oesophageal cancer (71.4). (26.0). It was East Khasi Hills (30.2), Meghalaya (19.8), and the Kamrup Urban District of Assam for women, respectively (18.3). Male esophageal cancer is the sixth most prevalent cancer in the world, and female esophageal cancer is the ninth most common cancer [2]. Oesophageal cancer affected 323 men (34.2 percent) and 140 women (24.9 percent) out of a total of 944 cancer patients in East Khasi Hills [3]. The oesophagus was at the top of the list. As a result, a global investigation was necessary to uncover the true cause of the high incidence in the north-east. Most commonly used in Assam, the term ‘‘kalakhar’‘ refers to a highly alkaline substance formed from the burnt false stem or skin of a specific species of bananas. Oesophageal cancer risk is significantly increased by kalakhar use (odds ratio = 8.0) [4]. The incidence of esophageal cancer differs between industrialised and developing countries, and there is a 50-fold difference between high-risk and low-risk groups [5].

Second only to esophageal cancer, stomach cancer is the most common form of cancer in the north-east. The second greatest cause of cancer-related death is stomach cancer, which is also the most aggressive and frequent type of cancer in the world. According to reports, there were 989,600 new cases of stomach cancer and 738,000 fatalities from the disease in 2008, accounting for around 8% of all cases and 10% of all deaths [6]. Stomach cancer is particularly prevalent in Mizoram, making it a particularly dangerous place to live in India [7; 4]. Mizoram's Aizwal district saw 64 men and 31 women diagnosed with stomach cancer per 100,000 residents, compared to [AAR 47.6 (male) and 22.7 (female)] in the entire state of Mizoram and [AAR 38.9 (male) and 18.1 (female) in Mizoram excluding Aizwal]. The north east of India was home to eight of the top ten stomach cancer hotspots in India for both sexes. The highest incidence of stomach cancer in men and women can be found in Japan, followed closely by Mizoram on a global scale. When compared to national and worldwide numbers, this region has a high incidence of stomach cancer. There's a good chance it's the result of bad dietary habits like eating smoked meat or seafood, heavy drinking, or smoking cigarettes. Mizoram locals are known to smoke Tuibur (smokeless tobacco) and meiziol (local cigarette).. Lung cancer in Mizoram is strongly associated to the combination of smeiziol, smoking, and Tuibur consumption habits (OR=23.02), according to studies [8].

The nasopharynx is another prevalent cancer location in the Northeast. Aside from Southern China and South East Asia, nasopharyngeal carcinoma is a rare cancer in the world [1]. Males and females in India are most likely to be diagnosed with this cancer in the state of the N.E., which accounts for 10 of the top 10 cancer hotspots in the country. This is a critical situation that requires immediate attention. Tibetano-Burman languages are widely spoken in this part of the country, which is home to a population presumed to be descended from migrants from Southeast and East Asia. This migration may have brought the risk of nasopharyngeal cancer to this area, according to current thinking about it [9].

Nagaland with AAR (21.0), followed by Aizwal (6.7) in males, and Nagaland with AAR (4.6) in females [3]. The male AAR in mainland India is only 1.1, but the female AAR in all mainland Indian areas was seen as (AAR1), indicating that Nagaland has a 21-fold higher male incidence than the national scenario and a 10-fold higher female incidence than Thiruvananthapuram (Female AAR 0.4) and the mainland Indian area. It could be due to the consumption of smoked or salted meats and seafood, the use of wild herbs, the burning of wood in the home, or other environmental factors. A few studies have already shown that these products include nitrosamines, a carcinogenic chemical found in salted fish. A study in Nagaland found a relationship between smoked meat consumption and nasopharyngeal cancer. Nasopharyngeal cancer rates in Nagaland may be elevated as a result of the widespread use of traditional nose medicines. It was found that the consumption of smoked meat (adjusted odds ratio=10.8; 95 percent CI 3.0-39.0) was associated with nasopharyngeal cancer. The use of herbal nasal medicine in the past was also connected to nasopharyngeal cancer (OR=21.9, CI=6.8-71.4), according to the study [10].

Males and females in the north east India region are seeing an upsurge in hypopharynx cancer cases. In 2010, a total of 19397 Hypopharynx cases were reported in India, and this number is expected to rise to 22568 by 2020 [11]. After

Meghalaya (17.4) and the entire state of Meghalaya (15.4), Aizwal District (15.4) and Kamrup Urban District (14.7) in Male, hypo pharynx was found in East Khasi Hills (21.5) district of Meghalaya. This N.E. region state of Meghalaya (1.9) was discovered to have it in females in the state of Assam in the Kamrup urban district, followed by the Cachar and Dibrugarh districts (2.6) and 2.0 respectively, and in the East Khasi Hills of Meghalaya (2.5) [3]. The high frequency of hypopharyngeal cancer in certain areas may be linked to the residents' smoking and eating habits [12].

Top risk factors driving these incidence rates

Consumption risk factors

The heavy and excessive cigarette smoking of the seven sisters is a regular lifestyle aspect. Tobacco use is directly responsible for 57% of male malignancies and 28% of female cancers in the northeast and north, respectively. They've demonstrated to be hooked to both raw and fermented betel nuts in this area, according to local sources. Some evidence suggests these also contain cancer-causing agents and are a key cause of the current cancer epidemic.

In addition, esophageal cancer is prevalent due to the region's eating habits. Chili peppers and other spicy foods are common in the northern cuisine (this region is popularly known for being a place of origin for homegrown chilies, like bhut jolokia and raja mirchi). There is also a lot of consumption of hot beverages, such as tea and coffee, in this area. High rates of esophageal cancer have been linked to these practises. Oesophageal cancer is four times more likely in persons who drink scorching hot tea, according to a 2009 study.

Hygiene risk factors

Aside from eating patterns, the high prevalence of cancers that can be transmitted sexually in this area has also been linked to general lifestyle behaviours among the native communities.

- Breast cancer incidences in the area have been linked to obesity or late pregnancies, according to research.
- Multiple sexual partners and a general lack of sexual hygiene have all been linked to an increased risk of cervical cancer, according to recent research. HPV (Human Papillomavirus) infections, which are transmitted through sexual contact, are to blame for the high rate of cervical cancer.
- The H. pylori bacteria, which causes stomach ulcers, has been linked to an increased risk of stomach cancer through poor dietary habits and the ingestion of contaminated food and drink. The region is also known for its salty and smoked raw cuisine, both of which serve as breeding grounds for germs that are ultimately responsible for the region's rising cancer incidence rates.

Lack of screening & treatment options

The northeastern region has a well-deserved reputation for having high rates of cancer, yet there aren't nearly enough treatment facilities to go around.

Only eight cancer treatment facilities serve the northeastern belt, and these facilities only provide basic services like surgery, radiotherapy, and chemotherapy. Guwahati (Assam), Dibrugarh (Assam), Silchar (Assam), Imphal (Manipur), Agartala (Tripura), and Shillong (Tripura) are all locations where these centres can be found (Meghalaya). There are no experts in oncology or radiology in the area, so patients are referred to larger cities like Kolkata or Chennai for treatment. This leaves the patients in the hands of local doctors, G.P.s, and referral hospitals.

Patients are compelled to seek care outside of their hometowns as a result of these factors. Low patient compliance is sometimes a result of frequent hospitalizations during cancer therapy. Patients who travel long distances for medical treatment run the danger of missing critical scans and other follow-up treatments.

Consultations, planning, and delivery

It is critical to manage and deliver remote consultations that can be done via phone or online video consultation in areas like northeastern India where people are in a difficult position where medical facilities are low and incidence rates are high.

Global Comparison

In both sexes, lung cancer was among the top three most common cancers worldwide [13]. As a modern disease, lung cancer is perhaps one of the most important health indicators today, not only in North East Asia but throughout the world [14]. Additionally, the gender gap in cases of lung cancer has narrowed to the point that nearly half of those diagnosed in this region of India are women, according to a study by Mandal. Males accounted for 47,010 new cases of lung cancer in India in 2008, while females accounted for 11,557 new cases [15]. Mizoram's Aizwal District has a far higher male and female lung cancer incidence rate than the rest of India. There were 46 male and 45 female lung carcinoma cases per 100,000 residents in Aizwal District, making it the top spot in the country (for both men and

women) and the 9th in the world (for men) and the 4th in the world (for women). Ferlay et al. [16] as well as the NCRP [3] Around 80 percent of all lung cancers worldwide are caused by smoking.

Green tobacco refers to tobacco grown in the field or in an uncured state. Green tobacco sickness is an occupational hazard that affects tobacco growers (GTS). Cropper disease was first identified in Florida tobacco workers in 1970 [17]. Wet tobacco plants absorbed nicotine later, and that's why it was labelled ‘‘GTS’‘ [18]. Tobacco has been a major worldwide health threat since the onset of GTS illnesses, causing a wide range of diseases like cancer and heart disease while also contributing to a higher overall mortality rate than any other single cause. IARC's Monograph states that smoking tobacco is the primary cause of lung cancer (all forms) and is strongly associated to oral, hypopharyngeal, oropharyngeal and stomach/esophageal cancer [19].

TRCs were prevalent in all of the North Eastern regions, accounting for more than half of all cancer cases. Tobacco-Related Cancers (TRCs) in females are more common than the national average in all of the North Eastern States (Table 1). All 14 of India's high-incidence female TRC zones were found to originate from the N.E. region alone. The top spot on the list belonged to India. Like in other parts of India, women dominated use of tobacco-related substances in most of Northeast India. TRCs were responsible for up to 70% of all cancer cases in Meghalaya, followed by Tripura, Dibrugarh, and Kamrup, which each accounted for 50% of the region's total cancer cases [3]. In Assam and the entire North-East (NE), the Age-Standardized death rate for men between the ages of 30 and 69 was 114.0 (Cumulative Risk-8.5 CI 6.5-10.4) and 115.0 (Cumulative Risk-11.2 CI 8.9- 13.5) per 100,000 people, respectively, while for women it was 37.5 (Cumulative Risk-5.5 CI 3.8-7.1) and 21.0 (Cumulative Risk-6.0 CI 4.6-7.4) per 100,000 [20]. According to an Assamese case-control study on oesophageal cancer, men who smoke dried tobacco (Chadha) have a five-fold greater risk of oral cancer compared to non-users [5]. The most 'preventable' cancer risk factors are smoking, betel quid (paan), bidi, and alcohol consumption [21]. Although most TRC-related diseases can be avoided, cancer control activities are still required.

Childhood cancer

Between 80 and 150 children per million worldwide are diagnosed with childhood cancer each year, according to the World Health Organization (WHO) [22;23]. NCRP found that the incidence of childhood cancer in the north-eastern part of India was lower than in other parts of the country [3]. According to reports, both girls and boys are more likely to be victims of child abuse in Chennai, India. AARpm for boys is 159.6 while for girls it is 112.4 per one million children, followed by boys in Delhi (149.4) and girls in Thiruvananthapuram (112.4 per one million children) (103.3). The AAR, but not the AARpm, is significantly higher in the north-eastern part of India. It is nine times more common for a male in Meghalayas East Khasi Hills to have AAR (Male-216.0) than for a male in Meghalaya to have AARpm (Boys-24.3), and for a female in Meghalaya to have AAR (Female-114.1) 10 times more common than for a female in Meghalaya to have ARpm (Girls-11.3) [3]. Mizoram, Nagasand, Excluding Aizwal, and Kamrup Urban in the North East, where AAR was roughly 2 to 3 times higher in males and 2 to 4 times higher in females than AARpm for boys and girls simultaneously”. AARpm was calculated per a million children, whereas AAR is calculated per 100,000 people.

What else the report reveals:

Among men, malignancies of the oesophagus and lung were the most common, followed by those of the breast and cervix uteri in women (14.5 and 13.6 percent, respectively) (12.2 percent).

Aizwal had the highest incidence rate in men of 269.4 per 100,000 people. In contrast, Arunachal Pradesh's district of Papumpare has the highest cancer incidence (219.8 per 100,000 people) among women.

Tobacco use was associated to 49.3% of male cancers and 22.8% of female cancers. Less than a third of cases of breast, head, cervix, stomach, and neck cancers, as well as lung cancer, were found to be localised; the other two-thirds had spread to other areas of the body.

Sikkim had the greatest percentage of cancer patients who sought treatment outside the region (95.3 percent), followed by Nagaland (89.3 percent) (58.1 percent).

Sikkim has the greatest prevalence of obesity among women aged 15 to 49 (34,7%), followed by Manipur (34.1 percent). In men, Sikkim had the greatest percentage at 36.3 percent, while Meghalaya had the lowest at 13.9 percent. After Manipur, Sikkim had the greatest percentage of men and women with hypertension (41.6 and 34.5 percent, respectively) (men 33.2 percent and women 23.0 percent).

Men had greater blood sugar levels than women in all eight states studied. In Arunachal Pradesh, Assam, Meghalaya, Nagaland, and Tripura, less than half of families used clean fuel for cooking. Most families in Meghalaya had some sort of health insurance or finance in place (63.5 percent).

According to the National Cancer Registry Program report for 2020, the North East has the highest rate of cancers associated to tobacco use, and the overall number of cancers linked to tobacco use is expected to reach 3.7 lakh (27.1 percent) by that year.

These estimates are based on data from 28 population-based cancer registries (PBCRs). Cancer data was also provided by 58 Hospital-Based Cancer Registries (HBCRs). The usage of tobacco in Aizawl, according to Dr. Pankaj Chaturvedi, deputy head of the Centre for Cancer Epidemiology at Tata Memorial Centre (TMC) in Mumbai, was what decimated males there. At the same time, the incidence of both breast cancer and cervical cancer is increasing.

The Nargis Dutt Memorial Cancer Centre has also been providing low-cost cancer care in Maharashtra, according to Chaturvedi. Male cancers include those of the mouth, oesophagus and throat, whereas female cancers include cervix uteri and breast cancer. However, most registries for cervical cancer showed a decreasing trend.

The northeast region of India has the highest rate of cancer incidence in the country, and this is largely due to malignancies associated to one's way of life. According to a survey issued by the National Center for Disease Informatics and Research under the Indian Council of Medical Research, oesophageal cancer is the most common cancer in men (ICMR). Together, they account for 33.5% of all male malignancies diagnosed in the Northeast. After oesophageal and cervical cancer, breast cancer in women is the most common (33.8 percent). Experts believe that all of these malignancies have a strong link to lifestyle-related risk factors. The study examines 37,448 cancer cases reported from 2012 to 2014 by 11 cancer registries based on population in the northeastern states.

High tobacco consumption

Asaam, Arunachal Pradesh, and other states in the north-eastern region have a common trait: high tobacco use. As many as 57% of all male malignancies and 28% of all female cancers are linked to smoking, according to the survey. Oesophageal cancer is linked to both smoking and drinking hot beverages, in addition to both. Oesophageal cancer was shown to be four times more likely in persons who consumed scalding tea, according to a 2009 study from Mumbai's Tata Memorial Hospital. ‘‘Cancer incidence in the region has increased due to particular food patterns.”
H. pylori bacteria infection, contaminated water and food, obesity, and a diet rich in smoked or salty foods are all factors that contribute to the prevalence of stomach cancer in the region. The risk factors for breast cancer, including obesity and late pregnancies, are numerous. Human Papilloma Virus (HPV) infection is the most significant risk factor for cervical cancer, largely transmitted through sexual intercourse. The proliferation of cervical malignancies is linked to sex partners, poor cleanliness, and smoking.

CONCLUSION

A single person will not be able to solve the North East's cancer catastrophe. It requires the combined efforts of administrative entities, hospitals, non-profits, and medical groups to raise awareness and provide counselling on lifestyle adjustments.

In all of this, the local people have a role to play in ensuring that cancer is treated more effectively.. Tobacco use, in particular, needs to be monitored and restricted to promote better lifestyles. In addition, people should aim to reduce or minimise their intake of spicy meals and hot beverages on an individual basis, such as smoking and chewing tobacco. In addition, those who have been diagnosed with cancer should seek medical support and look for treatments that may be put to good use based on their specific circumstances and the resources that are readily available to them.

REFERENCES

1. Sharma TS, Singh TT, Laishram RS, et al (2012). Nasopharyngeal carcinoma-a clinico-pathological study in a regional cancer centre of northeastern India. *Asian Pac J Cancer Prev*, 13, 1583-7.
2. Kumar A, Chatopadhyay T, Raziuddin T, Ralhan R (2006). Discovery of deregulation of zinc homeostasis and its associated genes in esophageal squamous cell carcinoma using cDNA microarray. *Int J Cancer*, 120, 230-42.
3. National Cancer Registry Programme (ICMR) (2013). Three-year report of the population based cancer registries: 2009- 2011. Bangalore, India.
4. Phukan RK, Chetia CK, Ali MS, Mahanta J (2001). Role of dietary habits in the development of oesophageal cancer in assam, the north-eastern region of India. *Nutr Cancer*, 39, 204-9.
5. Ihsan R, Chattopadhyay I, Phukan R, et al (2010). Role of epoxide hydrolase 1 gene polymorphisms in esophageal cancer in a high-risk area in India. *J Gastroenterol Hepatol*, 25, 1456-62.
6. Jemal A, Bray F, Melissa MM, et al (2011). Global cancer statistics. *CA Cancer J Clin*, 61, 69-90.

7. Rao DN, Ganesh B (1998). Estimate of cancer incidence in India in 1991. *Indian J Cancer*, 35, 10-7.
8. Malakar M, Devi KR, Phukan RK, et al (2012). Genetic polymorphism of glutathione S-transferases M1 and T1, tobacco habits and risk of stomach cancer in mizoram, India. *Asian Pac J Cancer Prev*, 13, 4725-32.
9. Kataki AC, Simons MJ, Das AK, Sharma K, Mehra NK (2011). Nasopharyngeal carcinoma in the Northeastern states of India. *Chin J Cancer*, 30, 106-13.
10. Chelleng PK, Narain K, Das HK, Chetia M, Mahanta J (2000). Risk factors for cancer nasopharynx: a case-control study from Nagaland, India. *Natl Med J India*, 13, 6-8.
11. Takiar R, Nadayil D, Nandakumar A (2011). Projection of number of cases in India (2010-2020) by cancer groups. *Asian Pac J Cancer Prev*, 11, 1045-49.
12. Sharma JD, Kataki AC, Vijay CR (2013). Population-based incidence and patterns of cancer in Kamrup Urban Cancer Registry, India. *Natl Med J India*, 26, 133-41.
13. Hussain MA, Pati S, Swain S, et al (2012). Pattern and trends of cancer in Odisha, India: a retrospective study. *Asian Pac J Cancer Prev*, 13, 6333-6.
14. Mandal SK, Singh TT, Sharma TD, et al (2013). Clinico-pathology of lung cancer in a regional cancer center in northeastern India. *Asian Pac J Cancer Prev*, 14, 7277-81.
15. Ramshankar V, Krishnamurthy A (2013). Lung cancer detection by screening-presenting circulating miRNAs as a promising next generation biomarker breakthrough. *Asian Pac J Cancer Prev*, 14, 2167-72.
16. Ferlay J, Shin HR, Bray F, et al (2010). Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer*, 127, 2893-917.
17. Banerjee A, Pakrashi A, Chatterjee S, Ghosh S, Dutta SK (1993). Semen characteristics of tobacco users in India. *Arch Androl*, 1, 35-40.
18. Merino G, Lira SC, Martinez-Chequer JC (1998). Effects of cigarette smoking on semen characteristics of a population in Mexico. *Arch Androl*, 41, 11-5.
19. International Agency for Research on Cancer (IARC) (1987). IARC monographs on the evaluation of the carcinogenic risks to humans, Supplement 7. Overall evaluations of carcinogenicity: An updating of IARC monographs Volumes 1.42. Lyon: IARC Press: 357-61.
20. Dikshit R, Gupta PC, Ramasundarahettige C, et al (2012). Cancer mortality in India: a nationally representative survey. *Lancet*, 379, 1807-16
21. Siddiqui Md S, Chandra R, Aziz A, et al (2012). Epidemiology and histopathological spectrum of head and neck cancers in Bihar, a State of Eastern India. *Asian Pac J Cancer Prev*, 13, 3949-53.
22. Ferlay J, Bray F, Pisani P, Parkin DM (2003). Cancer incidence, mortality and prevalence worldwide. GLOBOCAN 2008. Lyon: International Agency for Research on Cancer (IARC Press) 2003.
23. Ribeiro RC, Steliarova-Foucher E, Magrath I, et al (2008). Baseline status of paediatric oncology care in ten low-income or mid-income countries receiving my child matters support: a descriptive study. *Lancet*, 9, 721-9.