Trend and Pattern of Various Types of Cancer with Special Reference to Gall Bladder Cancer in North Bengal Medical College, West Bengal, India: A 3 Years Record Based Study

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ABSTRACT

Background: Global burden of cancer is on rise and trends and pattern of cancers are rapidly changing different geographic and population groups. Gall bladder cancers are emerging with increasing proportion among select areas and groups and understanding these variations are important for appropriate strategies and interventions. However, absence of a well-developed universal cancer registry system in India, institution based secondary data analysis can generate useful information. The present study was conducted to determine the trend and pattern of cancer cases (with special reference to gall bladder cancer) treated in a tertiary care hospital in northern part of West Bengal.

Methods: Record based cross-sectional study was conducted in Department of Radiotherapy, North Bengal Medical College and Hospital. All newly registered cases between (2010 and 2012) were reviewed.

Results: A total of 2058 cancer cases were recorded during the 3-year period. Of these, major types of cancers were oro-pharynx (16.1%), breast (15.4%), cervix (13.2%), lung (12.7%), gall bladder (6.5%) stomach cancer (6.4%), etc., Increasing proportions was observed for breast and gall bladder cancers. The proportion of gallbladder cancer cases in 2010, 2011, and 2012 were 3.8%, 7.3% and 7.8%, respectively. Among 134 gall bladder cancer cases, 93.3% were females, 85.1% alcoholics, 57.4% had a history of fatty liver, 94% had adeno/adenosquamous carcinomas, and 65.7% were metastatic in nature.

Conclusions: Increasing trend is observed in gall bladder cancer cases emphasizing the need for further large scale studies.

Keywords: Changing trends and patterns, gall bladder cancers, secondary data

INTRODUCTION

The burden of cancer is growing globally both in developed and developing countries including India.¹² Globally, every year nearly 10 million people are diagnosed and 6 million die of cancer.¹² The burden is increasing in economically developing countries as a result of population aging and growth and adoption of cancer-associated lifestyle choices...
such as smoking, physical inactivity, and “westernized” diets.[1] Trend and pattern of cancer cases vary in different geographical regions. In the world as a whole the cancers of lung, breast and colorectal region constitute 12.3%, 10.4% and 9.4% of total cancers respectively.[2,3] According to WHO, globally lung, stomach, oro-pharynx and colorectal cancers are the leading cancers in males, whereas, breast, cervix, lungs and stomach cancer constitute top three leading cancers in females. In India, the common sites are oral cavity, lungs, esophagus and stomach in males and cervix, breast and oral cavity among females[1,3,4] with variations existing in prevalence and pattern of different cancers.[3,5] However, patterns pertaining to rural India are not exactly known due to lack of rural population-based cancer registration and effective planning for cancer control interventions are needed. Various record-based studies[3,6,7] describing the trend and pattern of cancer cases in different areas of the country are conducted. Studies in West Bengal revealed rural-urban variation as well as variation in types of cancer cases.[6,7] It has also been documented that gallbladder cancers are increasingly being detected in different geographic regions.[8] In absence of well-established cancer registry system, such record analysis provide useful information for understanding the changing trend and pattern and help in undertaking further studies in identifying the associated factors of immense importance for developing appropriate strategies and prioritizing control measures. There is a lack of published literature in this regard in the study area. Thus, the present hospital-based study was undertaken to determine the trend of various types of cancers in North Bengal Medical College and to ascertain the socio-demographic and clinico-pathological profile of cancer cases with special reference to gall bladder cancer.

METHODS

North Bengal Medical College is the only government tertiary care hospital in the northern part of West Bengal. Cancer cases are mostly being treated in the Department of Radiotherapy of this institute. A record based cross-sectional study was conducted for 3 months in 2013. All registered cases of cancer patients at the Radiotherapy Department during last 3 years (2010–2012) were included in the study, and their relevant records were reviewed using a predesigned schedule. Collected data were analyzed using appropriate statistical measures. Ethical approval was obtained from the Institutional Ethics Committee of North Bengal Medical College.

RESULTS

Table 1 describes the various major types of cancer cases registered and treated in the Radiotherapy Department of North Bengal Medical College during the period of 2010–2012. Overall 2,058 cancer cases were registered, of which 28.2% (580/2,058), 30.1% (618/2,058) and 41.8% (860/2,058) were in the year 2010, 2011 and 2012, respectively.

Out of 2058 cases treated during the 3-year period, major types of cancers were oro-pharynx (16.1%), breast (15.4%), cervix (13.2%), lung (12.7%), gall bladder (6.5%), stomach cancer (6.4%) etc. During the period increasing proportion was observed for breast cancer (11.9%, 14.4% and 18.4% in 2010, 2011 and 2012 respectively) and also for gall bladder cancer (3.8%, 7.3% and 7.8% in 2010, 2011, and 2012 respectively).

The mean age of occurrence of all the major categories of cancer cases ranged between 50 and 55 years and for all types of cancers majority were from rural areas. Though male predominance was observed in lung (76.4%), stomach (60.3%) and cancer of oro-pharynx (76.1%); 93.3% gall bladder cancers were females [Table 2].

Details of all gall bladder cancer cases treated during the 3-year period were studied as recorded in the relevant records and presented in Table 3. Among 134 gall bladder cancer cases, 85.1% were alcoholic, 57.4% had history of fatty liver [Table 3] and further analysis revealed 23.2% had a history of alcoholism, hepatitis B and fatty liver. Histo-pathologically most of the cases (94%) were of adenocarcinoma/adenosquamous carcinoma in nature, and 65.7% cases were in the metastatic stage at the time of presentation [Table 3]. Adenomyomatosis of gall bladder could not be discerned separately due to lack of clarity in the existing data. As its role in cancer is debated thus its inclusion would have helped enriched the study further. However being a record based study, data could not be retrieved.

DISCUSSION

Study of cancer epidemiology (frequencies, pattern of distribution and determinants) are of immense importance for effective control strategies. Record reviews may also provide some useful information as has been observed in the present exercise. Besides an increasing trend in overall registered cancer cases, a clear increasing trend was also observed specifically for breast and gall bladder cancer in the present study. Reasons are obviously beyond the scope of this record analysis. However, the observation of increasing trend of gall bladder cancer is similar to earlier evidences.[9,10] Though incidence of gallbladder cancer is usually low when compared to other major cancers, higher rates were noted in Latin America (Colombia, Peru, and Ecuador), Japan, Eastern Europe, North America and American Indian populations[9] as well as in all the cancer registries.
The rise of gall bladder cancer was reported to be most marked in the North and Eastern India among both males and females and also around the Ganges Delta. The increasing trend of gall bladder cancer as also observed in the present study adds to the current concern against this emerging type of cancer. Like previous studies/reports, the present analysis also revealed that it affected women to a much higher extent than men.

However, specific etiologic factors of gallbladder cancer are much less clear. Few studies concluded changing lifestyle patterns, dietary factors (high-fat intake), obesity and alcoholism were the influencing factors. The present study also noted presence of some of the known risk factors (alcoholism, fatty liver, hepatitis B etc.) among gall bladder cancer cases.

CONCLUSIONS

Based on the findings it may be concluded that there is a definite rise in occurrence of gall bladder cancers in the northern part of west Bengal, mostly in women folk. An appropriate focused research toward etiological understanding of such rise is needed.

However for more accurate reflection of trend and pattern of cancers, a longer duration of study period would have been more helpful. Moreover, number of gall bladder adenomyomatosis cases if discerned separately would have given more clarity to the study. However being a record based study; unfortunately, the required relevant data could not be retrieved and may be treated as a limitation of the study.

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**Table 1: Distribution of major types of cancer cases treated during 2010-2012**

| Year | Lung | Breast | Cervix | Stomach | Oro-pharynx | Gall bladder | Others | Total |
|------|------|--------|--------|---------|-------------|--------------|--------|-------|
| 2010 | 82 (14.1) | 69 (11.9) | 88 (15.2) | 54 (9.3) | 102 (17.6) | 22 (3.8) | 163 (28.1) | 580 (100) |
| 2011 | 109 (17.6) | 89 (14.4) | 92 (14.9) | 57 (9.2) | 131 (21.2) | 45 (7.3) | 95 (15.4) | 618 (100) |
| 2012 | 71 (08.2) | 158 (18.4) | 92 (10.7) | 20 (2.3) | 98 (11.4) | 67 (7.8) | 354 (41.2) | 860 (100) |
| Total | 262 (12.7) | 316 (15.4) | 272 (13.2) | 131 (6.4) | 331 (16.1) | 134 (6.5) | 612 (29.7) | 2058 (100) |

**Table 2: Distribution of the major types of cancer cases based on gender, residence and mean age of occurrence**

| Variables | Lung (n=262) | Breast (n=316) | Cervix (n=272) | Stomach (n=131) | Oro-pharynx (n=331) | Gall bladder (n=134) | Others (n=612) |
|-----------|--------------|----------------|---------------|-----------------|---------------------|---------------------|---------------|
| Gender (%) |              |                |               |                 |                     |                     |               |
| Male      | 200 (76.4)   | 59 (18.7)      | -             | 79 (60.3)       | 252 (76.1)          | 99 (6.7)            | 387 (63.2)    |
| Female    | 62 (23.6)    | 257 (81.3)     | 272 (100)     | 52 (39.7)       | 79 (23.9)           | 125 (93.3)          | 225 (36.8)    |
| Mean age (years) | 52.8±5.8 | 52.4±8.7 | 54.9±6.8 | 54.9±10.8 | 51.1±7.6 | 51.9±5.8 | 50.1±8.6 |
| Residence (%) |            |                |               |                 |                     |                     |               |
| Rural     | 230 (87.8)   | 206 (65.2)     | 232 (85.3)    | 80 (61.1)       | 261 (78.8)          | 110 (82.1)          | 497 (81.2)    |
| Urban     | 32 (12.2)    | 110 (34.8)     | 40 (14.7)     | 51 (38.9)       | 70 (21.2)           | 24 (17.9)           | 115 (18.8)    |

**Table 3: Profile of gall bladder cancer patients treated during 2010-2012 in north Bengal Medical College (n=134)**

| Characteristics                  | Number (%) |
|----------------------------------|------------|
| Presence of known risk factors*  |            |
| Alcoholism                       | 114 (85.1) |
| Hepatitis B                      | 39 (28.0)  |
| Fatty liver                      | 77 (57.4)  |
| Presenting signs/symptoms*       |            |
| Pain                             | 69 (51.5)  |
| Jaundice                         | 54 (40.3)  |
| Lump                             | 72 (53.7)  |
| Histopathological types          |            |
| Adenocarcinoma                   | 114 (85.1) |
| Adenosquamous carcinoma          | 12 (8.9)   |
| Squamous carcinoma               | 8 (6.0)    |
| Stage at presentation            |            |
| Early                            | 29 (21.6)  |
| Localized                        | 17 (12.7)  |
| Metastatic                       | 88 (65.7)  |
| Type of treatment*               |            |
| Surgery                          | 49 (36.6)  |
| Chemotherapy                     | 119 (88.8) |
| BSC                              | 68 (50.7)  |

*Multiple responses. BSC=Basic supportive care
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