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Review

Epidemiology of prostate cancer in India

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ABSTRACT

Data from national cancer registries shows that incidence of certain cancers are on rise in India. The cancers which are showing significant increase in incidence rates include prostate, mouth and kidney among male population, corpus uteri, breast and thyroid among female population and lung cancer in both male and female populations. In the present review article we have focused on epidemiology of prostate cancer in Indian subcontinent in terms of incidence, survival, and mortality etc. The article presents the incidence rates, mortality and trends over time for prostate cancer as the data collected from national population based cancer registries. Prostate is the second leading site of cancer among males in large Indian cities like Delhi, Kolkatta, Pune and Thiruvananthapuram, third leading site of cancer in cities like Bangalore and Mumbai and it is among the top ten leading sites of cancers in the rest of the population based cancer registries (PBCRs) of India. The PBCRs at Bangalore (Annual Percentage Change: 3.4%), Chennai (4.2%), Delhi (3.3%), Mumbai (0.9%) and Kamrup Urban District (11.6%) recorded a statistically significant increasing trend in incidence rates over time.

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Introduction

Prostate cancer (PCa) is the second most common cause of cancer and the sixth leading cause of cancer death among men worldwide. The worldwide PCa burden is expected to grow to 1.7 million new cases and 499 000 new deaths by 2030 simply due to the growth and aging of the global population (Ferlay et al., 2010).

Prostate cancer has become a major health problem in industrialized world during the last decades of the 20th century contributing to three fourth of the registered cases across the globe (Perin, 2001). Incidence rates of prostate cancer vary by more than 25 fold worldwide, the highest rates being in Australia/New Zealand (104.2/100,000), Western and Northern Europe, North America, largely because the practice of PSA has become widespread in those regions. Although incidence rates of prostate cancer are considered low in Asian and North African countries, ranging from 1 to 9/100,000 persons (Perin, 2001), demographic and epidemiological transitions in developing countries like India have shown an increasing trend in the burden of various cancer cases including prostate cancer.

Previously it was thought, that prevalence of prostate cancer in India is far lower as compared to the western countries but with the increased migration of rural population to the urban areas, changing life styles, increased awareness, and easy access to medical facility, more cases of prostate cancer are being picked up and it is coming to the knowledge that we are not very far behind the rate from western countries. The cancer registries are reporting some new information and we can see that we are going to face a major increase in cancer incidences in the coming years. The population of India in general and that of the areas covered by the registries in particular, have displayed rapid changes in life styles, dietary practices and socio-economic milieu. Diagnostic and detection technologies have improved and more of the population has not only access, but can also afford the same.

The marked disparity between prevalence and incidence rates of prostate cancer, on the one hand, and morbidity and mortality rates, on the other, has led some to conclude that many prostate cancers are harmless and perhaps would better be left undetected. Nevertheless, if the present trends of increasing life expectancy continue, given the current age-specific incidence, morbidity, and mortality rates of prostate cancer, this disease will become a far greater public health problem in the future.

Correct and complete knowledge of epidemiology is very important in helping policy makers and concerned authorities to plan and formulate sound cancer control strategies based on scientific and empirical bases. This review article aims to bring together the information that is scattered in bits and parts in different Indian registries to see a broader picture of prostate cancer epidemiology in Indian subcontinent.

Methods

Information for this review article was obtained from multiple sources. Percentage of relative proportion of prostate cancer burden in different cities of India and their respective Crude Rate (CR) and Age Adjusted Rate (AAR) per 100,000 populations were derived from the 2009–2011 National Cancer Registry Program reports, from twenty five population-based cancer registries (PBCRs) across India including Bangalore, Barshi rural and expanded, Bhopal, Chennai, Delhi, Mumbai, Ahmedabad rural and urban, Aurangabad, Nagpur, Pune, Wardha, Kolkata, Kollam, Thiruvananthpuram, and North-East (Cachar District, Aizawl District, Dibrugarh District, Kamrup Urban District, Manipur State, Mizoram State, Imphal West District, Sikkim State, Meghalaya and Tripura State, Nagaland). (Anon., 2013a).

Data for trends over time for prostate cancer and for estimating the projection of burden of prostate cancer was taken from National Cancer Registry Program report of time trends in cancer incidence rates (1982–2010) for 13 Population Based Cancer Registries including Bangalore, Bhopal, Chennai, Delhi, Mumbai, Barshi, Thiruvananthapuram, Dibrugarh, Kamrup Urban District, Imphal West District, Ahmedabad Rural