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Short Communication

Strategies for cancer prevention in India—Catching the ‘low hanging fruits’



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ABSTRACT

Cancer is a growing problem in India, with over 1 million new cases estimated in 2012 alone. In November 2013, organizers of the Indian Cancer Congress (a joint meeting of four of the largest oncology associations in India) invited a panel with mixed expertise including epidemiology, surgical oncology, health economics, environmental science, and health systems to conduct a round table meeting on strategies for cancer prevention in India, with a special focus on non-tobacco risk factors. We present a summary of the group recommendations here. While tobacco use remains the most important preventable cause of cancer, a substantial number of preventable cancers can be attributed to non-tobacco risk factors including infections, alcohol use, dietary factors, physical activity/body composition, and environmental and occupational exposures. Strategies presented range from early diagnosis of cancers (including innovative health communication strategies to increase awareness), to consideration of secure spaces and facilities for exercise in urban design and planning. Cancer prevention and the control of non-communicable disease risk factors should be an integral part of the risk-benefit analysis of cross-sectoral and international trade agreements, as well as public policy directed at the Indian agro-economy.

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Introduction

In 2012, there were an estimated 14.1 million new cases of cancer globally, and more than half of these new cancers (56.8%) and cancer deaths (64.9%) occurred in developing countries. The International Agency for Research on Cancer estimated over 1 million new cancer cases in India in 2012 (10,14,934), with one third of these occurring in the breast, cervix, lip and oral cavity [1]. Cancer is the third most common cause of death among non-communicable diseases in India and accounted for 6.6% ($n = 663,032$) of all deaths in 2010 [2]. In accordance with worldwide trends [1], cancer rates will continue to rise in India due to the rising burden of chronic

disease risk factors such as tobacco [3], alcohol, physical activity, diet and body fatness.

The already high burden of cervical cancer and the rise in breast cancer to become the most common cancer in Indian women has posed challenges for cancer control in India. Lack of access to a well organized and well-regulated cancer care systems further complicates the situation [4]. To address the growing public health burden of cancer in India, organizers of the first Indian Cancer Congress, a joint meeting of four of the largest oncology associations in India (November 2013), invited panelists with mixed expertise including cancer epidemiology, surgical oncology, health economics, environmental science, and health systems to conduct a round table meeting on strategies for cancer prevention in India with a special focus on non-tobacco risk factors.

Tobacco use accounts for approximately 31% of cancers deaths in men and 10% of cancer deaths in women worldwide [5], and remains the single most preventable cause of cancer. Nonetheless, a substantial number of preventable cancers can be attributed to

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non-tobacco risk factors including infections, alcohol use, dietary factors, physical activity and body composition [5,6]. Other established risk factors include exposure to asbestos, air pollution (indoor and outdoor), occupational exposures and exposure to radiation [7].

Strong evidence already exists for the association between several non-tobacco risk factors and selected cancer sites [6]:

- Consumption of alcohol and cancers of the mouth, pharynx, larynx, oesophagus, colorectum (men) and breast (pre- and post-menopausal).
- Selected dietary factors and cancers of the liver (aflatoxins), lung (arsenic in drinking water and beta-carotene supplements) and colorectum (red and processed meat).
- Physical inactivity and colon cancer.
- Adiposity and cancers of the oesophagus, pancreas, colorectum, breast (post-menopausal) and kidney.
- Associations between infections and cancer: HPV (Human Papilloma Virus) infection and cervical cancer, Epstein Barr Virus (EBV) and Burkitt Lymphoma as well as Non-Hodgkin and Hodgkin Lymphoma, Hepatitis-C Virus and hepatocellular carcinoma, Kaposi Sarcoma Herpes Virus (KSHV) and Kaposi Sarcoma [8].

Existing knowledge regarding these non-tobacco factors can be used to suggest potential strategies for their prevention and control in order to reduce the burden of cancer in India.

Primary prevention of cancer is an important goal, as this alone can reduce cancer incidence. Given the high burden imposed by risk factors such as physical activity and body fatness, and the rapid pace of urbanization in India, investment in built environments and urban planning supporting healthy activities (leisure time physical activity or for commuting purposes) and/or active travel could offer an important strategy for prevention of non-tobacco risk factors of cancer [9]. A health-promoting environment offers a macro-level solution that can play a key role in reducing the prevalence of several risk factors common to cancer and other non-communicable diseases, which will in turn help control the burden of cancer and other non-communicable diseases (NCDs) in India.

Secondary prevention strategies, such as early detection of high-risk individuals with strong linkage to treatment, are also key to improving outcomes for common cancers. Although there are barriers to the integration of early detection into cancer prevention programmes (e.g. lack of awareness of the benefits of early detection; high workload of existing frontline health workers, and financial cost), strategies can be developed to overcome these. Objective evaluations of such screening programs, including cost effectiveness analysis for interventions and programs, are critical to long-term success. Where feasible, other prevention strategies (such as vaccination against Human Papilloma Virus to reduce the risk of cervical cancer) should also be considered.

Strong registries and monitoring to generate evidence on cancer prevalence as well as risk factors for cancer is critical to the development of cancer prevention strategies. India already has an extensive cancer registry system in place [10]. However, differences in the quantity and quality of data collected on exposure and outcome currently limit the characterization of geographical variation in cancer rates, and their underlying etiology. Continued focus on the collection of high quality data, and increasing use and dissemination of these data for research and policy will be important for effective cancer prevention.

The increasing prevalence of cancer demands a planned approach to reduce its burden on both individuals and society. Strategies which may be effective in reducing the incidence of new cancer cases include:

- Continued and sustained effort in tobacco control.
- Focus on early diagnosis of cancers (including innovative health communication strategies to increase awareness).
- Engaging and enhancing skills of dentists and professionals complementary to dentistry (PCDs) for prevention of oral cancer in India.
- Policies to reduce exposure to key environmental pollutants that are known carcinogens (e.g. indoor emissions from household combustion, outdoor air pollution, asbestos) [11].
- Strengthen health promotion strategies through existing health programs to include cancer risk factors.
- Identify potentially carcinogenic occupational exposures and regulate their use to protect workers from occupational hazards.
- Include secure spaces and facilities for exercise in urban design and planning.
- Continued efforts and focus on social determinants (such as education) to reduce inequalities in cancer prevalence in India [4].
- Continue to strengthen and widen cancer registration and registries, including the strengthening of death certification.
- Strengthening of the current health system and utilizing community and rural health workers in cancer prevention programs.
- Cancer research to be given more importance and value at both the central and state government levels [12].

Cancer prevention and the control of NCD risk factors need to be an integral part of the risk-benefit analysis of cross-sectoral and international trade agreements, as well as public policy directed at the Indian agro-economy.

Conflicts of interest

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

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