Commentary

Community Intervention For Cancer Control & Prevention: Lessons Learnt

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INTRODUCTION

Two decades ago, six million new cases of cancer were diagnosed each year and four million deaths were reported annually due to the disease, worldwide [1]. Today these figures are 10 million and 6 million. It is predicted that if the current trends continue then by 2020 these figures are expected to reach 20 million and 10 million respectively [2].

Although the disease has often been regarded as a problem of affluence, more than half of the cases are now being reported from developing countries. In developed countries cancer screening is part of national public health programmes or is incorporated into health insurance plans. Therefore preventable cancers are detected at early stages, resulting in good survival rates and reduction in mortality. Developing countries are still burdened with infectious diseases like tuberculoses and malaria. Reproductive health, mother and child health are also of primary concern in developing countries. Cancer control therefore takes a back seat in these countries. Although most countries would have a cancer control programme on paper, very less action is actually taken at the programme implementation level in these countries.

It is no different in India, where the prevalence of cancer is around 2.5 million, with over 8,00,000 new cases and 5,50,000 deaths occurring each year due to this disease in the country [3]. The common sites for cancer in India are oral cavity, lungs, oesophagus and stomach in males and cervix, breast and oral cavity among females. Over 70% of the cases report for

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diagnostic and treatment services in advanced stages of the disease, resulting in poor survival and high mortality rates [4]. The disease is associated with a lot of fear and stigma in the country.

Government of India developed the first statement on cancer control as early as 1971 and the first policy document on National Cancer Control Programme was enunciated in 1984. The programme, however has mainly contributed to the development of radiation oncology services rather than making any headway in the direction of prevention and early detection. Twenty-one regional cancer centres have been established in the country. These centres concentrate mainly on providing treatment and palliative services. There is no organised screening programme for any of the common cancers in the country. Most cancer centres provide only opportunistic screening services.

There are four principal approaches to cancer control. They are prevention, early detection, diagnosis and treatment, and palliative care. Important issues related to cancer prevention and early detection in India, and the contributions of the Tata Memorial Hospital in this direction are projected.

STRATEGIES FOR CANCER PREVENTION IN INDIA

Prevention means eliminating or minimizing exposure to the causes of cancer, and includes reducing individual susceptibility to the effect of such causes. This approach offers the greatest public health potential and the most cost-effective long-term method of cancer control. Tobacco is the single leading cause of cancer worldwide and in the fight against cancer every country should give highest priority to tobacco control [5].

Educating people regarding the disease will help to drive away the fears and stigma associated with the disease. It is important to involve all levels of the population in the educational process. The following educational strategies practiced by the Tata Memorial Hospital have produced very good results and can be easily replicated by other cancer centres and also by institutions and NGOs engaged in cancer control work.

1. Involvement of school children.
2. Involvement of youth and NSS students from University Colleges.
3. Involvement of NGO's, particularly those working in the area of women's health.
4. Involvement of the Municipal, District and State Health Administration.
5. Involvement of Medical Colleges, particularly Departments of Preventive & Social Medicine.
6. Involvement of mass media. There are a variety of methods that can be employed for educating people. Some of the useful ones that have produced good results are:

1. Conducting drawing and essay competitions – School Children
2. Debates, discussions, seminars and street play competitions – Youth and University students.
3. Participatory workshops and training sessions – NGO groups, Municipal, District and State Health Administration.
4. Structured training and field activities – Medical Colleges
5. Participatory programmes on radio and television – Mass Media.
6. Descriptive articles in newspapers and magazines – Mass Media.
7. Exhibitions and public lectures – General Population

Well-illustrated audiovisual educational materials are extremely useful in literate and as well as illiterate populations. While health-education is an interesting method of communication, it should be clearly understood that education is a process, which goes through the modalities of changes in knowledge, attitudes and practices over a period of time and it takes a long time before the impact of education becomes evident. On the other hand sometimes even simple fact finding surveys can result in increased knowledge leading to a reduction in morbidity and mortality. An interesting example is a health education study conducted in two tehsils of Solapur District in Maharashtra by the Tata Memorial Hospital Rural Cancer Registry at Barshi. This study showed a reduction in mortality due to cervix cancer by 40% in a short span of 5 years.

STRATEGIES FOR EARLY DETECTION OF COMMON CANCERS IN INDIA

The cancers of the oral cavity, uterine cervix and female breast are very amenable to early detection. Periodic examination by Pap smear and Mammography are the accepted standards for early detection of cervix and breast cancers in the developed countries. Pap smear and mammography are however, not practical and affordable methods for cervix and breast cancer to be propagated for screening in India.

In many developed countries a decline in the incidence of and mortality due to cervix cancer has been observed in the past 30 years due to cytology screening [6,7]. Screening programmes do not exist in many developing countries or have not been effective in reducing the disease burden in some low-resource settings where cytology programmes do exist[7].

Population based screening with cytological examination requires vast resources and highly skilled technical manpower. Such resources and skilled manpower are not available in India. It has been estimated that if the currently available resources for cervical cancer screening are increased 12 fold it will only be sufficient to administer one cervical smear examination to 25% of the population once in their life time[8]. Cytology based screening programmes are difficult to organise in India because of issues related to absence of trained

manpower, infrastructure, logistics, quality assurance, frequency of screening and costs involved. Unaided visual inspection (VIA) of the cervix has been assessed in 3 studies from India and has been shown to perform poorly[9-11]. VIA is a simple, inexpensive test that can be provided by trained health workers. The accuracy of VIA to detect cervical neoplasia has been extensively studied and found to be satisfactory[12-14]. Results from pooled analysis of data from two completed studies indicated an approximate sensitivity of 93.4% and specificity of 85.1% for VIA to detect CIN 2 or worse lesions; the corresponding figures for cytology were 72.1% and 91.6%. The efficacy of VIA in reducing incidence of an mortality from cervical cancer and its cost-effectiveness is currently being investigated in two cluster randomized controlled intervention trials in India. One of these studies (n=150000) is a 4-arm trial addressing the comparative efficacy of VIA, cytology and primary screening with HPV DNA testing. This trial will provide valuable information on comparative detection rates of CIN 2-3 lesions[15]. The Tata Memorial Hospital has been involved in the last six years in the search for viable and effective alternate screening methods for the early detection of cervix cancer. A study conducted by the Tata Memorial Hospital on 4000 women at Mumbai has shown that VIA and VILI (Visual Inspection of the Cervix after application of 1% Lugol's Iodine), had a Sensitivity (64 - 75%) that was equal to or better than that of conventional cytology (65%). The Specificity was however poor (83-85%) as compared to conventional cytology (98%). A combination of VIA and VILI yielded a slightly better test with a sensitivity of 78.8%, specificity of 82.1%, PPV – Positive Predictive Value of 8.7% and a NPV – Negative Predictive Value of 99.4%, indicating that the VIA-VILI combination test may be an acceptable simple technological tool for cervix cancer screening in resource poor countries like India [16].

Although it is established that screening by Mammography can substantially reduce mortality from breast cancer, especially in women over the age of 50 years [17], breast cancer screening programs involving imaging techniques are expensive and for this reason cannot be adopted in developing countries as a routine public health measure. Economic constraints of Mammography apart, compared to the west, a relatively large proportion of breast cancers in India occur in younger women (reflecting not only a younger age structure of the Indian population but also the observation of lower risk in post-menopausal women as compared to that in western women). Published studies suggest that mammographic screening may not be as effective in women under the age of 50 [18].

It has been suggested that breast cancer would be best tackled through an early detection programme using clinical breast examination (CBE) performed by trained paramedical personnel such as female health workers [19]. A recently published review of the effectiveness of CBE found indirect support for the effectiveness of this modality of screening. The study emphasized the importance of the technique and quality of the examination. Although screening by clinical examination by itself does not rule out breast cancer, the high specificity of certain abnormal findings greatly increases the probability of breast cancer[20]. It has been argued that screening by CBE can be potentially as effective as screening by Mammography [21]. The only randomized trial which has compared CBE with CBE + Mammography was unable to demonstrate any added benefit of mammography over CBE alone[22]. It has been suggested that given the socio-economic realities of a developing country such as India and the unsuitability of mammography, CBE may be an attractive screening procedure [19].

Tata Memorial Hospital has been involved in a randomized controlled trial (n=150000) which compares the efficacy of health education and Clinical Breast Examination (CBE) provided by trained primary health care workers with just health education provided by the same workers in women aged 30-6- years living in the slums of Mumbai. This study has now entered its 6th year and 3rd round of screening. The study already shows a good compliance-to-screening rate (70%) and down staging is already evident. The principal objectives of the study i.e. demonstration of a reduction in incidence and mortality will however become evident only after another 10-15 years.

There are no international standards of methods or practices for early detection of oral cancers, simply due to the fact that these cancers are mostly found in developing countries, particularly South Asian Countries. Simple oral examination with adequate light is a fairly good screening method for the early detection of pre-cancerous lesions of the oral cavity e.g. leukoplakia, erythroplakia, non-healing ulcers and oral sub-mucous fibrosis. Oral examination followed by indirect/ direct laryngoscopy if needed is the standard procedure followed at Tata Memorial Hospital. Smokers are also routinely investigated for pulmonary lesions by simple x-ray of the chest. However, the only randomized controlled trial to evaluate the efficacy of screening in reducing oral cancer mortality, currently ongoing in Thirvananthapuram, Kerala, has shown after two screening rounds that there is no difference in oral cancer related mortality rates in the study and intervention groups [23].

Although we may have possible methods of screening, we are yet to study the feasibility of their horizontal integration into the existing health care services at the primary care level. Besides, any screening program is a complete waste without adequate treatment backup.

Comprehensive cancer care facilities are far from adequate even at some of the regional cancer centres today. Therefore, a strong investment in prevention services and the provision of opportunistic screening may be the best option for cancer control in India for several years to come.

MODEL CANCER CONTROL PROGRAM

The Tata Memorial Hospital has started a comprehensive cancer control program in the backward Ratnagiri and Sindhudurg districts of Maharashtra. This program proposes to cover the eligible population of these two districts with two rounds of screening for oral, cervix and breast cancers at two-year intervals. Trained primary health care workers will perform screening and the treatment of the screened positive cases will be carried out locally at a NGO Hospital at Chiplun in Ratnagiri, the BKL Walavalkar Hospital. This program, which was started in August 2003, is an 'Xth-plan Project' of the Department of Atomic Energy will be completed by March 2007 and is expected to form a model for district cancer control programs in the country.

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