

**EVOLUTION OF THREE PREMIER CANCER INSTITUTES OF INDIA – TATA
MEMORIAL CENTRE (TMC), CHITTARANJAN NATIONAL CANCER
INSTITUTE (CNCI) AND CANCER INSTITUTE (CIWIA) — AN
ASSESSMENT***

Sukta Das**

Treatment, Research and Preventive efforts of cancer, in spite of severe limitations and constraints, have made remarkable progress in India since independence. But due to lack of a consolidated information source it has not been possible to assess the significance of such efforts and to make them available to the medical community for a critical review of the advances made. An attempt was therefore made in the present study to document chronologically the origin, endeavour and achievements of the three pioneer cancer institutes at Mumbai, Kolkata and Chennai which paved the path for the establishment of many other cancer research and treatment centres as well as the Regional Cancer Centres for development of the National Cancer Control Programme in the country. The study was carried under the following chapters:

- I Introduction
- II Tata Memorial Centre - The Pathfinder
- III Chittaranjan National Cancer Institute - The Pioneer in Eastern India
- IV Cancer Institute (WIA) - The Forerunner in South India
- V Concluding Remarks

The aims and objectives of the study were to focus on the development and progress at the first three cancer institutes of the country since their inception till date and their contribution and impact on the cancer scenario in India. In doing so the historical background of the cancer institutes and their founders were also traced.

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**Pushpa Apartments, Flat 1A, 63A Bright Street, Kolkata 700019. email: suk_tadas@yahoo.com

A critical evaluation of the achievements and drawbacks, if any, of the efforts of Tata Memorial Centre, Mumbai, Chittaranjan National Cancer Institute, Kolkata and Cancer Institute (WIA), Chennai, was undertaken in this study. Their role in initiating the National Cancer Control Programme and establishment of Regional Cancer Centers throughout the country was also evaluated. To date no systematic study to document the evolution and development in this area has been attempted. It is expected that the analysis of past initiatives and their outcome will be useful for providing guidelines to prioritize future research areas and to plan strategies for effective cancer control in India in the 21st century.

The Tata Memorial Centre (TMC), of Mumbai, a comprehensive National Cancer Centre for Prevention, Treatment, Research and Education of cancer, enjoys an international reputation and takes pride in being the pioneer in this field. From a humble beginning in 1941 as a cancer hospital, it gradually started to spread its wings to research activities and preventive efforts. The Cancer Research Institute was established in 1952. Its achievements have been many, through which this centre has reached its current status as one of the largest cancer hospitals of Asia, comparable to any of the best in the world. It has also emerged as an internationally recognized institute for cancer research and education. The spectacular growth and steady evolution has been possible due to the farsighted and total support of the Dorabji Tata Trust, the Atomic Energy Commission responsible for managing this institution since 1962, able leadership at all stages as well as generations of dedicated people serving this institution.

The present day Chittaranjan National Cancer Institute (CNCI) of Kolkata is a premier Regional Cancer Centre for eastern India, committed to Cancer Prevention, Treatment and Research. This is an autonomous institution, registered under West Bengal Societies Registration Act (1961), which emerged out of a merger of the Chittaranjan Cancer Hospital (CCH), a hospital under the Government of West Bengal and Chittaranjan National Cancer Research Centre (CNCRC), a research centre under the Ministry of Health & Family Welfare, Government of India. CNCI is now a comprehensive cancer institute with three major components – the hospital, the research centre and the preventive oncology unit. The institute started with the support of the Deshabandhu Memorial Trust as a cancer hospital in 1950 and its laboratories became engaged in basic researches on cancer from its very inception. The separate research centre was established in 1957. The two institutes had undergone organizational changes over the years and had to endure

difficult periods and lack of proper leadership at many phases. But with sheer resilience it could overcome the troubled times and gain wide acclaim for its quality of treatment and research.

The Cancer Institute (WIA) is an autonomous non-profit charitable organization, registered under the Societies Registration Act of 1860. The institute comprises of a cancer hospital, a research centre, the Dr. Muthulakshmi College of Oncological Sciences and the Centre for Preventive Oncology. The institute is recognized by the Government of India as a Regional Cancer Centre (RCC) for southern India. The mission of the cancer hospital is to treat patients with all types of cancer from all sections of the society. The institute had started with the support of Women's Indian Association (WIA) as a cancer hospital in 1957 with a small central building to house equipments and a number of hut-cottages for the patients. Although it has travelled a long way to attain great height, ironically, it has a past history of struggle and neglect. All the hurdles on its path were crossed by patience, and a missionary zeal. It sustained through the difficult periods from international support and philanthropy and never compromised on the quality of work. In due course the activities of this center were expanded from patient care to clinical researches and preventive oncology and educational programmes.

Post-independent India has seen important breakthroughs in the control of communicable and nutrition related diseases with considerable improvement in general health and life span of its population. But with increased life expectancy and life style changes of average Indians other non-communicable chronic degenerative diseases including cancer emerged and assumed alarming proportions in the health scenario of the country. This resulted in additional burden on the health care system of the country. Fortunately the cancer hospitals were established in time at three major cities of the country to help alleviate suffering for at least a part of the total cancer patients. Apart from this, the three pioneering institutes emphasized the importance of focused attention on cancer and played an important role in furthering intensification and improvement of cancer research and management facilities.

An analysis of the activities of the three cancer institutions in Mumbai, Kolkata and Chennai reveal their pioneering role in the area of cancer treatment, research and preventive efforts in the country. Tata Memorial Centre (TMC) has however marched ahead and expanded spectacularly to be recognized as one of the best cancer centres of the world. From the very inception the Pathology

department of the hospital had been making important contribution towards cancer diagnostics and generating useful data for understanding cancer in India. For example a study on 12000 tissue specimens resulted in the identification of a new type of Squamous Cell Carcinoma of the Skin from this country. Their causal association was also defined. One form of skin cancer peculiar to this country was noted in the waist region of the body of both men and women. This was confirmed to be caused by chronic irritation from tightly wearing sari and dhoti. The type of cancer was described clinically and histopathologically and named as “*Dhoti Cancer*” and published for the first time by Prof. V.R.Khanolkar. A new type of Oral Cancer was also described for the first time which was found to be associated with reverse smoking (burning end placed inside the mouth) of a local type cigar (*Chutta*) from Andhra Pradesh affecting the hard palate to cause cancer at this site. This was reported by the same group as “*Chutta Cancer*” of the oral cavity. Statistical analysis of data from the first ten years of the hospital (1941-50) revealed for the first time the cancer pattern in India which paved the path for the foundation of Cancer Epidemiology and Cancer Registry of India. Prof V.R. Khanolkar was thus recognized as the “Father of Pathology” and Dr. D.D. Jussawala as the “Father of Epidemiology” in India. The Pathology department of TMC also became the Reference Centre for Tumour Diagnosis in the country. They also started the use of Laryngoscope, Bronchoscope, Oesophagescope and Cytoscope for Cancer Diagnostic Cytology and Histopathology. Pathology has progressed from Histopathology to Molecular pathology with emphasis on Predictive assays for identification of high risk prognostic factor. Researches from the Biology Division brought out the role of beetle leaf, beetle nut and tobacco chewing in causing oral cancers. Another important achievement of TMC was the first successful allogenic Bone Marrow Transplantation conducted on a female child (9 year old) from a donor who was the patient’s HLA matched brother (8years) announced in March 20,1983. This extraordinary success opened up a new chapter in the Treatment of Leukaemia in India. The hospital, over time, has acquired the latest technology for diagnostics and treatment like Spiral CT Scanners, Imaging, Mould Room Technology, Bone Marrow Cameras, Ultrasound Microscopes, High Energy Linear Accelerators, Cobalt 60, after loading Brachytherapy, accurate and sophisticated Dosimetry, Treatment planning Simulators. Laser Therapy for photodestruction of tumour cells even in the remotest corner of the body is also practiced.

Chittaranjan Cancer Hospital started as a highly organized comprehensive cancer centre with the first Million Volt X-Ray therapy Unit of Asia commissioned

in 1950. A technique was evolved to approach tumour site with minimal exposure to surrounding tissues with mathematic precision using Million Volt Radiation. The first Telecobalt Unit of India was acquired in 1961. All sophisticated equipments for Radiotherapy is available at this centre including Cobalt and Cesium Therapy Units and Brachytherapy with Treatment Planning Unit. A New Surgical Technique for treatment of Cancer of the Uterine Cervix was developed in 1955 by Dr. S. Mitra, the “Father of Gynaecologic Oncology” in India. The procedure involve Radical Hysterectomy supplemented by extraperitoneal pelvic lymphadenectomy resulting in better outcome of surgical intervention for gynaecological cancers. This method was internationally accepted and practiced as “Mitra’s Operation”. Another important achievement of the cancer hospital in the early years was the development of a Highly Organized Patient Follow-Up System during 1950-60 which was not found elsewhere in the country at that time. This allowed 70% of patients to be under surveillance which helped to maintain the patients in a disease free state for over 5 years. A 5 year survival was taken as a positive treatment outcome in those days. Association of tobacco chewing with beetle nut and lime was identified and confirmed as the major cause of Head & Neck Cancers which was 40% of all cancer cases at the hospital. Preventive approaches were started long before others thought about it in the country which culminated in the establishment of a dedicated Preventive Oncology Division for service and research in this line. The institute is also a pioneer in Anti-carcinogenesis research showing the important role of dietary components, macronutrients and phytochemicals for Cancer Chemoprevention. The laboratories at CNCI continues to explore varied facets of Molecular Carcinogenesis and Anti- carcinogenesis.

Major activities of Cancer Institute, Chennai have always been clinically oriented. Radiotherapy had been and still is in the forefront of this centre. Multidisciplinary research approaches have helped in better understanding of the disease and helped in delivering better management protocols. The first indigenous Therapy Simulator was designed and installed at CI(WIA) in 1965-69. The first Linear Accelerator of India was installed at this hospital in 1976, followed by a second of its kind in 1979. The first study to identify high and low risk type of Human Papilloma Virus (HPV), a major cause of cancer cervix, was conducted at this centre. This institute was also the first to start a Hospital Based Cancer Registry in India as early as 1955. A Population Based Hereditary Cancer Registry, the first of its kind, was initiated in 2002. The techniques of Lymphangiography and Mammography for Diagnosis of Lymphoid and occult Breast Tumours were

introduced here. This is also the only centre in the country to provide Hyperthermia Treatment. Although CI (WIA) claims credit for many firsts in treatment and preventive efforts in India, their progress has been comparatively slow but steady and focused.

Conclusion

It appears from a review of the cancer institutes Tata Memorial Centre (TMC), Mumbai, Chittaranjan National Cancer Institute (CNCI), Kolkata and Cancer Institute (CI WIA) Chennai that all the three progressed and evolved in their own desired direction and speed but with a common goal of treatment, research, prevention and education on cancer. At their inception the cancer hospitals of Bombay and Madras predominantly focused on treatment, the Calcutta hospital had laid emphasis on fundamental researches on cancer, seeking the etiology of cancer that might provide measures for its prevention, along with providing treatment and patient care. Over the years research activities grew in all the three institutes and treatment facilities were upgraded and modernized. Education and training in Oncology as well as preventive efforts also became part of their programmes. Besides their own target activities in different facets of oncology, the cancer institutes contributed in a wider scale by exerting significant influence to impact the governmental policy on cancer control in India.

Researches at TMC, CNCI and CI (WIA) have largely contributed towards a better understanding of the biology of the predominant cancer types in the country. This led to better formulation of guidelines for their detection, diagnosis, prevention and treatment. Translational research is the order of the day which tries to bridge the gap between discovery and delivery.

Besides treatment and research, the importance of community oncology was realized by all the three institutes. Thus preventive efforts received much attention which included mass education and screening for early detection and diagnosis. Once detected early, timely intervention becomes possible which ensures better management and cure.

Treatment of cancer is now available across the country, early detection has ensured better treatment outcome with respect to increase in survival and improvement in quality of life. But due to its high expenses, treatment is still not within the reach of all. It now appears from the experiences of the cancer centres, that prevention of cancer is the only other option and hope for reducing risk and

better control of cancer. In order to address this issue, clinicians and researchers on cancer at the major cancer institutes are trying to implement a well defined programme based on the past, present and future status of cancer keeping in mind the specific type and underlying causes of the disease in this country.

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