HISTORY OF MEDICAL SERVICES AND CANCER TREATMENT FACILITIES

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From the period 3000 B.C. to 800 B.C., the ancient Egyptians mixed medicine and religion. The ancient Egypt treated patients for several forms of cancer. The Hieroglyphic inscriptions and papyri manuscripts distinguish between benign & malignant tumours and revealed that surface tumours were removed surgically. Ointments, enemas, caster oil, suppositories and poultices were commonly dispensed medications.

The earliest description of cancer goes to the seven papyri. Two of them known as Edwin Smith and George Elbere papyri contain description about cancer written about 1600 B.C. and are believed to date from sources as early as 2500 B.C.

The period of 525 B.C. to 848 A.D. saw the decline of Egypt and most work on medical and scientific history shifted to Greece & Rome. The great doctors Hippocrates and Galen lifted medicine out of the realms of magic, superstition and religion. They described disease as a natural process & based the treatment on observation and experience. Cancer was also identified but was believed to be best left alone. These doctors dominated the medical thought for 1500 years.

Surgery was taken up and performed as new procedure by two great physicians i.e. Galen from Rome & Antyllos from Greece. Antyllos became an authority on aneurysms and left precise surgical directions to treat cataracts and fistula of bronchi and intestine as well. Galen on the other hand excised tumours, infected bones, resected ribs, and sternums.

Hospitals also developed in this era and this was an outstanding Arab contribution to medicine. The great hospitals of middle age were at Baghdad, Domascus and Cairo.

The greatest monument to medieval period was founding of medical schools and universities. For 400 years, the school at Salerno

produced notable textbooks on obstetrics, surgery and health maintenance and doctors. With the fall of Constantinople the period of 1517 to 1590 saw the invention of printing press, voyages for discovery to new world, the medivial world ended and the Modern world began. Religious revolts became more obvious as expressed in acts of Martin Luther. Science and surgery advanced as physicians returned to direct observations of the human body.

Ambroise Par'e became the greatest surgeon and surgical writer of the Renaissance. Rejected by the Medical School he was educated by the army on the battlefields and saved thousands of lives by ending the use of burning oil to clean the wounds. He abandoned cautery and taught the use of ligatures in amputations. Pare recommended surgery for cancer only if cancer could be totally removed.

The greatest discovery of this period was Anatomy. The great anatomist was Andreas Vesalius: At 28 he revolutionized anatomy with De Humani Corporis fabrica illustrating bones, muscle, blood vessels, nerves and internal organs. Cancer was widly considered incurable although various pastes containing arsenic were available for malignant lesions.

Syphilis was an epidemic in 16th century Girolamo Fracastaro identified it as an infection by invisible germs and mode of disease transmission. The era of 1609 to 1665 i.e. the 17th century saw the beginning of experimental medicines. Infact the foundations of modern science were laid in 17th century.

Surgery was a risky choice due to lack of anaesthesia and antiseptic conditions. Amputations, mastectomies and removal of enlarged lymph nodes in cancer were seen in this era. Severinus illustrated book on surgical pathology was a landmark in the field.

Abnormalities of lymph were considered as primary cause of cancer as lymph node enlargement were frequently found associated with cancer.

The 17th century's most significant achievement was William Harvey's brilliant proof of continuous circulation of blood in a closed system. The gathering of statistics to improve health i.e. Medical Demography also started in this century.

Oncology entered the age of reason in the years 1733-1788. Nuns, chimney sweeps and snuff takers were the ones to come in lime light. The connection between certain environments and onset of cancer was established.

John Hunter who was well founded in Physiology and Anatomy raised surgery from a technique to a science. His greatest achievement was method of closing off of aneurysm.

The period of 1800-1892 was the one in which the foundation for the present time advances were firmly laid. Significant advances in Science, Medicine, Industry & Technology were established in this period.

Darwin published his theory of evolution, Pasteur invented bacteriology and began fight against infective diseases, Virchow focused on pathology of the cell. Improvement in anaesthesia and antisepsis improved results of surgery. Preventive medicine came into existence. Edward Jenner of England in 1798 mentioned in his paper regarding vaccine against small pox. This paper was rejected by Royal Society so Jenner published it himself and was then supported in various parts of world.

Development of Morbid Anatomy and Pathology text books on organs were published by Giovanni Morgagni and Mathew Baillie. Cancers of breast, stomach, rectum, testis, bladder, pancreas and oesophagus were described in fine details in their work.

First cancer statistics was collected in mid 19th century. Robert Koch developed bacteria cultures, discovering the tuberculosis bacillus, the cholera vibrio and the transmission of plague by fleas.

The era of 1895 to 1929 saw irradiation being used as treatment. Cancer research accelerated as Rontgen described X-rays, Curies isolated radium, and Muller observed abnormalities of cancer cells. The first use of irradiation on humans was inconclusive but experiments on animals soon yielded that X-rays harmed rapidly multiplying cells more than other cells and hence had the capability to selectively damage cancer cells.

Genetic explanation of cancer was put forward in early 20th century by professor of Zoology Theodor Boveri of Germany. A viral

cause of cancer in 1911 was also put forward, physical & chemical carcinogens were conclusively identified. Chromosomal abnormalities were also identified as possible cause of cancer. Prolonged exposure to sun causing skin cancer was also observed.

Cancer statistics were compiled reliably in the years 1930 to 1950 and significant research oriented projects were taken up. National Cancer Institute Act was passed in 1937. This act authorized annual funding on cancer research. The Institute was expected to break new theoretical ground by conducting its own research, promoting research in other Institutions and coordinating cancer related projects and activities.

General improvement in surgery in 20th century was seen due to better control of shock, blood transfusions and antibiotics. Cancer chemotherapy came on horizon after world war-II specifically after 1940. Wide spread use of penicillin and polio vaccine encouraged the research workers to go for anticancer drug research and found the initial results. Techniques to detect cancer in earlier stages also came into picture during this period. Active research on Molecular Biology was seen in the period between 1952 & 1971.

Unlocking of Genetic code was a revolution sounded in 1953 by James Watson & Francis Crick who unveiled their model of DNA structure.

Surgery and Radiotherapy became established methods of 'conventional' cancer treatment. Study on various carcinogens was undertaken in this period

In post 1971 era the newer approaches to control of cancer became the tools of research. Last cell kill did not seem possible by surgery and radiotherapy alone, so, various other approaches like training of immune system against cancer, radiolabel antibodies, blocking pathways of cancer, methods to foil metastasis by using drugs blocking various enzymes are still under progress. Other therapies like photodynamic therapy with laser technique, harnessing immune system are under active research.

Cancer chemotherapy made large strides in seventies and various drugs like Cisplatin, Adriamycin, Cyclophosphamide, Procarbazine,

Mitomycin, and Bleomycin came in common use for cancer therapy. Rather chemotherapy became an integral part of anti cancer therapy along with Radiotherapy and surgery for fight against cancer.

Preventive aspects have again gained prime position in recent past i.e. 1993 to 1997 e.g. educating people on life style factors like nutrition and cancer, regular exercises etc. Screening the susceptible groups with respect to the age, nature of job, family history of cancer controlling environment etc.

By 1996, P53 tumour suppressor genes and the protein it encodes emerged as the most charmed topics of biochemical world. This has been planned to be used as a tool for early diagnosis also.