Rajiv Gandhi Cancer Institute and Research Centre

NewsLetter

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EDITORIAL

AL-ZAHRAWI - A GREAT PHYSICIAN & A SURGEON OF MIDDLE AGES.

(Not to be confused with Al-Qaeda terrorist Ayman al-Zawahiri (1951 - 2022).

Abū al-Qāsim Khalaf ibn al-'Abbās al-Zahrāwī al-Ansari popularly known as al-Zahrawi was a physician, surgeon and chemist from al-Andalus. He is considered one of the greatest surgeons of the Middle Ages. Al-Zahrawi's principal work is the Kitab al-Tasrif, a thirty-volume encyclopedia of medical practices. The surgery chapter of this work was later translated into Latin, attaining popularity and becoming the standard textbook in Europe for the next five hundred years.

Al-Zahrawi was born in the city of Azahara, 8 kilometers northwest of Cordoba, Andalusia (Spain). His birth date is not known for sure, however, scholars agree that it was after 936. He lived most of his life in Cordoba. He studied, taught and practiced medicine and surgery until shortly before his death in about 1013. He devoted his entire life to the advancement of medicine as a whole and surgery in particular.

Al-Zahrawi specialized in curing disease by cauterization. He invented several devices used during surgery. He was also the first to illustrate the various cannulae. Al-Zahrawi also pioneered neurosurgery and neurological diagnosis. He is known to have performed surgical treatments of head injuries, skull fractures, spinal injuries, hydrocephalus, subdural effusions and headache. The first clinical description of an operative procedure for hydrocephalus was given by Al-Zahrawi.

Not always properly credited, modern evaluation of Kitab al-Tasrif manuscript has revealed on early descriptions of some medical procedures that were ascribed to later physicians. For example, Al-Zahrawi's Kitab al-Tasrif described both what would later become known as "Kocher's method" for treating a dislocated shoulder and "Walcher position" in obstetrics. Moreover, the Kitab al-Tasrif described how to ligature blood vessels almost 600 years before Ambroise Paré, and was the first recorded book to explain the hereditary nature of haemophilia. He was also the first to describe a surgical procedure for ligating the temporal artery for migraine, also almost 600 years before Pare recorded that he had ligated his own temporal artery for headache.

The first illustrated surgical guide ever written on Surgery and Instruments was by him. In his book, al-Zahrawi drew diagrams of each tool used in different procedures to clarify how to carry out the steps of each treatment. He said "Before practicing surgery one should gain knowledge of anatomy and the function of organs. If one does not comprehend the anatomy and physiology, one can commit a mistake which will result in the death of the patient. I have seen someone incise into a swelling in the neck thinking it was an abscess, when it was an aneurysm and the patient dying on the spot." In urology, al-Zahrawi wrote about taking stones out of the bladder. By inventing a new instrument, an early form of the lithotrite which he called "Michaab", he was able to crush the stone inside the bladder without the need for a surgical incision. Al-Zahrawi introduced over 200 surgical instruments. which include, among others, different kinds of scalpels, retractors, curettes, pincers, specula. Many of these instruments were never used before by any previous surgeons.

His use of catgut for internal stitching is still practised in modern surgery. The catgut appears to be the only natural substance capable of dissolving and is acceptable by the body. Al-Zahrawi also invented the forceps for extracting a dead fetus, as illustrated in the Kitab al-Tasrif. Al-Zahrawi pioneered the preparation of medicines by sublimation and distillation. He dedicated the 28th chapter of his book to pharmacy and pharmaceutical techniques. Al-Zahrawi also touched upon the subject of cosmetics which he called "Medicine of Beauty" (Adwiyat al-Zinah). He dealt with perfumes, scented aromatics and incense. He also invented a perfumed sticks rolled and pressed in special molds, perhaps the earliest antecedents of present-day lipsticks and solid deodorants.

He wrote of the importance of a positive doctor-patient relationship and wrote affectionately of his students, whom he referred to as "my children". He also emphasized the importance of treating patients irrespective of their social status. He encouraged the close observation of individual cases in order to make the most accurate diagnosis and the best possible treatment.

Dr. A. K. Dewan
Director - Surgical Oncology

RISK ADAPTED THERAPY IN HEMATOLOGY AND HEMATO-ONCOLOGY

There has been a rapid evolution in diagnostics and therapeutic strategies in medicines, specially in Hematological malignancies and more so over past one to two decades to this era of better molecular characterization of cancers and then risk adapted approach to treatment. With advances in diagnostics, we are now able to have a better classification and risk stratification of various hematological malignancies. Similarly, treatment strategies have evolved in such a way that now we treat some good risk patients with less intensified approach to minimize toxicities while maintaining efficacy of the treatment regimes and intensifying the treatment in only those with high risk disease.

Treatment of aggressive lymphomas: Commonest example of aggressive lymphoma is diffuse large B cell lymphoma (DLBCL) and high grade B cell lymphoma (HGBCL). Currently DLBCL is further classified into several subcategories based on its gene expression profile or immune-histochemical patterns which are surrogate to molecular features. These subclasses are germinal centre type (DLBCL-GC) which is considered a good prognostic class compared to other one, the activated B cell (DLBCL-ABC) type which has got a poorer prognosis. Another advance in the management of DLBCL and High grade B cell lymphomas is identification of re-arrangement of cMyc and BCL2/BCL6 genes detectable by Fluorescent in-situ hybridization (FISH) technique. Based on cMyc and BCL2/BCL6 gene rearrangements, DLBCL and high grade B cell lymphoma can be classified into double hit/ triple hit lymphoma (DHL/THL) and non double hit lymphoma. Double hit/ triple hit lymphomas are highly aggressive and are associated with poorer prognosis. Therapy is usually intensified in such patients to achieve better results.

High grade T cell lymphomas (except lymphoblastic lymphoma which is treated with ALL like therapy) are also treated with intensive chemotherapy and Autologous bone marrow/ hematopoietic stem cell transplantation in selected patients with high risk features.

This way, it is very much needed these days to identify high risk features by molecular testing. Intensification of therapy is warranted in selected patients with high risk features to achieve outcomes comparable to good risk patients while less intensified treatment approach is maintained for those with good risk disease to minimize toxicities while maintaining good outcomes.

Treatment of Multiple Myeloma: Multiple myeloma is also called Myeloma. Myeloma was once considered a deadly and incurable disease and was usually treated with cytotoxic chemotherapies. Over past two decades, there has been development of many anti-myeloma drugs with specificity for myeloma cells (malignant plasma cells) and lesser cytotoxicity to normal tissues. These drugs are Proteasome inhibitors like Bortezomib, Carfilzomib and Ixazomib and Immuno-modulators with anti-angiogeneic properties like Thalidomide, Lenalidomide and Pomalidomide most of which are available for Indian patients very easily and at affordable cost. Apart from these two major classes of drugs, now we have certain targeted therapies- immunotherapies like anti CD 38 monoclonal antibody (Daratumumab, Isatuximab), Anti SLAM F7 antibody (Elotuzumab) and anti BCMA antibody (Balantamab).

With availability of more targeted therapies for use in frontline treatment, most parients of Myeloma now achieve deeper remissions. If consolidated with high dose Melphalan-autologous stem cell transplant (HDT-ASCT), more number of patients can lead a near normal life with good quality and longevity as compared to patients treated in previous decades when only cytotoxic conventional chemotherapeutic drugs were available.

For patient who relapse after initial treatment, a different class of drug from above mentioned drugs can be used. For refractory patients, new class of drugs called bi-specific T cell engager antibodies (BiTE) are new wonders which engages T cells at one end and bring those T cells against cancer cells to kill them efficiently. That way BiTEs uses patient's own T cells to kill cancer. Elranatamab and Teclistamab are BiTEs available internationally for use in myeloma. Now a days, we have biological drug or live drug called CAR-T cell therapy where patient's T cells are reprogramed in laboratory to attach on them a CAR (Chimeric Antigen Receptor) against a particular antigen present on surface of cancer cells, to kill chemo-refractory cancer cells. Now a days CAR-T cell therapy is available in India for lymphoid malignancies like B cell ALL, B cell lymphoma, Myeloma etc.

Apart from expansion of this therapeutic armamentarium, there has been progress in understanding of cytogenetic and molecular patterns of myeloma and its prognostic and therapeutic implications. Now a day, FISH technique is widely available to identify cytogenetics aberrations specific to myeloma and we can identify high risk myeloma (for example, those with 17p [p53] deletion, 1q gain and others like t4:14, t14:16) with help of FISH. Taking together the clinical features and cytogenetic abnormalities, we can design treatment in such a way to achieve better results in even those with very high risk myeloma.

Acute leukemias: acute myeloid leukemia (AML) and acute lymphoblastic leukemia (ALL) are most aggressive and deadly of hematological malignancies. Both AML and ALL are heterogenous diseases and varied widely in prognosis depending on cytogenetic and molecular profile. So, there are AML which are classified as good risk or standard risk (examples- AML with t8:21, inv16, normal karyotype with NPM1 mutated without FLT3 mutation or AML with normal karyotype with CEBPA double mutated) while others as high risk AML (examples- AML with complex karyotype or monosomal karyotype, t v:11q, monosomy 7/-7q, monosomy 5/5q-, AML with FLT3-ITD etc). Similarly, prognosis of ALL too depends upon several clinical and cytological factors. There are patients with good risk ALL (example- young age, lower WBC counts at presentation, hyperdiploid karyotype) while others with high risk ALL (example- advancing age, higher WBC counts at initial presentation, cytogenetic/ molecular features like t9:22/ BCR-ABL or t4:11/AF4:MLL). Patients with high risk leukemias not only show resistance to chemotherapy but also have a higher probability of relapse early in the course. Patients with good/ standard risk leukemias are usually treated with chemotherapy alone while patients with higher risk leukemias are usually offered chemotherapy to achieve initial disease control and then Allogeneic bone marrow transplantation as a consolidative therapy to minimize risk of relapse. We can use targeted drugs along with chemotherapies in patients having specific molecular aberration. For example, patient of ALL with BCR-ABL fusion are high risk and are treated with chemotherapy along with targeted drug (Imatinib/ Dasatinib which targets BCR-ABL gene) and this way achieve deeper remissions and better outcome. Similarly, FLT3 mutation (FLT3 ITD) confer chemo resistance in AML and nowadays is treated with targeted drug (Midostaurin/ Sorafenib) along with chemotherapy to achieve better outcome.

Bone marrow/ hematopoietic stem cell transplantation (BMT): A BMT is recommended for patients having bone marrow failure syndrome or with high risk hematological malignancies at high risk of relapse. There have been immense progresses in field of BMT over past decades. Several notable advances are matched unrelated donor transplants, haplo-identical transplants, non-myeloablative and reduced intensity transplants. This way, most of patients in need of a BMT can be taken including those with advancing age or those not having a suitable HLA matched stem cell donor in family

So in nutshell, we have come a long way to this era where we have sophisticated methods to dissect cytogenetic and molecular details of hematological malignancies, plan therapy as per risk stratification and use targeted therapies and bone marrow transplantation to get optimal outcome.

Dr. Narendra Agrawal
Unit Head & Sr. Consultant,
Hemato-Oncology, Leukemia and BMT Unit

CME – IMA ROHTAK, HARYANA

RGCIRC organized a CME program in association with Indian Medical Association (IMA), Rohtak, Haryana on Saturday, 02nd September 2023 at IMA House, Azad Garh, Rajendra Nagar, Rohtak, Haryana. Dr. L. M. Darlong, Sr. Consultant & Chief of Thoracic Oncosurgery delivered a lecture on **Lung Cancer & It's Surgical Management** and Dr. Pankaj Goyal, Consultant – Medical Oncology spoke on **Recent Updates in Breast Cancer Management.**

WORLD PHYSIOTHERAPY DAY CELEBRATION: WARRIORS MEET: BREAKING THE BARRIERS OF LIMITATIONS

Department of Physiotherapy & Onco Rehabilitation celebrated World Physiotherapy Day on 8th September 2023 at Indraprastha Hall, RGCIRC, Rohini, Delhi by organizing **Warriors MEET - Breaking the Barriers of Limitations** to raise awareness about the importance of Physical activity among cancer survivors.

The event started by Lamp Lighting ceremony followed by an inaugural speech by Mr. D. S. Negi (CEO), Opening remarks by Dr. D. C. Doval (Chair - Medical Oncology & Chief of Breast & Thoracic Services) and welcome note by Dr. Pinky Yadav (Director Operations and Medical Superintendent). There was a Patient Information Booklet launch by senior dignitaries followed by panel discussion on **how to break the barriers of limitations in context to physical activity.** An interactive health talk on **Ergonomics & Fitness Activity Session** was also conducted by Dr. Navneet Singh (Head Physiotherapist). Some of the survivors shared their experiences and thus breaking the barriers by motivating other survivors. Fun activities, work-out challenges and quiz were also organized.

Later on, the program ended by giving vote of thanks and the event was well appreciated.

CME – INDIAN MEDICAL ASSOCIATION (IMA), BULANDSHAHR, UP

CME program organized by RGCIRC in association with Indian Medical Association (IMA), Bulandshahr, UP on Friday, 15th September 2023 at Alka Motel, Than Singh Nagar, Pallav Vihar, Bulandshahr, UP. Dr. Kundan Singh Chufal, Sr. Consultant & Unit Head – Radiation Oncology delivered a lecture on **Recent Advances in Radiation Oncology: from Cure to Quality Life** and Dr. Kapil Goyal, Consultant – Medical Oncology, RGCIRC, Niti Bagh spoke on **Basics of Breast Cancer for Physicians.**

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CME – ALLAHABAD MEDICAL ASSOCIATION (AMA), ALLAHABAD, UP

CME program organized by RGCIRC in association with Allahabad Medical Association (AMA), Allahabad, UP on Sunday, 17th September 2023 at Allahabad Medical Association, Stanley Road, Prayagraj, UP. Dr. Sumit Goyal, Associate Director - Medical Oncology delivered a lecture on **Approach to a Patient with Suspected Cancer** and Dr. Amitabh Singh, Consultant – Uro Oncology spoke on **Robotic Surgery in Uro Oncology.**

ACADEMIC LECTURE SERIES OF RGCIRC

RGCIRC organized an academic lecture on Monday, 18th September 2023 at Indraprastha Hall, RGCIRC, Rohini, Delhi. Dr. Vanessa Fuchs, Founder & Head, Clinical Nutrition Department, Associate Professor, Oncology Department, Hospital General De Mexico delivered a lecture on **Building Resilience – Global Approach to Prehabilitation.** The lecture was attended by more than 100 staff members of RGCIRC including Directors, Sr. Consultants, Consultants, Attending Consultants, Resident Doctors etc.

To:

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