

The Navarra University Clinic: Integrated Cancer Treatment Without Comparison

At the Navarra University Clinic in Pamplona, Spain, it is obvious that the patient is given absolute priority. Personal care and special attention, as well as the integration of leading technology – all of the hospital’s daily activities are designed to benefit the patients and their families.

By Maria Pilar Huarte Tirapu

The ancient northern Spanish town of Pamplona, which is famous for its associations with Ernest Hemingway and the annual running of the bulls, is also home of the University Clinic of Navarra, a hospital center established in 1961 with a distinct university character. In that spirit, it maintains a close collaboration with the Schools of Medicine, Pharmacology and Science, the University School of Nursing, the Center of Applied Medical Research (CIMA) of the University of Navarra, and the Center of Applied Pharmacology (CIFA).

The clinic’s approach to medicine cannot be fully assessed without mentioning its role

in the development of innovative research methods in oncology, neuroscience, gene therapy, and cardiovascular physiopathology, as well as its highly specialized physicians and the multidisciplinary approach of its staff. With the aim of optimizing laboratory results, the clinic participates in exchange programs and scientific collaborations with hospitals and universities in several countries, such as the Cleveland Clinic Foundation (United States), the Karolinska Institute of Stockholm (Sweden), and the Central University Hospital of Rangueil in Toulouse (France). The goal of this teamwork is to establish research projects, produce joint publications for scientific



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magazines, organize meetings, and provide professional exchanges for residents and other medical professionals.

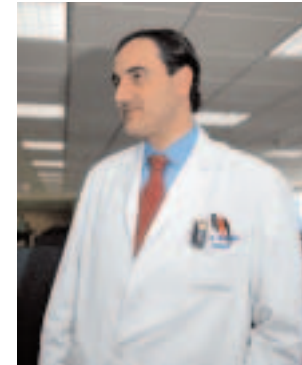
Twenty-five Years of Partnership

The idea of clinical optimization is closely related to the relationship the clinic has maintained with Siemens for the past 25 years. "The motive is clear. We share a common goal: the patient should be at the center of all our activity. This translates into maintaining an innovative viewpoint as well as offering the latest technical equipment that Siemens has:

CT and its high-resolution magnetic imaging, PET, PET/CT, which requires the combined efforts of multidisciplinary teams of doctors," explains Dr. Jesús García Foncillas, director of the clinic's oncology and radiotherapy department. The combination of these elements, along with a new ONCOR Impression Linear Accelerator and COHERENCE Workspaces, has a direct influence on workflow optimization. Additionally, it ensures the essentials of individualized, quality attention. Together, the partners' goal is to increase the hospital's efficiency in the treatment of the patient. Siemens not only shares but also encourages

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Jesús García Foncillas, M.D.,
The University Clinic of Navarra,
Pamplona, Spain



THE TEAM OF THE NAVARRA UNIVERSITY CLINIC: Head of Radiology Dámaso Aquerreta, M.D.; Head of Nuclear Medicine José Ángel Richter, M.D.; Head of Pneumology Javier Zulueta, M.D.; Head of Oncology Jesús García Foncillas, M.D.; Head of Radiotherapy Rafael Martínez-Monge, M.D.

this kind of approach. As Erich Reinhardt, Ph.D., president of Siemens Medical Solutions, explained recently at the University Clinic, "One of the issues that today's health system faces is that the population is growing, and there is an increasing demand for health services that result in increasing costs. The question we must ask ourselves is how to stabilize the health system. One attempt is to reduce the cost and maintain the quality of service."

Fewer Side Effects for the Patient

Achieving this goal not only involves the development of new biomedical techniques, but also the improvement of treatment workflows. "The attempt to optimize all processes, from early diagnosis to rehabilitation, will result in a faster, more effective, efficient approach, with fewer side effects for the patient. In order to implement this idea, it is necessary to understand the health system from a global point of view and involve all players in the healthcare field," says Reinhardt. In collaboration with various hospitals around the globe, Siemens has implemented more than 160 programs, including those at the University Clinic of Navarra. With these programs Siemens demonstrates that quality improvement and cost reduction of healthcare are possible at the same time.

Oncology at the University Clinic of Navarra is one of the areas that has received inter-



DR. MARÍA JOSÉ GARCÍA VELLOSO (left) and an experienced resident immersed in thorough expert discussion examining an abdominal PET/CT scanning at the nuclear medicine department.

national prestige and recognition. Cancer patients who come to the University Clinic find that they are cared for by a multidisciplinary team during every stage of their illness, from the earliest possible point of diagnosis to the more advanced phases of the cancer progression. "Our goal is to offer complete attention to the patient as an individual, concentrating as much on the psychological aspect as on the medical aspect," emphasizes García Foncillas. "And in that respect, we are fortunate to have a palliative medicine and symptom control unit, which works very closely with the clinical team throughout the entire course of the patient's illness."

Multidisciplinary Consultation

This department is completely integrated into both medical and radiation oncology services. "The collaboration is not structured by hierarchy but rather by the common goals that all team members share. Therefore oncologists from different teams have a similar focus on the cancer patient," says Dr. Rafael Martínez-Monge, M.D., Director of Radiotherapy at the University Clinic. "We may differ on the ultimate method of treatment, but we all speak the same language, which in the end benefits the patient."

All patients first receive a comprehensive oncology evaluation and are examined to determine the most appropriate form of radiation therapy in each case. "We offer a multidisciplinary consultation where the patient is treated by medical oncology, radiation oncology, and surgical cancer specialists," adds Martínez-Monge.

The structure of this hospital center, based on the close collaboration of its departments and services, allows early diagnoses that identify treatments more effectively. Furthermore, according to García Foncillas, "The philosophy of our team is that it should be feasible to provide a precise diagnosis in two or three days. Thanks to these efforts, patients develop great confidence in and loyalty to the clinic. They can count on professionals who explain the subject matter to them understandably and this lays down the foundation for a close



Professor Jesús García Foncillas, M.D.

After earning his medical degree from the University of Zaragoza (Spain), Dr. Jesús García Foncillas completed his residency in medical oncology and his doctorate at the University Clinic of Navarra. Further training at the Karolinska Institute of Stockholm, at MIT in Boston, the cytometry unit at the University of Nebraska in Lincoln, and the MD Anderson Cancer Center in Houston followed.

During his professional career, he has directed the oncology laboratory and currently coordinates the biotechnology laboratory at the University Clinic and heads the pharmacogenomic cancer laboratory at CIMA at the University of Navarra. He is also a professor of oncology at the university's medical school and in the biotechnology master's program at the Superior Council of Scientific Research, as well as an academic fellow of the Royal Academy of Medicine in Zaragoza. In addition, he is an honorary member of the Mexican Society of Oncology and the Federation of the Oncology Society of Latin America.



THE ONCOR IMPRESSION PLUS LINEAR ACCELERATOR is the latest technological investment at the oncology department (above). A patient is scanned with a biograph 2 PET/CT system (below).

and natural relationship.” Most likely, a patient undergoing an oncology consultation will not even be aware of this, but behind this meticulous medical and nursing attention lies a close collaboration between clinical research teams. “What has allowed us to develop a high-quality research lab is the collaboration with the oncology unit at CIMA (Centro de Investigación Médica Aplicada) that Dr. Luis Montuenga directs,” says García Foncillas. “At a time when oncology tends to choose treatments based on specific molecular targets, the University Clinic finds itself in the privileged position of developing the latest platforms in genetic analysis and proteomic tumors, kinetic models, and pharmacodynamics. The progress in Phase 1 and 2 studies contributes to the development of clinical research and results in an individualized approach for each patient.”

Promising Research Projects

One of the most promising projects in the University Clinic focuses on the study of lung cancer, where the clinic and the oncology unit of CIMA are participating in the international research project, ELCAP (Early Lung Cancer Action Program). Its goal is to find early evidence of this type of cancer by combining the best imaging techniques. Oncologists, pneumologists, radiologists, and pathologists all work together in this study. “One of our other research projects measures genetic alterations and the patient’s pharmacogenetics, which gives us sufficient information so that we can adapt and prepare the appropriate therapeutic interventions for each patient,” reports García Foncillas.

Research protocols for the use of hormone and cellular therapy in breast cancer, biochemical therapy in melanoma and sarcoma, immunotherapy in genitourinary cancer, and an innovative program for removal of cerebral, lung, and liver metastases are some of the department’s most relevant topics. “Likewise, it has been more than a year since we started basic treatment with radioactive implants in situations where previous treatments for hepatic metastases have been resistant,” says García Foncillas.

The oncology department at the University Clinic of Navarra is characterized by its advanced and specialized oncology technology. As such, it provides the most advanced conventional and sophisticated radiation therapy treatment techniques available. Continuing this tradition, the department recently incorporated the latest generation of the ONCOR Linear Accelerators from Siemens. Navarra is the first clinic in Spain to install this advanced radiotherapy technology incorporating 3D Multileaf and micromultileaf collimators, to provide Intensity Modulated Radiation Therapy (IMRT) treatments. Says García Foncillas: "The Multileaf Collimators provide accurate and efficient intensity modulated radiation therapy (IMRT) capabilities that allow smaller doses to be delivered to the tumor during each treatment, sparing most of the healthy tissue. It results in efficient treatment with maximum safety for the patient."

Erich Reinhardt agrees: "This linear accelerator incorporates the latest generation technology. Optimizing technology to better serve the patient is a main pillar of our strategy." *syngo*, the uniform comprehensive software solution for medical systems forms the basis of the radiotherapy clinic's COHERENCE oncology workspaces, and simplifies and facilitates the workflow in the University Clinic's oncology department. It also acts as an enabler for advanced administrative workflow, from patient registration to billing.

Quality-Oriented Approach

Oncology treatment does not guarantee efficacy if it is not incorporated into a comprehensive approach and is not accompanied by precise monitoring of the patient. In 1995, the clinic introduced one of the first radiotherapy planning devices in Spain. Since then, more than 90 percent of the patients treated have first been examined by CT, MRI, and PET, and those images have been used as the basis of the treatment planning process. "The connectivity of the Siemens equipment is vital to the development of a quality-oriented approach, which impacts workflow optimization," ensures Martínez-Monge.



DIAGNOSIS OF IMAGES from the gamma camera at the nuclear medicine department; José Ángel Richter, Dámaso Aquerreta, and Javier Zulueta discuss the appropriate therapy; therapy planning at the dosimetry area of the radiotherapy department; Rafael Martínez-Monge and Jesús García Foncillas immerse in expert talk (clockwise from upper left).

It's clear that imaging techniques play a fundamental role in oncology treatment. "Through collaborations with the University of California Los Angeles (UCLA) and Stanford University, we have developed a pioneering trial in Phase 1 where we show that PET allows us to evaluate the genetic disposition and its quantification in patients with liver cancer in a noninvasive way. From previous experience, we think that this has the potential to develop into a routine application," predicts Dr. José Ángel Richter, Director of Nuclear Medicine.

Medical specialization, innovative technology, and integrated research methods – the hospital's building blocks would not be nearly as strong had they not been linked to the guiding principle of the University Clinic: a total focus on patients and their families.

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