Josep Tabernero – Director, Vall d’Hebron Institute of Oncology (VHIO)

Challenges translate into opportunity for action which can in turn increase efficiency

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The Vall d’Hebron Institute of Oncology (VHIO) is a Barcelona-based institute dedicated to delivering on the promise of precision medicine in oncology – turning cancer discovery into more effective treatments and better practice for the care of patients

. Its director, Dr Josep Tabernero, talks about VHIO’s four main lines of activity (preclinical, translational and clinical research and core technologies), the high demand for oncology trials in Spain, and how COVID-19 is changing the way institutes conduct clinical research. He also discusses new possibilities provided by personalized treatments, cancer vaccines, and research.

What was the impact of COVID-19 on operations at VHIO?

In 2021, VHIO adapted to the pandemic and our Vall d’Hebron University Hospital (HUVH) was rapidly reorganized to provide the necessary care for COVID patients in conventional wards and intensive care units without disrupting diagnostic and therapeutic procedures for other diseases.

In Catalonia in 2020, there were 12 percent less cancer diagnoses compared to the previous year. However, 2021 recovered the number of diagnoses with 14 percent more patients diagnosed compared to 2019, prior to the pandemic. Very similar statistics were observed in cardiovascular as well as neurological diseases.

Our hospital’s activity in clinical trials remained strong in 2020 and maintained the same number of patients. In 2021, the number of patients in clinical trials increased by 15 percent, reflecting the high demand for clinical procedures and clinical research.

The number of VHIO programs funded by both the European Union and Spanish agencies such as the Spanish Association Against Cancer (AECC) also increased.

At Vall d’Hebron clinical research and funded projects were possible throughout the pandemic by introducing special measures including the installation of necessary technological equipment and reorganizing our faculty to either work remotely or at VHIO. At HUVH, we swiftly adapted by conducting home clinical monitoring for patients and clinical trials.

In which ways has the pandemic changed the way that the institute approaches research?

Challenges translate into opportunity for action which can in turn increase efficiency. For example, the pandemic raised questions about certain business practices such as face-to-face meetings that can take place online. Additionally, the virtual monitoring of patients in clinical trials quickly emerged as a solution to certain problems posed by the pandemic.

We discussed this change with the Spanish Agency of Medicines and Medical Products (AEMPS) to continue conducting clinical research. Initially reluctant, the agency changed their view and helped to discuss this at the EU level with many pharmaceutical companies also supportive of this move. In view of the increased efficiency brought about by such measures, these changes are likely to remain in the industry.

Additionally, the mix between working at home and in the office has improved the work-life balance for individuals, demonstrating another positive change provided by these shifts in operational procedures.

Last time we spoke, you mentioned the fact that cancer mortality is decreasing, but prevalence was increasing. Has this situation changed?

Unfortunately, this has not changed, and Europe remains in the same situation. There is a clear agenda for stakeholders to reduce the number of cancer cases. Up to 40 percent of the research funded by the European Union will be dedicated to early diagnosis and prevention.

Approximately 40 percent of cancers are preventable, however, around 60 percent of cancers are not. For those unpreventable cancers, the aim is to diagnose these cases as early as possible in the evolution of the disease and use medical models such as precision medicine to treat these patients.

Can you explain how new technologies are changing the healthcare environment?

This has changed rapidly over the last four years. In the field of immunotherapy, there are clinical trials evaluating tumor immunity. These studies seek to train the immune system to combat those tumors. Clinical trials are also adopting new technology such as mRNA used in COVID-19 vaccines. This demonstrates that knowledge can be applied across different areas of resistance.

In the field of personalized medicine and genomic analysis, in Catalonia we are pioneering a publicly funded program that provides access to NGS for all cancer patients when needed.

Furthermore, this work is in dynamic progress, beginning with tumors that more frequently require NGS testing such as lung cancer, colorectal cancer, melanoma, and breast cancer. Additionally, we have created a network to perform NGS in selected centers for solid tumors, hereditary cancer, and pediatric tumors. Moreover, other regions in Spain are also introducing this program and we at VHIO hope that this will be universal for all Spanish patients in a year’s time.

How hopeful should the public and the industry be about cancer vaccines?

We should be hopeful. At VHIO we believe that there is still greater potential for vaccines and cancer prevention; those vaccines targeting viruses that are known to lead to cancer. Several studies are currently investigating vaccines to be administered to people at risk.

For example, for people who have a genetic disorder such as Lynch syndrome, to try to prevent the evolution of melanomas and carcinomas. Additionally, there may be methods to prevent disease in patients at risk due to exposure to environmental factors such as sun exposure.

The Health Hospital Clinic of Barcelona has recently been developing a cell and gene CAR-T therapy for multiple myeloma with a 75 percent annual survival rate. What can you tell us about that?

Researchers at the Hospital Clinic of Barcelona have been pioneering the field of academic CAR-T in Spain and VHIO investigators also collaborate with these teams. The next step will be to develop this approach for patients with solid tumors, particularly those that have specific proteins in the cell membrane that facilitate the development of CAR-T cells.

From an academic perspective, we have a great innovative capacity. Our hospital has been focusing on CAR-T cells and advanced cell therapy, like TILs, and VHIO has launched the first study approved by the Spanish Agency of Medicines and Medical Products (AEMPS) that will be conducted in the academic environment for a selected number of patients.

How did COVID-19 change the way your institution performs or thinks about clinical trials?

The changes were mainly operational such as reducing the division between clinical care and clinical research. Over the past four years, there has been an increase in the number of clinical trials, patients participating in them, as well as clinical trials related to innovation, with a rise in phase one and phase two studies.

The AEMPS and health systems have supported this, since advances in clinical care are driven by research.

VHIO has increased innovation in phase one trials and is moving forward in the field of advanced cell therapies and the operational aspects of trials. For example, we shifted to virtual consent forms for the clinical and molecular screening of patients.

Are the time-shortening trials used for the COVID vaccines a dynamic that should be trusted and remain?

At the beginning, this change was thought to be temporary, however, regulatory approval is increasingly being accelerated. There will likely be an increase in clinical trials that confirm the initial data or real-world evidence. At the European level, the authorities will consider more conditional approvals provided that more data is being evaluated.

We have to accelerate the availability and accessibility of innovation as much as possible, while also ensuring that the right decisions are being made.

How are you trying to attract clinical trials to your institution?

VHIO partners with academic institutions across Europe and internationally. As examples, we collaborate with the Princess Margaret Cancer Centre (Toronto, Canada) as well as with many pharmaceutical and biotech companies that allows us to participate in the drug development pipeline by conducting preclinical and clinical research. At the diagnostic level, VHIO works with other companies and will become the second center in the world with access to Guardant Health's technology, the first being MD Anderson Cancer Center in the United States.

We will therefore have cutting-edge technologies in the field of liquid biopsy which will enable us to co-partner in the development of new approaches. We aim to increase collaborations in different areas.

What are the differences between the research models in the United States and those in Europe?

Globally speaking, the absolute numbers in different metrics are superior in the United States. However, in Europe, healthcare is more integrated in our institutions with stronger networks in European countries compared with the US. The number of patients included in clinical trials in Europe is thus proportionally greater.

What does it mean to be independent for a cancer research institution?

Independent means that it is possible to develop research areas that are suited to the environment or that adopt a competitive approach. The ability to accomplish this depends on the sources of funding. VHIO's mission is to have 40 percent of its clinical trials academic. Currently, it is around 20 percent, and this number needs to increase to include areas underdeveloped by private companies that are important for the population.

Additionally, in the field of translational clinical research, funding needs to be secured from public sources as well as private sector stakeholders such as pharmaceutical and biotechnology companies, which reduces the ability to be independent.

What should the industry expect from the new economic recovery funds that will come from the EU and how will it be used?

The focus will continue to shift to research addressing major social problems. This not only relates to health and cancer but also includes the environment, cities, and water. The EU funding has begun to move in this direction which will also vary at the country level depending on different priority areas.

If you were able to choose one project that received funding, what would it be?

Personally, my work is mostly focused on therapeutics and diagnostics so I will always lean towards those kinds of projects! However, there should be more projects aimed at the prevention of all kinds of diseases.

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