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Research opens up new horizons to the design of customized medicines against breast cancer

This release is available in Spanish.

A research work carried out at the University of Granada (Spain), in collaboration with the Hospital Complex of Jaén (Services of Medical Oncology, Radiology and Pathological Anatomy), has opened up new horizons to the design of customized medicines against breast cancer, from the genetic study of cancer cells. The scientists have also concluded that the study of the gene expression profile involves a promising strategy to individualize and improve tumour treatment, reducing toxicity and increasing its efficiency.

This research work has been carried out by **Laura Vera Ramírez** in the department of Legal Medicine, Toxicology and Psychiatry, and supervised by Professors **José Antonio Lorente Acosta**, **José Luis Quiles Morales** and **Pedro Sánchez Rovira**. In order to carry out this work, the researchers worked with 90 patients with breast cancer who were being diagnosed and treated in the Hospital Complex of Jaén.

This way, through the analysis of patients' genes, the UGR researchers have studied the changes that chemotherapy provokes in patients at a genetic level. The clinical interest of this work is that "allows us to study the response molecular mechanisms to medicines and to design from them other pharmacological medicines according to the genetic features of the patient".

Attacking weak points

According to the experts, the study of such mechanisms "offers information about the weak points of the cells affected by cancer and allows us to attack them directly". At present, almost half of the patients of breast cancer "are over-treated with chemotherapy", and in the opinion of the authors of this work "it is necessary to identify possible therapeutic goals will permit patients to show a better response to alternative treatments".

Besides a genetic approach of patients, the scientists of the UGR have carried out a biochemical approach, studying patients' oxidative stress before and after being subjected to chemotherapy. "Finally –they explain-, we have carried out a nutritional and anthropometrical study of the patients to observe the influence of chemotherapy on nutrition".

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