

Title of Project: Differential gene expression in chemotherapy-induced neuropathy.

Study Group: (1) Department of Biochemistry and Molecular Biology, University of La Laguna, and (2) Service of Medical Oncology; University Hospital N S de Candelaria; Santa Cruz de Tenerife; Canary Islands, Spain

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Status (July, 2012): 14 patients analysed (before and after chemotherapy); recruiting more patients.

Study Goals: Identification of genes and signalling pathways involved in chemotherapy-induced neuropathy.

Abbreviated description: We analyze the variation in gene expression in peripheral blood leukocytes from patients undergoing FOLFOX- or capecitabine/oxaliplatin chemotherapy, which has been proven to be neurotoxic. Our group has previously published altered gene expression in patients receiving paclitaxel/carboplatin- and doxorubicine/ciclophosphamide (AC)- chemotherapy.

Leukocytes are isolated from patients before and after 4 cycles, using a Ficoll-Hypaque gradient. A cDNA suppression subtractive hybridization library (SSH) is constructed hybridizing cDNA obtained from leukocytes in both situations, prior- and post-treatment. Differential non-subtracted genes are screened and identified. Quantitative RT-PCR is used to quantify variations of these genes in a population of patients.

All patients receive a questionnaire for assessing the neuropathy. After the identification of genes that change their expression after chemotherapy, a correlation with altered gene expression and the development of neuropathy will be searched, along with the responsibilities of these genes in pathways potentially involved in the process.

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