

CORRELATION OF NUMBER OF CIRCULATING TUMOR CELLS, CHEMOTHERAPY AND CLINICAL DEVELOPMENT IN BREAST CANCER PATIENTS

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Background

According to studies that refer to breast cancer, this type of cancer is the most common type in women. In a previous study of ours it was proven that there is no clear correlation between the number of circulating tumor cells and the following clinical development of the patient after re-evaluation. The purpose of this study is to define whether the chemotherapy plays a role to the clinical development that follows chemotherapy in breast cancer patients.

Materials and methods

Non hematologic origin cells were isolated from the blood of 7 patients with breast cancer of several stages. Following, from these cells CD227 positive cells were isolated and cultured for one week. The cells that survived the one week cultivation are the circulating tumor cells (CTCs). Simultaneously the blood of patients was analyzed by flow cytometry, by using specific markers for identification of CTCs. Three months after the analysis of CTCs, re-evaluation and clinical development assessment was performed.

Results

From the 7 patients that were evaluated only 4 had a follow up history that could be used for the comparison of number of circulating tumor cells pre and post chemotherapy. The results showed that the chemotherapy that was used may explain the following clinical development of a patient with breast cancer according to Table 2.

Conclusion

Circulating tumor cells are very attractive to researchers. This study made an effort to define the clinical development that follows chemotherapy in breast cancer patients. In conclusion, more patients should be tested in order to export reliable results.

Patient	Stage	Current CTCs (follow up)		after follow up	
Patient 9	IIA	6/7/2011	4,4cells/7,5ml	14/11/2011	4,2cells/7,5ml
Patient 16	IV	2/6/2011	6,6cell/7,5 ml	27/12/2011	4.7cells/7.5ml
Patient 18	I	28/7/2011	7,8cells/7,5ml	17/10/2011	7,7cells/7,5ml
Patient 21	IV	26/7/2011	7,4cells/7,5ml	15/12/2011	5,8cells/7,5ml

Table 1. Number of CTCs pre and post chemotherapy in breast cancer patients.

	Verapamil	Ketoconazole	Disulphiram	Capecitabine	Docetaxel	Gemcitabine	Epirubicin	Pemetrexed	Topotecan	Vinorelbine	Anastrozole	Anti-estrogen	Cetuximab	Bortezomib	Bevasizumab	CTCs	Fold Decrease	Clinical evaluation
Patient 9	+	+		+	+	+	+						+	+	+	↓	-4,55%	progress of disease
Patient 16	+	+							+	+		+	+	+	+	↓	-28,79%	Partial response
Patient 18	+		+		+	+	+	+		+			+	+	+	↓	-1,28%	Complete response
Patient 21	+	+				+			+	+	+		+	+	+	↓	-21,62%	Partial response

Table 2. Chemotherapy, clinical development and fold decrease of CTCs in 4 patients with breast cancer.

References

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