

# CAN CANCER STEM CELL - LIKE CELLS DETERMINE A THERAPEUTIC MODEL IN BREAST CANCER PATIENTS WHEN ANY OTHER RECOMMENDED THERAPY FAILED IN THIS GROUP? CONSIDERATIONS AND SINGLE CASES.



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## INTRODUCTION

Besides the prognostic value of circulating tumor cells, recently the scientific community has begun to explore their potentials and the potentials of their sub-population with stem cell - like phenotype (Cancer stem cell like cells - CSCs). In this study, 83 cases of hormone-dependent breast cancer on estrogen receptors (at primary diagnosis) were included. Patients had previously exhausted all of the appropriate lines of adjuvant therapy and had their treatments now based on data obtained from circulating tumors cells and also CSCs ' tests.

## MATERIALS AND METHODS

For the present study, blood sample was collected from patients who suffered from breast cancer. The cells of interest were sorted with negative selection by using the flow cytometric – based method. Then the isolated cells were cultured, maintaining a stable genotype (STR stable). Part of the cultured cells was used for gene expression analysis with micro-arrays. Then, the information from the gene expression, which was related to response to the appropriate cytotoxic agent or biological modifier (TKIs, MoAbs, etc), was confirmed or rejected after exposure of cells in these substances (in their active form). This information was given to clinical therapists and oncologists, who designed therapeutic approaches by means of this information (Figure 1). Patients were then evaluated after the completion of therapy according to RECIST imaging criteria.

## CONCLUSION

Although patients had no other proper empirical therapeutic approach, molecular tests of circulating tumor cells and CSCs mainly, were able to provide information that led to clinical response. However, more detailed approaches should be performed on the same basis in order parameters like OS, TTR, DFS to be determined.

## RESULTS

In the cases studied, the response occurred in rates, shown in Figure 2. Complete response was observed in 6 cases, while partial response in 39. Stable disease was observed in 11 cases while 27 had progress of disease. At the same time, from the data, different epigenetic repeated associations with prognostic or therapeutic potential value o.



Figure 1. In these diagrams the results of the methodologies and the tests that were conducted in circulating tumor cells with double platform pattern (sample from one case) are shown.

Complete Response (CR): 6 (7%)  
 Partial Response (PR): 39 (47%)  
 Stable Disease (SD): 11 (13,2%)  
 Progress of Disease (PD): 27 (32,8%)

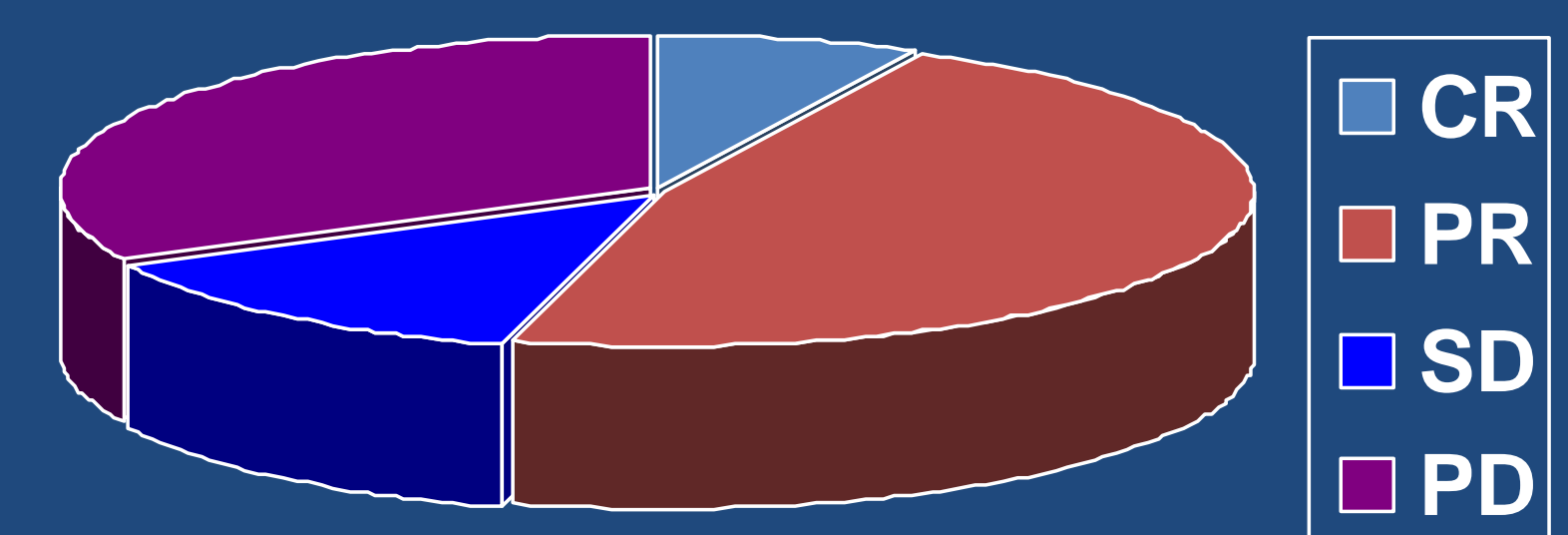


Figure 2. In this diagram the response distribution after evaluation of patients clinically based on the RECIST criteria (RECIST guidelines) is shown.

### References

- Piegra Jean-Yves et al., Circulating Tumor Cell Detection Predicts Early Metastatic Relapse After Neoadjuvant Chemotherapy in Large Operable and Locally Advanced Breast Cancer in a Phase II Randomized Trial, Clinical cancer Research, 2008.
- Christofallini, M., et al., Circulating Tumor Cells, Disease Progression and Survival in Metastatic Breast Cancer, New Eng J Med 2004. 351:8, p. 781.