LMU KLINIKUM DER UNIVERSITÄT MÜNCHEN

Department of Gynecology and Obstetrics

Hospital of Ludwig-Maximilians-University Munich • Campus Innenstadt

SUCCESS SUCCESS^B SUCCESS^C study group

Evaluation of CA27.29 as prognostic marker in primary breast cancer patients - Results of the German SUCCESS trial

Background

While tumor markers are frequently used for the evaluation of treatment efficacy in metastatic breast cancer, the role of Muc-1 markers in primary disease and during recurrence-free follow-up is still under discussion. In the German multicenter SUCCESS trial we evaluated CA27.29 in 3754 patients before and after adjuvant chemotherapy and 2 and 5 years after primary diagnosis.

Methods

The SUCCESS Trial compares FEC-Docetaxel (Doc) vs. FEC-Doc -Gemcitabine (Doc-G) regime and two vs. five year treatment with Zoledronat in patients with primary breast cancer (N+ or high risk N-).

A competitive immunoassay is used for the detection of CA 27.29, a specific part of the MUC1 coded glycoprotein. The labeled antibody binds to an 8-amino acid sequence, which corresponds to amino acids Ser-Ala-Pro-Asp-Thr-Arg-Pro-Ala.

The combination of the labeled B27.29 antibody and the solidphase antigen purified from breast cancer cells forms a competitive assay with a decreasing exponential doseresponse curve. CA27.29 has been measured with ST AIA-PACK CA27.29 reagent using MUC-1 for AIA-600II (Tosoh Bioscience, Tessenderlo, Belgium). The cutoff for positivity of CA27.29 is >31 U/ml.

Peripheral Blood Sampling

- Before start of chemotherapy
- After completion of chemotherapy
  (before the start of endocrine and zoledronate treatment)
- Two years after completion of chemotherapy
- Five years after completion of chemotherapy

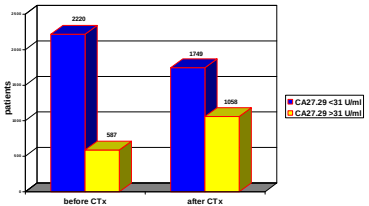
Results

In 2807 primary breast cancer patients CA27.29 has been prospectively evaluated before and after chemotherapy. 22% of all patients had a marker >31 U/ml (n=587, mean 19.00, range 3.04-410) before and 39% (n=1058, mean 23.34, range 2.70-330) after chemotherapy. After a median follow-up period of 18 months 138 patients developed a recurrence of their disease. 12% (n=17) of patients with recurrent disease had before chemotherapy a marker >31 U/ml (mean 28.08, range 4.95-410). After completion of chemotherapy 16% of patients (n=22) had a CA27.29 marker >31 U/ml (mean 21.7, range 5.35-330).7% (n=10) had shown positivity of CA27.29 before and after therapy. 5% (n=07) of patients changed from positive to negative (cutoff for CA27.29) afterwards. 80% (n=109) were negative before and after therapy, whereas 8% (n=12) became positive after treatment.

There is no significant difference in positivity of CA27.29 between Patients with an onset of disease recurrence in the first year (n=38), second year (n=68), the third year (n=24) after chemotherapy and all other prospectively evaluated patients with primary breast cancer (n=2784).

Before chemotherapy treatment the prevalence of elevated CA27.29 in all 2807 primary breast cancer patients was equally distributed between the FEC-Doc and the FEC-Doc-G arm. After chemotherapy 34% in the FEC-Doc arm showed an increased level vs. 45% in the FEC-Doc-G arm. The correlation analysis showed no significant coherence between hormonal status (ER: p<0.323; PR: p<0.078), HER2/neu status (p<0.308), Grading (p<0.565) and CA27.29 level. Tumor size (p<0.020) and the nodal status (p<0.022) were significant associated with CA27.29 levels.

CA27.29 before and after chemotherapy

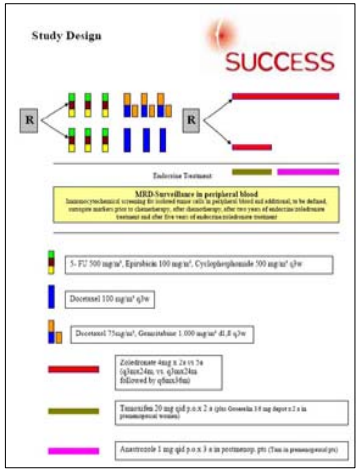


Follow up 18 months after chemotherapy

138pts with recurrence of disease

	before CTx	after CTx
CA 27.29 > 31U/ml	17	22

	before CTx		after CTx	
07 pts	CA27.29 > 31 U/ml	(+)	CA27.29 < 31 U/ml	(-)
109 pts	CA27.29 < 31 U/ml	(-)	CA27.29 < 31 U/ml	(-)
12 pts	CA27.29 < 31 U/ml	(-)	CA27.29 > 31 U/ml	(+)
10 pts	CA27.29 > 31 U/ml	(+)	CA27.29 > 31 U/ml	(+)



Conclusions

This marker will be useful for treatment monitoring; first of all because a close relation between CA27.29 and tumor mass at primary diagnosis is evident. But only further results of the SUCCESS-trial, especially the evaluation of CA27.29 blood level at follow-up examination 2 years and 5 years after chemotherapy will improve the prognostic relevance of this marker.

SUCCESS in breast cancer treatment

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Andergassen Ulrich[1], Rack Brigitte[1], Schindlbeck Christian[1], Räber Gert[3], Ulmer Hans Ulrich[4], Heinrich Georg[5], Kreienberg Rolf[6], Schneeweiss Andreas[7], Chatsiproios Dimitrios[8], Lichtenegger Werner[9], Beckmann Matthias W.[10], Janni Wolfgang[2]

All the following institutions are located in Germany: (1) University of Munich; (2) University of Düsseldorf; (3) DRK-Kliniken-Köpenick; (4) Klinikum Karlsruhe; (5) Praxis Heinrich; (6) University of Ulm; (7) University of Heidelberg; (8) GGG-Mannheim; (9) Charité Berlin; (10) University of Erlangen;

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