

The prognostic relevance of serum CA 27.29 level in primary breast cancer patients before adjuvant chemotherapy – Results of the German SUCCESS trial

Background

While tumor markers are frequently used to assess treatment efficacy in metastatic breast cancer, there is lack of evidence regarding the role of MUC-1 markers in primary disease. The value of CA27.29 in the adjuvant setting was prospectively evaluated in the German multicenter SUCCESS study.

Materials & Methods

The German SUCCESS trial is a multicenter phase III study comparing FEC-Docetaxel (Doc) vs. FEC-Docetaxel-Gemcitabine (Doc-G) and 5 versus 2 years of Zoledronate as adjuvant treatment in patients with node positive or high risk node negative primary breast cancer. In this trial serum CA27.29 level has been prospectively evaluated in 3202 patients before and immediately after adjuvant chemotherapy as well as 2 and 5 years thereafter. CA27.29 was measured with the ST AIA-PACK CA27.29 reagent using MUC-1 for AIA-600II (Tosoh Bioscience, Tessenderlo, Belgium). The cutoff for positivity was >31 U/ml.

Figure 1: SUCCESS Study design

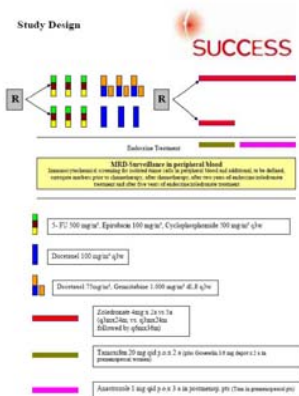


Figure 2: Tumor characteristics at primary diagnosis (n=3202)

	CA27.29 <31 U/ml	CA27.29 ≥31 U/ml
Tumor size		
pT1	1204 (38%)	89 (3%)
pT2-4	1725 (54%)	158 (5%)
Lymph node status		
pN0	1033 (32%)	80 (3%)
pN1-3	1922 (60%)	167 (5%)
Grading¹		
G1	144 (5%)	11 (0,4%)
G2	1490 (44%)	116 (4%)
G3	1379 (43%)	119 (4%)
HR status		
Positive	2089 (65%)	182 (6%)
Negative	866 (27%)	65 (2%)
Her2/neu status²		
Positive	739 (24%)	55 (2%)
Negative	2143 (69%)	190 (6%)

¹ Missing in 24 cases, ² Missing in 75 cases

Results

Mean CA27.29 serum level before adjuvant chemotherapy was 19,3 U/ml (SD +/- 15,5) in both arms. 8,0% (n=127) of patients in the FEC-Doc-G arm and 7,4% (n=120) in the FEC-Doc arm had a marker of more than 31 U/ml. Mean CA27.29 serum levels were significantly higher in patients with lobular carcinoma (p=0.001), with positive lymph nodes (p=0.02) and post-menopausal patients (p<0.001). After a median follow-up period of 34 months 233 patients relapsed and 108 patients died. CA27.29 before chemotherapy was a significant prognostic marker for disease-free survival (DFS) (p<0.0001) and overall survival (OAS) (p<0.0001) in univariate and multivariate analysis.

Figure 3: DFS according to CA27.29 level before chemotherapy

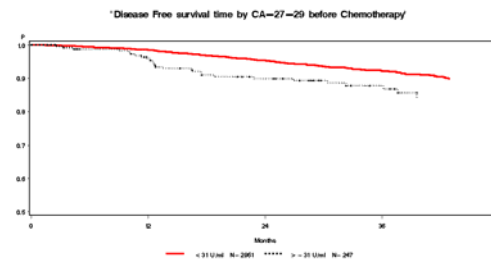


Figure 4: OAS according to CA27.29 level before chemotherapy

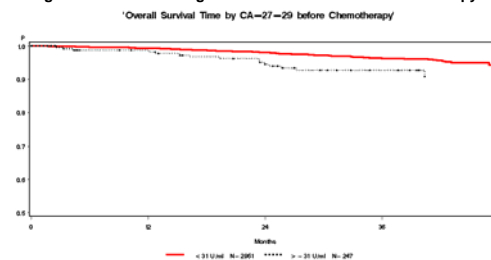


Figure 5: multivariate analysis (p value):

	DFS	OAS
CA27.29 before chemotherapy	< 0.0001	< 0.0001
Tumor size	< 0.0001	0.0011
Lymph node status	0.0334	0.0441
Grading	< 0.0001	< 0.0001
HR status	< 0.0001	< 0.0001
Her2/neu status	0.0876	0.0481



Conclusion

These findings indicate the independent prognostic relevance of serum CA27.29 levels in primary breast cancer patients before adjuvant treatment. Further follow-up within the SUCCESS trial will show whether initial CA27.29 level could serve as a tool for adjuvant treatment monitoring.

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J. Neugebauer¹, B. Rack¹, C. Schindlbeck², I. Schrader³, H. Tesch⁴, A. Schneeweiss⁵, T. Zwingers⁶, W. Lichtenecker⁷, M. W. Beckmann⁸, H. Sommer¹, K. Friese¹, W. Janni⁹ for the SUCCESS study group;

(1) Department of Gynecology and Obstetrics, Klinikum der Ludwig-Maximilians-Universität, Munich, Germany; (2) Klinikum Traunstein, Traunstein, Germany; (3) Henriettenstiftung, Hannover, Germany; (4) Onkologische Praxis Prof. Tesch, Frankfurt, Germany; (5) Department of Gynecology and Obstetrics in the National Center for Tumor Diseases, University Hospital Heidelberg, Heidelberg, Germany; (6) Estimate, Augsburg, Germany; (7) Department of Gynecology and Obstetrics, Charité Medical University, Berlin, Germany; (8) Frauenklinik der Universität Erlangen, Erlangen, Germany; (9) Department of Gynecology and Obstetrics, Heinrich Heine-Universität, Duesseldorf, Germany