Prognostic Value of Relative Change in Tumor Marker CA 27.29 in Early Stage Breast Cancer – The SUCCESS trial

MUC1 based tumor markers like CA27.29 (TM) in breast cancer are routinely used in metastatic disease as early marker for treatment efficacy. However, in early stage disease data is sparse. In this analysis, we looked at the impact of individual change in CA27.29 on prognosis instead of using a threshold.

Methods

The SUCCESS Trial is a phase III trial comparing FEC-docetaxel (Doc) vs. FEC-Doc-Gemcitabine (Doc-G) regimen and two vs. five year treatment with Zoledronat in 3754 patients at 251 study centers in Germany (Fig. 2) with primary breast cancer N0 or high risk N0 (Fig. 1). We measured CA27.29 after surgery but before chemotherapy (CHT) as baseline and compared it to CA27.29 levels 2 years thereafter with the ST AIA-PACK Ca27.29 reagent using MUC-1 for AIA-600II (Tosoh Bioscience, Tessenderlo, Belgium).

Results

CA27.29 data is available of 2,015 patients (for patient characteristics and correlation to CA 27.29 see Tab. 1). 119 pts (5.9%) had TM over the threshold of 32U/ml before CHT and 56 (2.8%) two years thereafter. To examine the relative change of tumor marker, patients were divided into 3 groups: increase: change >=5 U/ml; stable: change ± 5 U/ml; decrease < 5 U/ml. Among patients always below 32U/ml 123 (6.1%) patients had increasing (>=5 U/ml), 1419 (70.4%) had stable, 473 (23.5%) had decreasing TM levels from before CHT to 2 years thereafter. The majority of patients with increasing TM (86 pts; 69.9%) had levels below the usual threshold of 32U/ml at all times (Tab. 2). Patients with an increase >=5 U/ml had an increased risk for recurrence (HR=4.017 [CI: 2.621-6.156]; Fig. & Tab. 3a) and reduced overall survival (HR=6.920 [CI: 4.109-11.654]; Fig. 3b; Tab. 3b). Among patients always below 32U/ml those with an increase >=5 U/ml had an even reduced disease free survival (HR 5.838 [3.607-9.448]; Fig. 3b).

In multivariate analysis taking into account tumor size, nodal status, grading, age, menopausal-, hormonal- and HER2/neu receptor status increasing CA27.29 levels were an independent prognostic marker (Tab. 3a&b).

Discussion

An increase of the tumor marker CA27.29 2 years after CHT compared to pre-chemotherapy baseline was associated with a worse prognosis. Using this longitudinal approach, more patients at risk for recurrence were detected than with the standard threshold approach. The use of relative change of TM might be superior to identify patients at risk for relapse who might benefit from an intensified follow up.