Reasons For Failure To Give Adjuvant Chemotherapy In Early Breast Cancer - Interactive Visual Analysis Of Clinical Data With The TourGuide Software

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Introduction

Complex clinical data is challenging to analyze. As part of the TourGuide project we created a visual tool for this task. We aimed to identify factors that lead to patients with breast cancer forgoing chemotherapy in a real-world setting.

Materials and Methods

We used the Calumma and Ordino software to analyze 1,549 patients from our tumor-database in settings where neo(adjuvant) chemotherapy is necessary: triple-negative or Her2-positive tumors >5mm (groups 1+2), or ER-positive, Her2-negative, nodal-positive tumors (3). Factors were identified with visualization and assessed with Ordino's "touring" feature that supports analysts in generating and confirming hypotheses.

Results

In group 1, factors are, in patients >=65, age (Enrichment-Score [ES] 13.723, p<0.001) and marital status (adjusted Rand-index [RI] 0.106, p=0.019). Tumor grading shows up on visualization but is not significant (p=0.080). In group 2, factors in older patients are T-stage (RI 0.059, p=0.023), age (ES 14.062 , p<0.001), type of surgery (RI 0.034, p=0.095; not significant). There are no factors in younger patients. In group 3, factors in older patients are grading (RI 0.047, p=0.039), age (ER 26.336, p<0.001) and nodal-status (RI 0.045, p=0.074) and in younger patients, T-stage (RI 0.071, p<0.001) and grading (RI 0.038, p=0.012).

Conclusion

Visual analysis of clinical data helped to identify factors for treatment decisions that may not be immediately obvious.