

ASCO Breast 2008 Meeting – Abstract #13

HER2 concordance between central laboratory immunohistochemistry & quantitative reverse transcription polymerase chain reaction in Intergroup Trial E2197

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Background

Laboratory assessment of HER2 is of marked clinical importance. Accurate quantification remains problematic within and between laboratories. Here we report central laboratory HER2 results comparing IHC and quantitative RT-PCR using Oncotype DX in patients enrolled in a large adjuvant breast cancer trial.

Methods

755 patients with 0 to 3 positive lymph nodes from Intergroup study E2197 were studied. Central IHC for HER2 was performed using duplicate 1.0 mm microarrays (HercepTest™; Dako). Percent positive cells and staining intensity (0-3+) was assessed, where IHC positive cases exhibited 3+ staining in >30% cells, IHC equivocal cases exhibited 3+ staining in <30% cells or 2+ staining, and IHC negative cases exhibited 0 or 1+ staining. Quantitative RT-PCR for HER2 used Oncotype DX and pre-defined cutoffs: positive ≥ 11.5 units, equivocal ≥ 10.7 - < 11.5 units, and negative < 10.7 units (each unit represents a 2-fold change in expression). Concordance analysis excluded the equivocal range from both assays according to ASCO/CAP Guidelines (Wolff et al, 2006).

Results

HER2 expression by IHC and by RT-PCR is shown in the Table below. 175 cases were equivocal by IHC (165 of these were HER2 negative by RT-PCR). 26 cases were equivocal by RT-PCR (3 of these were HER2 negative by IHC). The overall concordance for HER2 status by central IHC and central RT-PCR was 95% (95% CI, 92%, 96%).

Conclusions

There is a high degree of overall concordance between central IHC and central RT-PCR positive and negative HER2 cases. Assessment of HER2 status by RT-PCR using Oncotype DX is an alternative to IHC.

| HER2 | Central IHC + | Central IHC equivocal | Central IHC – | Total RT-PCR |
|-----------------------------|--------------------------|----------------------------------|--------------------------|-------------------------|
| RT-PCR + | 94 | 0 | 4 | 98 |
| RT-PCR equivocal | 13 | 10 | 3 | 26 |
| RT-PCR – | 27 | 165 | 439 | 631 |
| Total IHC | 134 | 175 | 446 | 755 |