Conclusions

To ER+ or ER+ to TN, and independent of discordance in HER2.

biopsy, and 23% were from 2 primary biopsies or from primary and were in cases with biopsies from two different metastatic sites, 19% ER results.

Results: We identified a change in ER or HER2 status in 8 (31%) synchronous BCs and in 55 (16%) primary/recurrent BCs, including in metastatic BCs from different organ sites.

Of the 8 synchronous bilateral primary BC's, 4 (50%) had discordant ER results. Of the 55 cases with synchronous BCs (designated by color as shown to right).

Table 1A. 337 patients with >1 asynchronous molecular profile (tissue from primary or metastatic organ site).

Table 1B. 40 patients with >1 synchronous molecular profile (tissue from primary or metastatic organ site).

Figure 1. Comparison of ER, PR, HER2 concordance between case samples profiled synchronously or asynchronously.

Figure 2. Comparison frequency and type of change in status between profiles. Status at first profile A-D vs. status at 2nd profile (designated by color as shown to right).

Table 2. Analysis of 13 synchronous profiles obtained from same organ or same breast. Seven cases had a difference in HR status in the two tissues tested and represented here. Of the 6 cases with no change between tissues, 4 were HR+/HER2- (3 were also AR+) and 2 were TN (one each AR+ or AR-).

Case Report

44-year-old patient initially diagnosed with well to moderately differentiated adenocarcinoma of breast; ER+, PR+ and received treatments. 4 years later HER2 was tested and was negative. 11 years after initial diagnosis patient presented with a cough. Evaluation revealed multiple bilateral pulmonary nodules, liver metastases, and bone metastases. LDH was normal and CA 15-3 was substantially elevated at 1004.9. Right of the biopsy mound and pleura revealed grade 2 adenocarcinoma compatible with her known infiltrating ductal carcinoma, but now ER-, PR-, HER2+ (FISH-). By yr 13, the patient was found to have grade 3, poorly differentiated metastatic adenocarcinoma of the breast with florid overexpression of HER2. Patient was given Herceptin, with a fairly prolonged period of disease control, now at 21 years post diagnosis.

Conclusions

Within a patient, ER and HER2 status are not always concordant between lesions within the same breast, between bilateral BCs, and between different foci in a metastatic organ site. Patients are at risk of not being treated for the most clinically important foci of BC if the biopsy(s) obtained are not representative of the more aggressive areas of disease. Profiling should be performed on multiple BC samples both at diagnosis and at each time of recurrence/progression in the cancer continuum, to more accurately reflect the tumor profile at the time of treatment.

Changes in androgen receptor are not dependent on estrogen or progesterone changes.

References

