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Tailoring adjuvant therapy for hormone receptor-positive breast cancer

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Chapter 10

Letter to the editor: 70-Gene Signature in Early-Stage Breast Cancer

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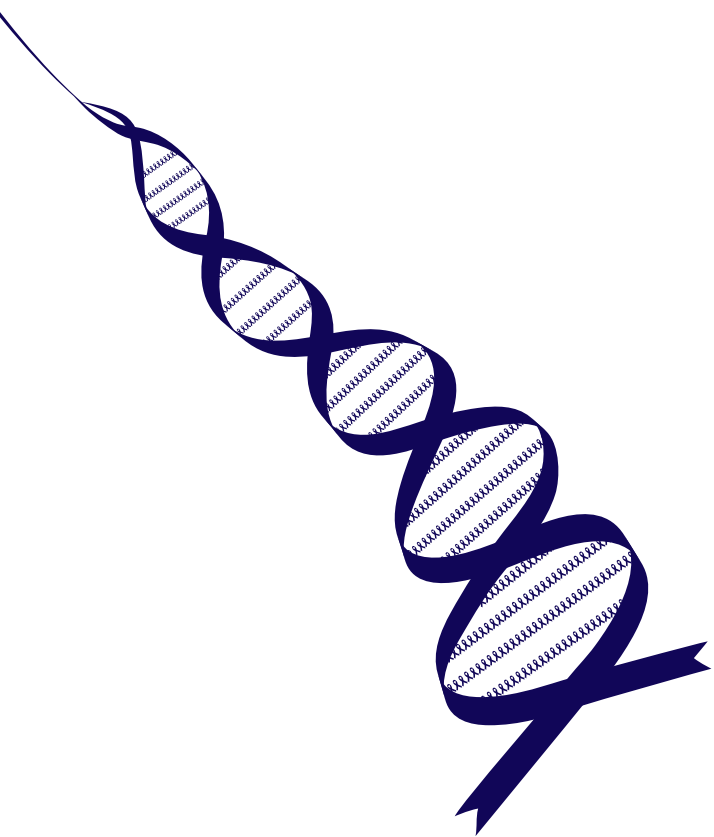

New England Journal of Medicine
2016; 375:2199-2201

The results of the study by Cardoso et al. (Aug. 25 issue)[1] suggest that chemotherapy can be safely withheld from patients who are clinically at high risk for recurrence but have a low-risk 70-gene signature (MammaPrint). However, the subgroup analysis does not show whether this finding was also true for patients with grade 3 tumors (found in 29% of the patients), who usually have an increased benefit from chemotherapy. Besides this factor, an underexposed finding of this study is that MammaPrint was not useful in at least 60% of the patients, particularly those at low clinical risk and those at high clinical risk with triple-negative tumors.

There were major differences between the characteristics of the patients at high clinical risk but low genomic risk and the characteristics of those at high risk in both categories. Among patients at high clinical risk but low genomic risk, 90% of the tumors were luminal and negative for human epidermal growth factor receptor 2 (HER2), and 71% of the tumors were grade 1 or 2. In contrast, among the patients at high clinical and genomic risk, only 50% of the tumors were luminal and HER2-negative, and 76% were grade 3. We calculated that among the patients at high clinical risk, 82% of luminal grade 1 or 2 tumors would be classified as genomic low risk.

Genomic assays are expensive and should be used efficiently. It may be possible to perform a decision-tree analysis on the basis of chi-square automatic interaction detection (CHAID)[2] using primary intrinsic tumor characteristics (e.g., the presence or absence of estrogen receptor and HER2, along with Ki-67 status and tumor grade) as predictors for the MammaPrint outcome. On the basis of the outcome of such a study, the use of MammaPrint could be restricted to patients for whom the clinicopathological risk assessment is insufficient.

References

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2. Kass GV. An Exploratory Technique for Investigating Large Quantities of Categorical Data. Journal of the Royal Statistical Society Series C (Applied Statistics) 1980;29(2):119-127.