Reviewer's report

Title: The Potential Biomarkers in Predicting Pathologic Response of Breast Cancer to Three Different Chemotherapy Regimens

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Reviewer: Alfredo Berruti

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The paper by Wang et al reports on a study aimed to identify predictive markers for pathological response in breast cancer patients undergoing primary chemotherapy.

A total of 118 patients submitted to 3 different regimens entered the study. Several markers: steroid receptors, HER2, P-gp, MRP, GST-pi and Topo-II were assessed immunohistochemically on paraffin embedded tissues obtained on baseline conditions and their expression was correlated with pathological response assessed adopting the Sataloff’s criteria.

The results showed that ER was the only variable that independently correlated with pathological response as a result of the logistic regression analysis. Stratified patients according yo the treatment received, HER2 expression significantly correlated with disease response in the patient subset submitted to DEC regimen only.

MAJOR REMARKS

In this study, relatively few patients have been treated with different chemotherapeutic regimens making difficult the interpretation of overall and subgroup results.

The main findings of the study are not new. The independent predictive role of ER negative phenotype for disease response has been previously observed by several sound publications some of them not quoted in the reference section, particularly if pathological complete response (i.e. negative tumor cells on residual tumor histology) was considered. As a consequence, the referee disagree with respect to the author assumption (Page 10 last para) that “Previous investigations evaluating the potential correlation between estrogen receptor status and pathologic response to chemotherapy have produced contradictory data”.

Ki67 is not included in the panel of markers of this study. This represents a hindrance. Proliferative activity in fact is increasingly recognized as an independent predictive factor of chemotherapy efficacy. It is actually not clear whether the greater response rates observed in ER- tumors should be attributed to ER- biology per se or more simply to the fact that Ki67 expression is higher in ER- tumors as opposed to ER+ ones. A multivariate analysis including Ki67
among the independent variables could provide original information in this respect.

MINOR COMMENTS

The proportion of HER2+ tumors in this series is greater than expected, the authors should explain this finding.

Table 2: percentage of positive rate of immunohistochemical markers should be added

Last para before Conclusions. The greater response rate observed with DEC regimen should not be emphasized since the data have been obtained from a non randomized study.

**Level of interest**: An article of limited interest

**Quality of written English**: Acceptable

**Statistical review**: No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests**: 

I declare that I have no competing interests