Breast Cancer - Targets and Therapy

Dovepress
open access to scientific and medical research

Open Access Full Text Article

LETTER

Prognostic value of androgen receptor expression in triple negative breast carcinomas: personal experience and comments on a review about "Triple-negative breast cancer: treatment challenges and solutions" by Collignon et al

This article was published in the following Dove Press journal:
Breast Cancer - Targets and Therapy
19 August 2016
Number of times this article has been viewed

Antonio Ieni[1]
Valeria Barresi[1]
Giuseppina Rosaria Rita Ricciardi[2]
Barbara Adamo[3]
Vincenzo Adamo[2]
Giovanni Tuccari[1]

[1]Department of Human Pathology of Adult and Evolutive Age "Gaetano Barresi", Section of Pathology, University of Messina, AOU "Policlinico G Martino"; [2]Medical Oncology Unit AOOR Papardo-Piemonte, Department of Human Pathology of Adult And Evolutive Age "Gaetano Barresi", University of Messina, Messina, Italy; [3]Medical Oncology Hospital Clinic, Barcelona, Spain

Dear editor

Recently, we read with great interest the review by Collignon et al entitled "Triple-negative breast cancer: treatment challenges and solutions",[1] which appeared in the last issue of *Breast Cancer: Targets and Therapy*. In this article, the authors extensively reviewed studies concerning the opportunity to identify triple negative breast carcinoma (TNBC) subtypes by newly proposed markers, taking into account their biological heterogeneity on the light of clinical implications.

It is well known that TNBC represents ~15% of all breast cancers and they are distinguished by the lack of expression of the estrogen and progesterone receptor using immunohistochemistry (IHC) and by the lack of overexpression and/or amplification of HER2 obtained using IHC and/or fluorescence in situ hybridization.[1] The clinicopathological characteristics of this subtype include tumors of large size, highly undifferentiated, high proliferative index, central necrosis, multiple apoptotic cells, and high-positive lymph nodes.

However, utilizing gene expression profiling of TNBC, a luminal androgen receptor subtype has been identified among others.[2] Moreover, a recent systematic meta-analysis of 19 different studies showed that the expression of androgen receptor (AR) is a favorable prognostic marker, providing the rationale for the development of a Phase II study with bicalutamide, a nonsteroidal antiandrogen in the treatment of metastatic TNBC-AR positive (NCT00468715).[3] In relation to this hypothesized role of AR, we would report herein our previous immunohistochemical experience in a cohort of TNBC.[4] In detail, we have found AR immunopositivity (IHC >10%) in 26.6% of TNBC cases; moreover, both univariate and multivariate analyses showed that AR is significantly associated with overall survival, representing an independent variable able to identify a TNBC subtype.[4] These data further confirm the significantly positive correlation between AR expression and favorable survival in TNBC patients since higher AR expression predicted a better relapse-free survival in patients with chemoresistant TNBC, as reported elsewhere.[5]

In light of the abovementioned studies, we fully agree with the suggestion of Collignon et al[1] regarding the block of AR pathway as promising approach in the

Correspondence: Giovanni Tuccari
Department of Human Pathology of Adult and Evolutive Age "Gaetano Barresi", Azienda Ospedaliera Universitaria "Policlinico G Martino" - pad. D, Via Consolare Valeria, 1, 98125 Messina, Italy
Tel +39 90 221 2539
Fax +39 90 292 8150
Email tuccari@unime.it

submit your manuscript | www.dovepress.com
Dovepress
http://dx.doi.org/10.2147/BCTT.S113577

treatment of patients with the luminal AR subtype of TNBC. In fact, this new targeted therapy shows potential advantages,[6] although more additional studies are needed to be validated in order to acquire a prognostic/predictive significance of AR in TNBC. However, the documented inverse correlation between low AR expression and high Ki67 rate has been significantly correlated with a shorter overall survival and a more aggressive disease in TNBC.[4] Therefore, our data suggest that an immunohistochemical tissue approach by the combination of AR expression and Ki-67 status might be a useful prognostic marker in TNBC in order to subclassify the risk of these patients.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Collignon J, Lousberg L, Schroeder H, Jerusalem G. Triple-negative breast cancer: treatment challenges and solutions. *Breast Cancer: Targets and Therapy*. 2016;8:93–107.
2. Lehmann BD, Bauer JA, Chen X, et al. Identification of human triple-negative breast cancer subtypes and preclinical models for selection of targeted therapies. *J Clin Invest*. 2011;121(7):2750–2767.
3. Gucalp A, Tolaney S, Isakoff SJ, et al; Translational Breast Cancer Research Consortium (TBCRC 011). Phase II trial of bicalutamide in patients with androgen receptor-positive, estrogen receptor-negative metastatic breast cancer. *Clin Cancer Res*. 2013;19(19):5505–5512.
4. Ricciardi GR, Adamo B, Ieni A, et al. Androgen receptor (AR), E-cadherin, and Ki-67 as emerging targets and novel prognostic markers in triple-negative breast cancer (TNBC) patients. *PLoS One*. 2015;3(6): e0128368.
5. Yu KD, Zhu R, Zhan M, et al. Identification of prognosis-relevant subgroups in patients with chemoresistant triple-negative breast cancer. *Clin Cancer Res*. 2013;19(10):2723–2733.
6. Anestis A, Karamouzis MV, Dalagiorgou G, Papavassiliou AG. Is androgen receptor targeting an emerging treatment strategy for triple negative breast cancer? *Cancer Treat Rev*. 2015;41(6):547–553.

Authors' reply

Joëlle Collignon[1]
Laurence Lousberg[1]
Hélène Schroeder[1]
Guy Jerusalem[1,2]

[1]Medical Oncology Department, CHU Sart Tilman Liege, Domaine Universitaire du Sart Tilman, [2]University of Liege, Liege, Belgium

Correspondence: Guy Jerusalem
Medical Oncology, Domaine Universitaire du Sart Tilman, Bâtiment B35, Liège 4000, Belgium
Tel +32 4 366 7111
Email g.jerusalem@chu.ulg.ac.be

Dear editor

Thank you for having shared with us your interesting experience concerning the determination of the androgen receptor status, the inverse correlation between KI67 and androgen receptor expression, and the potential prognostic implications. Your results are in line with previous work published in this field and further highlights that additional research in this subgroup of triple negative breast cancer is definitively needed. In particular, we hope that specific treatments will allow us to do a major step forward in the treatment of a subgroup of patients presenting with triple negative breast cancer. Unfortunately, the results currently available with antiandrogen therapy, although promising, represent rather a very small step forward. Further research is also needed in order to evaluate if standard immunohistochemistry techniques can be an alternative to androgen-related gene signatures for the identification of patients presenting better outcome after antiandrogen therapy.

Disclosure

GJ has received honoraria from Amgen, Pfizer, Novartis, Roche, and Celgene and research grants from Novartis, Roche, and MSD. The authors report no other conflicts of interest in this communication.