Triple-negative breast cancer (TNBC) – A new perspective on Biomarkers

Jessé Lopes da Silva, Luiz Claudio Thuler, Andréia Cristina de Melo, Bruno Henrique Rala de Paula, Claudia Jakelline Barbosa, Priscila Valverde Fernandes, Giselle Maria Vignal

RATIONALE

TNBCs generally account for 15-20% of all breast cancers, depending on the reference series. Locally Advanced TNBCsTriple-Negative Breast Cancers (LATNBCs) are definitely tumors with a high rate of relapse and progression death to conventional systemic therapies, and there is a strong need to explore reliable social and pathological biomarkers in order to ensure better outcomes for this specific group of patients[1-4]. Predicting response and survival to neoadjuvant treatment of locally advanced triple-negative breast cancer remains a major challenge. Many doubts still prevail over the role of new biomarkers in predicting different outcomes for tumors with the same stage and morphological characteristics[5-7].The brazilianBrazilian national data on breast cancer subtypes are quite scarce, with no mention of the specific evaluation of LATNBCs for their biomarkers. Our cohort proposes to make a broad profile of this tumor subtype, in the National Cancer Institute so that it can later be projected for a national estimate.

PATIENT AND METHODS

STUDY DESIGN:

A cohort with retrospective data collection and sectional analysis of material specimen.

PRIMARY OBJECTIVES:

To determine the prevalence of a large immunohistochemical panel (AR, EGFR, CK5/6, CK14, CK17, CD 117, p53, Ki67 level, PD-L1 and PD-L2 in tumor cell membrane and the description of tumor infiltrating mono-lymphocytes PD-1+, FOXP3+, CD 4+ , CD8 +, CD 3+, CD56+, CD68+ and/or CD 14+), before and after neoadjuvant chemotherapy in LATNBCs.

SENCODARY OBJECTIVES:

1. To evaluate if the biomarkers status have any impact on Disease Free Survival (DFS), Overall Survival (OS) and Complete Pathological Response (CPR) 2. To determine if the negativation of the biomarkers after the systemic treatment is a reliable predictive and prognostic biomarker. 3. To verify if there is any association between socio-demographic variables with OS , DFS and CPR.

RESULTS

Here we present some descriptive sociodemographic data. A total of 236 eligible patients were enrolled, mean age of 49.68 (SD±11.66) years, caucasians (47.03%), schooling under 8 years (44.06%), living at a mean distance of 36.12 (SD ± 42.9)Km from the treatment center. 235 cases were invasive ductal carcinoma (IDC), predominantly grade 3 (60.16%), cT3-4 (86.44%), lymph node positive (74.5%), clinical stage III (85.16%). The vast majority (94.04%) of the patients were exposed to chemotherapy with an anthracyclic-taxane-based regimen, mean of 6.97 (SD ± 1.21) cycles. As complementary treatment, 10 patients received platinum (mean 3 cycles, SD ± 0.20), 6 were exposed to capecitabine (mean 3 cycles, SD ± 1.60) and 11 patients submitted to radiotherapy. Radical surgery was performed in 230 (97.45%) women and axillary dissection in 205 (86.86%). The mean time to onset of treatment was 62.29 (SD ± 58.04) days, mean duration of treatment, 140.2 (SD ± 38.58) days and mean time to end of treatment for surgery, 82.67 (SD ± 180.06) days. The CPR rate was 20.76%. Of the 236 patients, 92 (38.98%) relapsed and 85 (36.01%) died to date.

DISCUSSION

Considering this presentation of social data from our Brazilian cohort, it is concluded that the patients in general already had a very large disease at diagnosis, the time of diagnosis to start treatment and the time of the end of the treatment for surgery are very which is certainly reflected in a lower complete pathological response rate compared to other series. Smoking and alcohol consumption also influenced the type of response to chemotherapy. CPR is confirmed as a surrogate for survival outcome and LATNBCs is reaffirmed as a histological subtype of very poor prognosis.

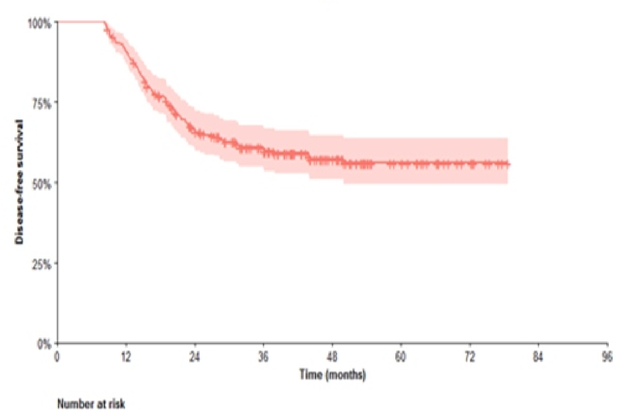

Fig.1 – DFS (all patients)

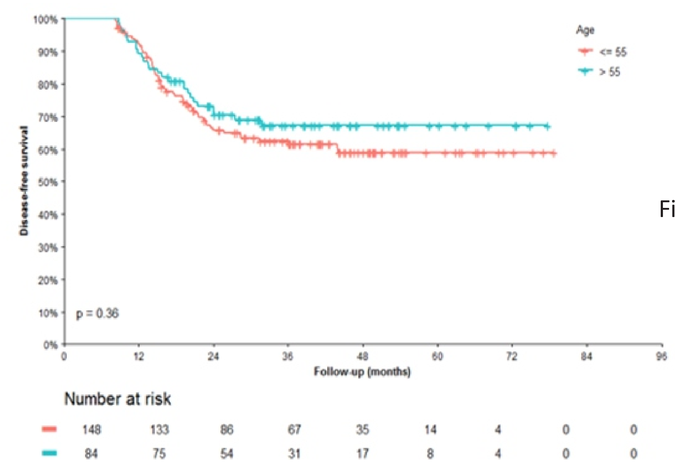

Fig.2 – DFS by age

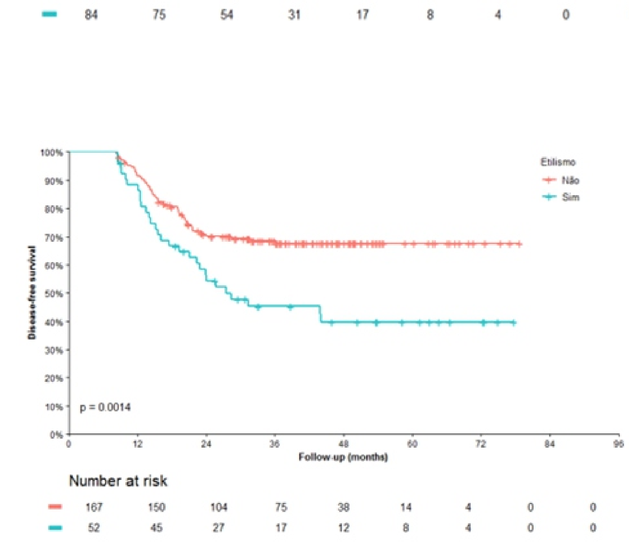

Fig.3 – DFS by alcoholism status

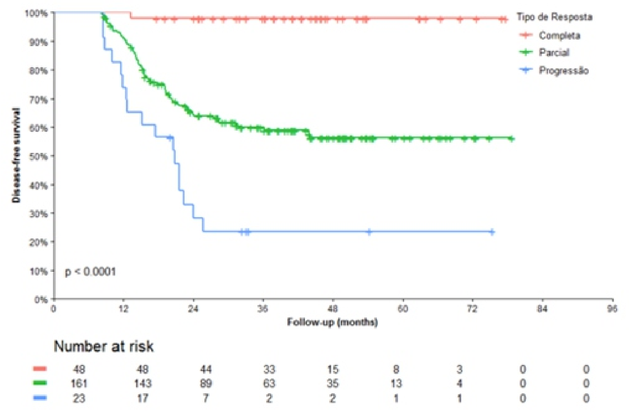

Fig.4 – DFS by reponse type

REFERENCES

1. Jemal A, Bray F, Center MM, et al. Global cancer statistics. CA Cancer J Clin 2011; 61:69.
2. Estimativa 2016: incidência de câncer no Brasil / Instituto Nacional de Câncer José Alencar Gomes da Silva – Rio de Janeiro: INCA, 2015.
3. Perou C, Sorlie T, Eisen MB, et al: Molecular portraits of human breast tumors. Nature 206:747-752, 2000
4. Dent R, et al. Triple-negative breast cancer: clinical features and patterns of recurrence. Clin Cancer Res. 2007;13:4429–34.
5. Carey LA, et al. The triple negative paradox: primary tumor chemosensitivity of breast cancer subtypes. Clin Cancer Res. 2007;13:2329–34.
6. Tischkowitz M, et al. Use of immunohistochemical markers can refine prognosis in triple negative breast cancer. BMC Cancer. 2007;7:134.
7. Bauer KR, et al. Descriptive analysis of estrogen receptor (ER)-negative, progesterone receptor (PR)-negative, and HER2-negative invasive breast cancer, the so-called triple-negative phenotype: a population-based study from the California cancer registry. Cancer. 2007;109:1721–8.

Projeto Gráfico: Área de Edição e Produção de Materiais Técnico-Científicos / INCA

MINISTÉRIO DA SAÚDE