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### FEMALE BREAST CANCER STATUS ACCORDING TO ER, PR AND HER2 EXPRESSION. POPULATION-BASED FIGURES AND PROGNOSTIC VALUES

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#### Introduction

Biological factors are becoming more and more relevant in defining different group of female breast cancer patients and in addressing therapy.

#### Objectives

To evaluate the frequency, the characteristics and the prognostic values of some biological parameters in female breast cancer patients.

#### Materials and Methods

Data on female breast cancer incident during 2000-2005 in the area of the Tuscan Cancer Registry – RTT ([www.ispo.toscana.it](http://www.ispo.toscana.it)) have been evaluated as regards ER, PR, and HER-2 immunohistochemical status. Data on age, histotype, pathological stage (dimension, pN), and proliferation marker (Ki67) were also analysed. We considered 4 groups of patients: Luminal A, Luminal B, triple negative and HER-2+. The effect of different expressions on 3-year survival were analysed by means of Kaplan-Meier and multivariate Cox analysis.

#### Results

During 2000-2005 there were 2292 incident breast cancer cases. In the Tuscany Cancer Registry were available data on ER for 1495 (65.2%), on PR 1485 (64.7%), on HER-2 for 1162 (50.6%) cases. For 1153 cases all the three variables were available. Luminal A (67.7%), Luminal B (17.1%), triple negative (8.1%) and HER-2+(7.2%). 3-year observed survival was 93.9% for luminal A, 89.9% for luminal B, 87.8 for triple negative and 80.0 for HER-2+ ( $p < 0.001$ ). In the multivariate analysis the risk for Luminal B was 1.45, triple negative 2.71 and HER-2+ 3.37 in comparison with Luminal A, adjusted for age, dimension and pN.

#### Conclusions

Biological parameters confirm also in a population-based study their role in defining female breast cancer patients at different risk of death, being the best prognosis for Luminal A that is also the most frequent sub-type. The cut-off for defining positive values varies in different laboratories. Such issue should be evaluated in more deep being related to therapy.