Can cancer-associated epigenetic changes be detected from semiquantitative ER/PgR expression in 1180 patients with invasive ductal breast cancers?

Branko Dimitrovic, Ksenija Marjanović, Sven Kurbel

Departments of Pathology and Physiology
Osijek University Hospital & Faculty of Medicine, Osijek, Croatia

OBJECTIVE
Model of cancer-associated epigenetic changes (Kurbel S. Tumour Biol 2013:34:2011-7) proposes that, besides in the ER-PgR breast cancers, dysfunctional ERs are also present in some ER+PgR: tumours with weak PgR expression.

METHODS

- 1180 consecutive patients with duct invasive breast cancers (regardless of stage) were included. All patients were diagnosed and treated in Osijek University Hospital during the time period from January 2004 to December 2012.
- All specimens were excisional biopsy specimens, or mastectomy specimens.
- According to immunohistochemical features, tumours were divided into the following five groups:
  - Luminal A (ER- and/or PgR-, HER2-negative, low Ki67)
  - Luminal B1 (ER- and/or PgR-, HER2-negative, high Ki67)
  - Luminal B2 (ER- and/or PgR-, HER2-positive)
  - HER2 (ER-, PgR-, HER2-positive)
  - Steroid receptor (ER and PgR) positivity were semiquantitatively classified in four groups: 0-2+ and 3+.

RESULTS

Table 1. Age and Ki-67 as factors that affect distributions of ER nad PgR. Fully functional ERs were more common among younger Luminal A cancer patients (p<0.04). PgR expression in Luminal B1 and B2 cancer patients was age unrelated.

Table 2. Incidences of the ER/PgR* phenotype combination in breast tumour types according to the age. Among patients older than 54, Luminal A and B1 tumours were frequently ER+ (p=0.01), while PgR+ tumours were more common among Luminal A patients younger than 55 (p=0.034), suggesting that in older Luminal A or B1 patients, high ER and low PgR expression is common. Nothing similar was found among Luminal B2 cancer patients.

CONCLUSIONS

- The results support heterogeneity among ER/PgR* tumours.
- Future studies of ER/PgR* phenotype variants are required since hyperfunctional dysfunctional ERs in some ER+PgR* breast cancer patients might alter their endocrine treatment outcomes.

REFERENCES


Kurbel S. In search of triple-negative DCIS: tumor-type dependent model of cancer-associated epigenetic changes (Kurbel S. Tumour Biol 2013:34:2011-7).

Support by Croatian Ministry of Science, Education and Sport (Grants No. 219-2192382-2426 & 219-2192382-2009).

SUPPORTED BY CROATIAN MINISTRY OF SCIENCE, EDUCATION AND SPORT (GRANTS NO. 219-2192382-2426 & 219-2192382-2009)