Breast Cancer Molecular Subtypes: An Overview From Salerno

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Breast Cancer is the second most common tumor in the world and the most frequent among women (incidence: 1.67 million in 2012). The hormonal receptor status (ER-Estrogen Receptor and PgR-Progesterone Receptor), the gene HER2/neu amplification and the proliferation index (Ki-67) have a predictive role, useful in clinical decision making.

We studied 323 women who underwent surgery in 2013 (Cava de’ Tirreni Hospital, n=180; Salerno University Hospital, n=143). Molecular markers were assessed with immunochemistry: Luminal A (ER+; PgR+; Ki67<14%), Luminal B/HER- (ER+; PgR+; HER2-; Ki67>15%), Luminal B/HER2+ (ER+; PgR+; HER2+; Ki67>15%), HER2 enriched (ER-; PgR-; HER2+) and Triple Negative (TNBC: ER-; PgR-; HER2-). FISH was performed when HER2 status was ambiguous.

The data showed the Luminal-type tumors are mostly represented (n=252, 78%); 13% breast cancers (n=42) carry a HER2 amplification. Non luminal tumors are mainly triple negative (TNBC/HER2 enriched=3).

A demographic difference was not demonstrated: mean age is 61.3 years for both all the population and the subtypes.

A small amount of patients are aged under 36 years (n=5; 1.5%). A male breast carcinoma was diagnosed (0.3%): a high hormonal receptor expression (ER and PgR = 90%) was assessed.

Molecular characterization of breast cancer is the cornerstone for therapeutic strategy planning (hormone therapy, immunotherapy and chemotherapy). TNBC patients are candidates for cytotoxic chemotherapy: they represent a challenge for translational medicine in order to gain a more rational and targeted approach. Very young and male patients are addressed to genetic testing for familiar cancer syndromes (BRCAs genes).