Background

- Neoadjuvant chemotherapy is widely used to downstage breast cancers prior to surgery.
- Pathologic complete response (pCR) rate is a strong predictor of outcome for breast cancer.
- The Ki-67 antigen, which encodes two protein isoforms with molecular weights of 345 and 395 kDa, was originally identified by Scholzer and Gerdes in the early 1980s.
- The Ki-67 protein has a half-life of only ~1–1.5 h. Ki-67 is present during all active phases of the cell cycle (G1, S, G2, and M), but is absent in resting cells (G0). In later phases of mitosis (during anaphase and telophase), a sharp decrease in Ki-67 levels occurs.
- Expression of the Ki-67 protein (pKi-67) is associated with the proliferative activity of intrinsic cell populations in malignant tumors, allowing it to be used as a marker of tumor aggressiveness.
- The prognostic value of pKi-67 has been investigated in a number of studies with its potential as a reliable marker having been shown in cancers of the breast, soft tissue, lung, prostate, cervix and central nervous system.
- Ki-67 immunohistochemical determination is a widely used biomarker of cell proliferation in patients undergoing endocrine treatment for breast cancer.
- The role of Ki-67 in patients undergoing neoadjuvant chemotherapy for early breast cancer remains controversial.

Methods

We analyzed retrospectively data on 208 patients undergoing neoadjuvant chemotherapy for early breast cancer. Pathological complete response in early breast cancer patients undergoing neoadjuvant chemotherapy was defined as the complete disappearance of the invasive component of the tumor at surgery. Clinical and pathological assessment included: T, N, and M clin and path stages; TAC, AC & Taxane, Taxane, TC, AC, Taxane & Adriamycin, AC & Taxane & Herceptin, or Taxane & Herceptin.

Statistical Analysis

- The primary hypothesis was that higher levels of Ki-67 would be associated with a better prognosis overall.
- We analyzed retrospectively data on 208 patients undergoing neoadjuvant chemotherapy for early breast cancer. The distribution of all demographic and clinical variables by study group was tabulated.
- Clinical and pathological assessments included: T, N, and M clin and path stages; TAC, AC & Taxane, Taxane, TC, AC, Taxane & Adriamycin, AC & Taxane & Herceptin, or Taxane & Herceptin.

Conclusions

- TNBC and Her-2 positive molecular subtype and high Ki-67 are associated with a higher pCR rate in early breast cancer patients undergoing neo-adjuvant chemotherapy.

For more detailed analysis, please refer to the full report.