

**Abstract:** Tumor size is believed to be an important prognostic criterion in breast cancer, in this study, we separated breast invasive ductal cancer (IDC) tumors into  $\leq 1$  cm, 1~2 cm, 2~5 cm,  $\geq 5$  cm in total 4 subgroups following NCCN guidelines. Eleven clinic pathological characteristics and 7 molecular markers were evaluated and analyzed relation with tumor size.

A total of 426 patients specimen from 2012-2014 in Zhejiang Cancer Hospital were collected. HER2 expression was measured by immunohistochemistry (IHC) and Fluorescent in situ Hybridization (FISH) analysis, other markers were measured by IHC. Clinic pathological informations were get from patient information database.

In clinic pathological characteristics, tumor histological grade, lymph node invasion, necrosis, vascular emboli were proven to be significantly related with tumor size ( $P \leq 0.05$ ). In molecular markers, epidermal growth factor receptor (EGFR), Cytokeratin5/6 (CK5/6), estrogen receptor (ER), progesterone receptor (PR), KI67, human epidermal growth factor receptor 2 (HER2), breast cancer molecular subtype (including luminal A, luminal B, HER2, basal like in total 4 subtypes) were proven to be significantly related with tumor size.

Our results showed tumor size is a good predictor of clinic pathological characteristics and molecular markers in IDC, consistent with studies in tumor size.