Background: PAM50 (Prosigna®) identifies a gene-expression profile that categorises early breast cancer (BC) in intrinsic subtypes and gives prognostic estimation based on a 10 year-recurrence risk score (ROR). The purpose of this study was to evaluate the impact of PAM50’s information on adjuvant treatment decisions.

Methods: Prospective collection of BC cases treated in a Cancer Centre in the last 10 months, in which PAM50 was used to define treatment strategy. Demographic, clinic and pathologic characteristics are described. Concordance between immunohistochemistry (IHC) and PAM50 subtypes were assessed as well as therapeutic decision changes according to risk stratification, using blind revision. Categorical variables were compared used chi-square test.

Results: Inclusion of 101 patients, median age of 52 years (34-79 years). Fifty-five patients (54.5%) were premenopausal, 71 (70.3%) had ductal carcinomas, 71 (70.3%) pT1c, 99 (98%) G2, 72 (71.3%) pN0, ER positive and HER2 negative. Eighty-five (84.2%) had a PR expression above 20% and 63 (62.4%) had a Ki67<15%. Overall discordance rate between BC subtypes by IHC and PAM50 was 34%, (p < 0.001). By IHC, 51 (50.5%) were luminal A-like. Forty-seven (92%) remained luminal A with PAM 50 [low ROR: 28 (60%), intermediate:16 (34%), high:3 (6%)]. Four (8%) changed to luminal B [intermediate ROR:1 (25%), high:3 (75%)]. Of the 50 luminal B-like tumours (49.5%), 20 (40%) remained luminal B [intermediate ROR:8 (40%); high:12 (60%)] and 30 (60%) changed to luminal A [low ROR:18 (60%), intermediate:12 (40%)]. Based on PAM50, adjuvant strategy was changed in 28 patients (28%), (p = 0.001): 15 (54%) changed from endocrine therapy (ET) only to chemotherapy (CT) also and 13 (46%) changed from CT and ET to ET only.

Conclusions: PAM50 availability results in 28% change in adjuvant plan with more cases of chemotherapy. The 34% discordance with classic IHC subgroups, especially in luminal B tumours, underlines the need for more accurate tests in this heterogeneous population to define the adequate adjuvant strategy. A longer follow up is important to evaluate the prognostic value of clinical decisions based on genetic signatures.

Legal entity responsible for the study: Breast Department - IPO-Porto.

Funding: Has not received any funding.

Disclosure: All authors have declared no conflicts of interest.