

P19 QUANTITATIVE GENE EXPRESSION BY RT-PCR IN SPECIAL HISTOLOGIC SUBTYPES OF INVASIVE BREAST CANCER

Poster Abstracts I

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Goals: ER+ special histologic breast cancer subtypes are reported to be prognostically significant. Here we report the special histologic subtypes of ER+ breast carcinoma and associated patterns of observed gene expression as measured by the 21 gene Oncotype DX[®] assay.

Methods: All tumors from 6/1/04–5/31/12 were included in the analyses. Central path used WHO criteria. Ductal NOS (DC), tubular (TC), cribriform (CC), mucinous (MC) and papillary (PC) carcinomas were included. Quantitative expression of 16 cancer related genes was measured on a scale from 2 to 15 (relative to reference genes) where a 1 unit increment is associated with ~2-fold change in expression. Recurrence Score was calculated as published (Paik, NEJM 2004). Descriptive stats for the score and individual genes [ER, PR, invasion gene group (IGG) and proliferation gene group (PGG)] among the different subtypes were obtained. Comparisons of means among the subtypes were adjusted to control the overall error rate under any complete or partial null hypothesis.

Results: DC accounted for 81.8% of 286,726 cases, TC 0.6%, CC 0.3%, MC 2.7% and PC 0.6%. For all types a large continuous range of scores was observed. DC had the highest mean score, followed in decreasing order by MC, TC, CC and PC. PC had the highest ER and PC and CC had the highest PR. TC had the lowest ER (may reflect bias in submission for testing). ER was not different between CC and MC however PR was. The proportion with ER+/PR? phenotype was different among the subtypes: TC (8.1%) and CC (7.7%) had the lowest incidence whereas PC (10.5%) and MC (12.9%) were more similar to DC (14.1%). TC had the lowest PGG expression. MC had lower IGG expression compared to other subtypes.

Subtype	n	% of cases	RS (median)	ER (median)	PR (median)	ER+/PR?	Proliferation n (median)	Invasion (median)
Ductal	234,518	81.8	17.2	10.0	7.5	14.1%	5.4	7.1
Tubular	1,831	0.6	14.6	9.4	7.6	8.1%	4.4	6.6
Cribriform	836	0.3	12.7	10.4	8.3	7.7%	5.1	6.5
Mucinous	7,682	2.7	14.8	10.4	7.6	12.9%	5.2	6.4
Papillary	1,732	0.6	7.8	11.4	8.8	10.5%	5.7	6.5

Conclusion: Special histologic subtypes are characterized by differential gene expression and tend to have higher ER/ PR and lower PGG/IGG expression but outlier cases are not infrequent

w/in each of the special subtypes in this large observational cohort. The variation in gene expression, noted by histologic subtype, will be presented in detail. As an employee at Genomic Health, Inc., I am compensated with salary, benefits, and stock. I also have stock options as an employee of Genomic Health, Inc.