

## Oncotype-DX recurrence score distribution among breast cancer patients harboring a germline mutation in the BRCA1/2 genes.

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**Background:** In about 10% of breast cancer (BC) cases, a genetic mutation in the BRCA1/2 genes can be found. BCs associated with BRCA2 mutations present with positive estrogen receptor (ER) status in about 50% of all cases, whereas BCs associated with BRCA1 mutation are more aggressive and more likely to be ER-negative. Oncotype genetic profiling has become a standard of care to predict recurrence and the benefit from chemotherapy in ER positive BC. The role of Oncotype-DX in BRCA mutation-carriers is not clear. Our primary end-point is to compare the RS distribution of BRCA carriers to that of the General Population (GP).

**Methods:** Two different data bases were crossed: the list of BRCA mutation-carriers at Rabin Medical Center (n=1,191) with the list of all the oncotype-DX tests which were performed through Kupat Holim Clalit, our HMO (n=5,491), between 2003 and 2015.

**Results:** Patients and tumor characteristics, including Oncotype RS are shown in the Table.

**Conclusions:** Our study indicates that among BC patients with mutations in the BRCA1/2 genes, the distribution of the RS is different from that of the GP. In these patients a larger portion of the population was shifted toward the intermediate- and high- risk groups. This was more pronounced in the BRCA1 carriers. To our knowledge this is the largest BRCA cohort in which the oncotype-Dx RS has been reported.

	<b>*Non-BRCA n=1,031</b>	<b>BRCA1 n=16</b>	<b>P-value</b>	<b>BRCA2 n=27</b>	<b>P-value</b>
<b>Age (years)</b>	60	54.1	0.015	58.3	0.37
<b>ER index</b>	2.59/3	2.2/3	0.013	2.5/3	0.45
<b>PR index</b>	1.65/3	0.98/3	0.017	1.03/3	0.004
<b>Grade (%):</b>					
<b>I</b>	16.7	0		8.7	
<b>II</b>	66.2	37.5		56.5	
<b>III</b>	16.9	62.5	< 0.0001	34.7	0.09
<b>KI67 (%)</b>	14.5	35.9	< 0.0001	19.2	0.13
<b>Tumor size (cm)</b>	1.64	1.62	0.91	1.44	0.18
<b>Oncotype RS (%):</b>					
<b>Low</b>	52.7	6.2		25.9	
<b>Intermediate</b>	37.8	37.5		44.4	
<b>High</b>	9.4	56.2	< 0.0001	29.6	0.0016

\*All Oncotype tests which were performed for patients at our institute. \*\*The BRCA groups were compared to the non-BRCA group.

