

Financial and Quality of Life Impact of the Application of Oncotype Dx Test in Women with HER2-negative hormone receptor-positive Early Breast Cancer Treated in a Chilean Cancer Center

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Introduction

Breast cancer is the leading cause of cancer mortality in women worldwide. Seventy percent of cases are hormone receptor positive and HER2 negative, and although most patients are diagnosed in early stages, about 30% of them will recur. Adjuvant chemotherapy has been reserved for patients with high clinical risk. This results in undertreatment some patients and overtreatment others. Oncotype Dx is a validated genomic platform that provides specific recurrence score for each individual, selecting patients who really benefit from adjuvant chemotherapy. Results permit to avoid chemotherapy in more than 60% of patients when there are 1 to 3 lymph nodes involved (N1). Our Objective was to analyze the clinical and financial experience of this group of patients after the incorporation of Oncotype Dx at our institution.

Methods

Clinical data of 92 patients with indication for Oncotype Dx were prospectively recorded from January 2022 to April 2024. For the purposes of this work, subgroup N1 was analyzed, 58 patients. For the cost analysis, data from 42 patients were included (December 2023 cohort). Costs of chemotherapy and its administration, plus the cost of Oncotype, were estimated from the perspective of FALP Solidarity Insurance. For chemotherapy, it was assumed that patients would receive 4 cycles of ACT both for the group with and without Oncotype, and the probability of chemotherapy de-escalation in the scenario without Oncotype came from real data from the study cohort. For quality of life analysis EQ5D-3L scale with chilean value set was used. Surveys were conducted before surgery and then every three months. Differences between preoperative and three and six months postoperatively were analyzed using the Wilcoxon-Mann-Whitney test.

Results

Mean age was 61.6 years (range 49-77). 48% were diagnosed with screening tests. 56.9% corresponded to T1, with an average tumor size of 1.8 cm (range 0.8 - 3.5). 91% were invasive ductal carcinomas. 22% of the tumors were G3 (Table 1).

The use of Oncotype to determine the risk of recurrence and thus the need for adjuvant chemotherapy is associated with a reduction in the total cost of chemotherapy in a cohort of patients under study from the perspective of FALP Solidarity Insurance. Considering a de-escalation of treatment in 76% of patients, the cost of chemotherapy is reduced by 75%. Adding the cost of the genetic analysis, the total expenditure is reduced by 27% for the cohort under evaluation. (Figure 1).

Three months after treatment, HRQoL remained stable in patients who underwent surgery alone, while those who underwent surgery along with chemotherapy showed a slight decrease ($p = 0.316$). At six months, HRQoL decreased in patients who underwent surgery alone and even more in those who underwent surgery along with chemotherapy ($p=0.677$). Figure x provides detailed information on the changes in HRQoL (Figure 2).

Table I: Patient Characteristics		N = 58 patients	
Variable	Mean ± sd (range)	/ n (%)	
Age (years)	61.6 ± 7.04	(49-77)	
Tumor Size (cm)	1.8 ± 0.65	(0.8-3.5)	
ER (%)	91.2 ± 16.7	(100-20)	
PR (%)	59.3 ± 40.5	(100-0)	
Ki67 (%)	19.2 ± 14.5	(3-70)	
T			
	1	33	(56.9%)
	2	25	(43.1%)
Tumor Grade			
	1	9	(15.5%)
	2	37	(63.8%)
	3	12	(20.7%)
Positive Lymph Nodes			
	1	40	(69.0%)
	2	15	(25.9%)
	3	3	(5.2%)
HER2 IHQ			
	Negative	35	(60.3%)
	HER2 1+	19	(32.8%)
	HER2 2+	4	(6.9%)
Micrometastatic Lymph Node			
		11	(19.0%)

ER = estrogen receptors, PR = progesterone receptors.

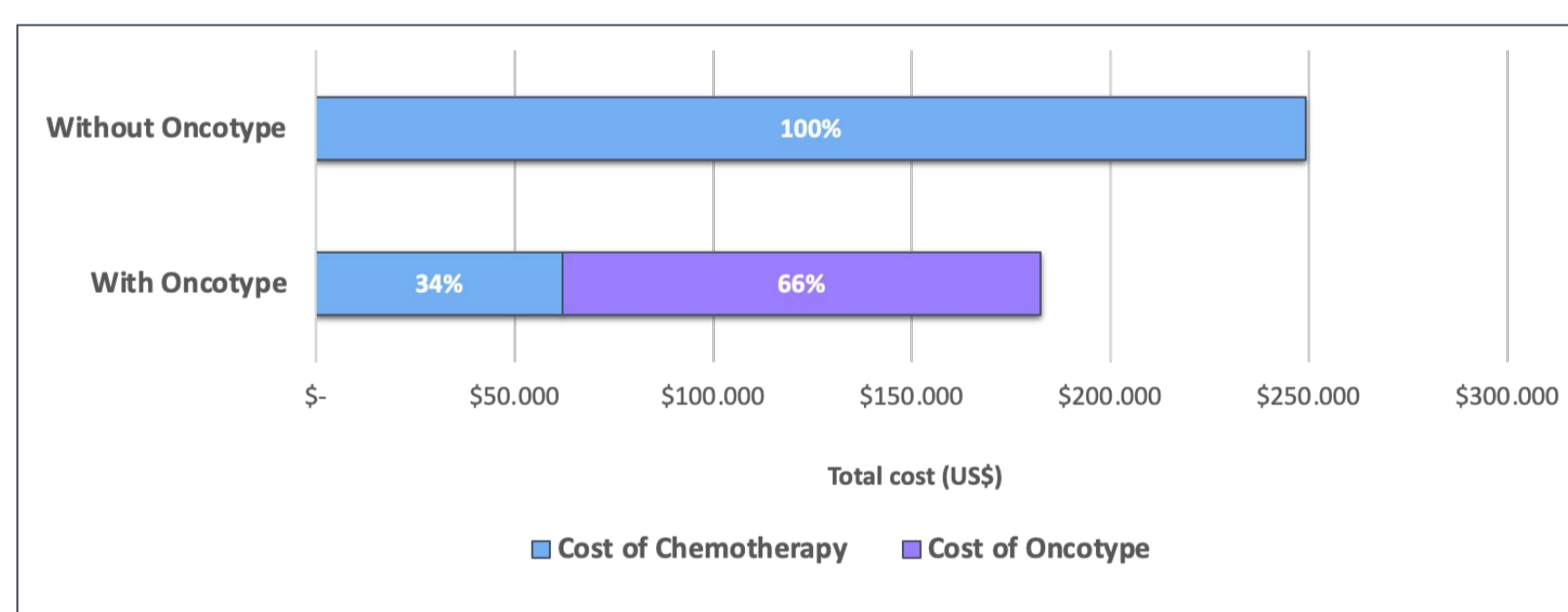


Figure 1: Total costs of the scenarios with and without Oncotype Dx, assuming a cohort of 42 patients beneficiaries of the FALP Solidarity Insurance. The costs of Oncotype and chemotherapy in the scenario with Oncotype, and only chemotherapy in the scenario without Oncotype, are represented.

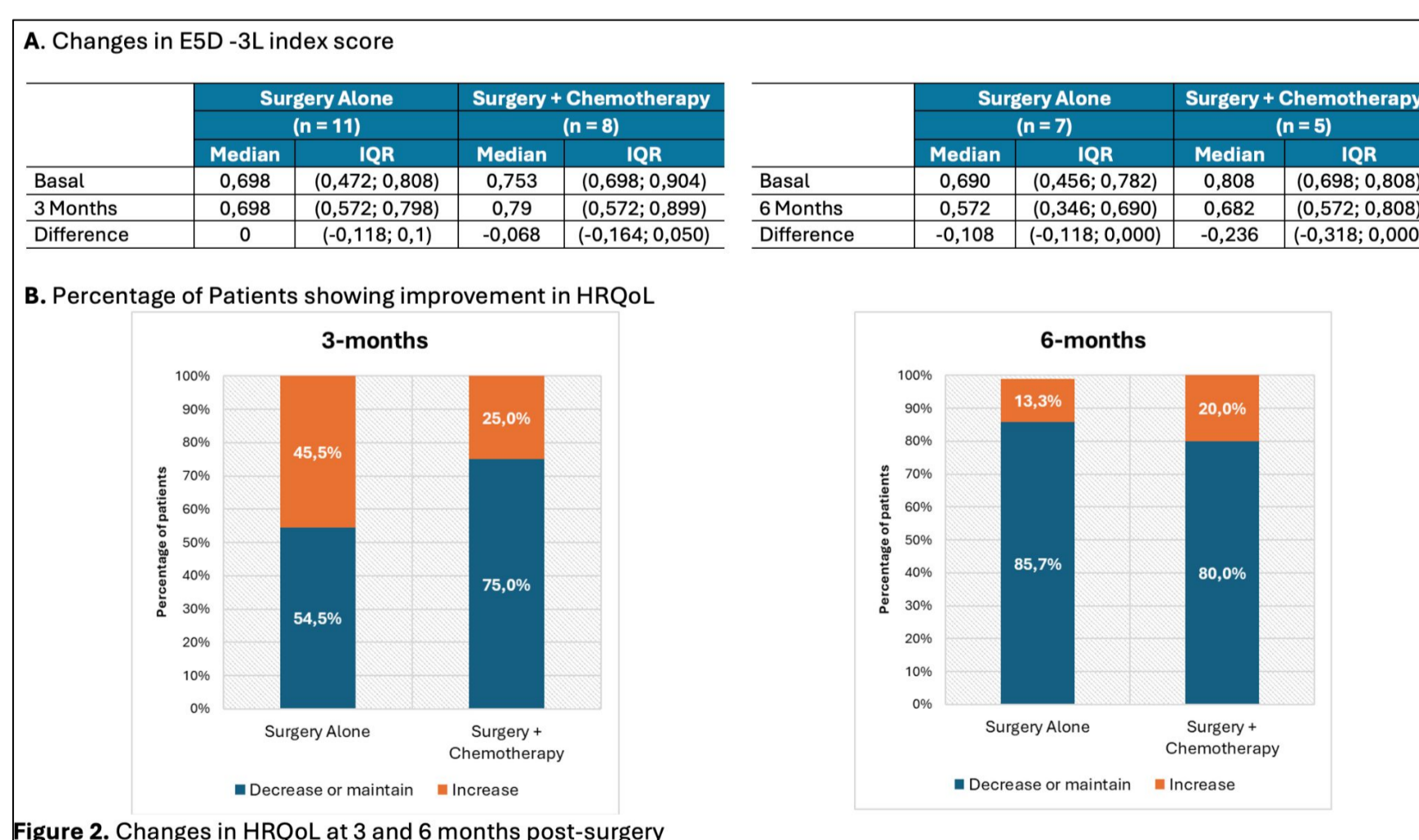


Figure 2. Changes in HRQoL at 3 and 6 months post-surgery



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Conclusions

In addition to providing an accurate measure to discriminate the long-term risk of distant recurrence and thus who objectively benefits from receiving chemotherapy, Oncotype Dx allows omission of chemotherapy in 77% of N1 patients in our institution, reducing treatment-associated complications, direct and indirect costs, and improving the overall quality of life of this population.

