

# Oncotype DX RS Correlation with Clinicopathologic risk factors and Chemotherapy. Follow up based on TAILORx study.

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## No Conflict of Interest

## Introduction

Oncotype DX RS estimates the likelihood of recurrence and predicts the benefit from chemotherapy in early HR positive, node negative breast cancer. Patients are categorized into one of three tiers based on a calculated recurrence score (RS); low (<18), intermediate (18–30), and high (≥31–100). 2008 NCCN guidelines recommended adjuvant endocrine therapy for low RS, adjuvant chemoendocrine therapy for high RS. There was no clear chemotherapy recommendation for intermediate RS. In 2018 the TAILORx re-established RS categories; a score of less than 11 is low, 11-25 is intermediate and 26-100 is high, and provided evidence to treat patients with intermediate RS. We are Studying Oncotype Dx RS correlation with clinic-pathologic risk factors, and chemotherapy based on TAILORx tiers. We also looked the characteristics of patients with cancer recurrence.

## Objectives

Look for Oncotype DX RS correlation, with clinical and pathological risk factors (age, tumor size, tumor grade, ER/PR status, tumor proliferation index) and chemotherapy based on TAILORx RS tier. Another aim is to study the characteristics of patients in intermediate RS category who had disease recurrence in comparison to those who remained disease free.

## Methods

Retrospective review of patients who had Oncotype DX test during 2012-2017 at National Center for Cancer Care and Research –Qatar..

## Results

Of 54 patients studied 16(29.63%) had low RS, 32(59.26%) had intermediate RS, and 6(11.1%) had high RS. Univariate analysis showed that age (p<0.014), tumor grade (p<0.034), and Ki67% (cut-off 20%; p<0.013) were significantly different among Oncotype DX RS categories. There was no significant difference among Oncotype DX RS categories for tumor size (p<0.288) or PR status (cut-off 1%, p<0.3). Multivariate analysis showed that none of the clinical/pathological factors significantly predict the Oncotype DX RS. Chemotherapy was given to 1/16 (6.25%) patients with low, 7/32(21.9%) patients with intermediate, and 4/6 (66.7%) patients with high Oncotype DX RS (univariate analysis p<0.01). Tumor size was the only predictor of chemotherapy in multivariate analysis (OR 2.33 CI 0.33 - 3.86, p<0.020). 75% of patients who relapsed had RS 16-25, and were less than 50 years old in age

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## Conclusions

Oncotype RS correlates significantly with individual clinical risk factors including age, tumor grade, Ki67%, chemotherapy treatment. Tumor size significantly predicts adjuvant chemotherapy. Breast cancer recurrence was noticed in younger patients with high intermediate RS (16-25), and adjuvant chemotherapy may be a reasonable option for these patients.

Figure1: Oncotype DX patient distribution

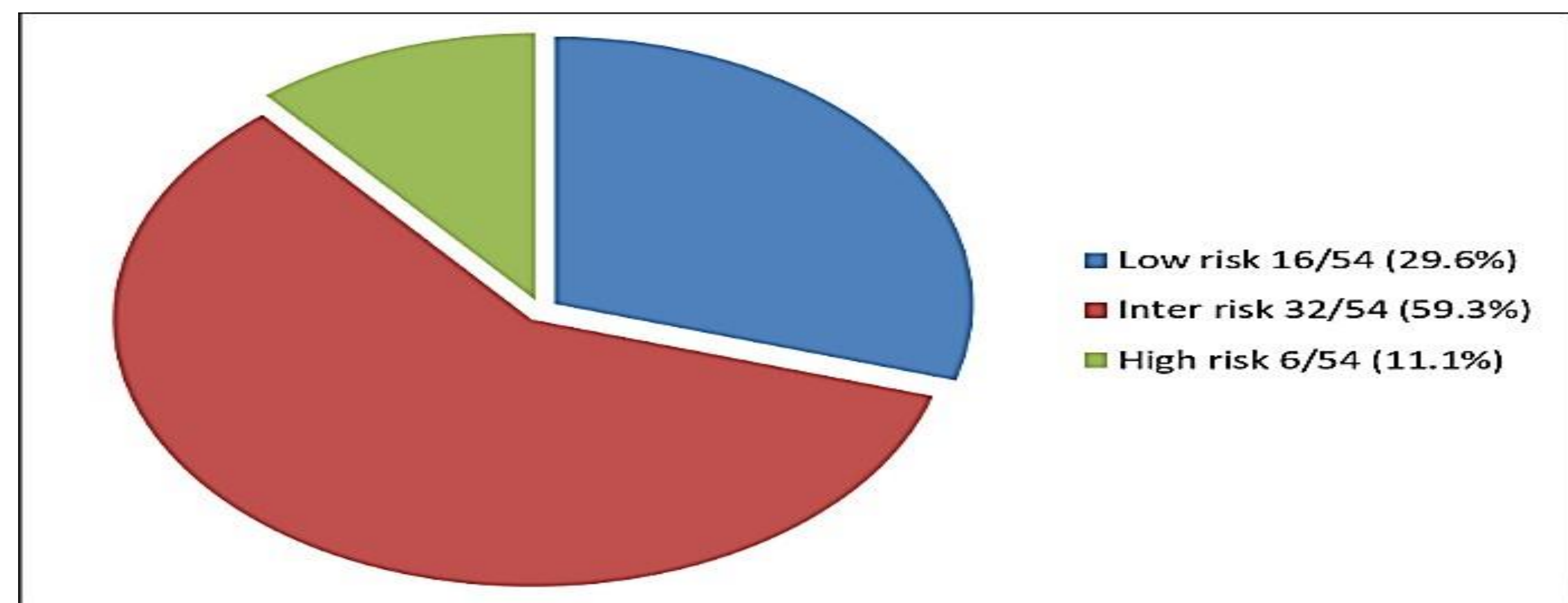


Table 1:Summary of Patients and tumor characteristics

Oncotype RS	Low n (%)	Intermediate n (%)	High n (%)	Total n (%)
Age n (%)				
≤50	5 (16.7) (31.3)	23(76.6) (71.8)	2 (6.7) (33.3)	30 (55.6)
>50	11 (45.8) (68.7)	9 (37.5) (28.2)	4 (16.7) (66.7)	24 (44.4)
Tumor size n (%)				
≤2 cm	9(23.7) (56.3)	25(65.8) (78.1)	4 (10.5) (66.7)	38 (70.4)
>2 cm	7 (43.7) (43.7)	7 (43.7) (21.9)	2 (12.6) (33.3)	16 (29.6)
Tumor grade n (%)				
G1\G2	15 (30) (93.7)	31 (62) (96.9)	4 (8) (66.7)	50 (92.6)
G3	1 (25) (6.3)	1 (25) (3.1)	2 (50) (33.3)	4 (7.4)
PR status n (%)				
PR+	16 (31.4) (100)	30 (58.8) (93.7)	5 (9.8) (83.3)	51 (94.4)
PR-	0(0) (0)	2 (66.7) (6.3)	1 (33.3) (16.7)	3 (5.6)
KI67% n (%)				
≤20	15 (36.6) (93.7)	24 (58.5) (75)	2 (4.9) (33.3)	41 (75.9)
>20	1 (7.7%) (6.3)	8 (61.5) (25)	4 (30.8) (66.7)	13 (24.1)
Chemotherapy n (%)				
No	15 (35.6) (93.75)	25 (59.5) (78.1)	2 (4.7) (33.3)	42 (77.8)
Yes	1 (8.3) (6.25)	7 (58.4) (21.9)	4 (33.3) (66.7)	12 (22.2)

Table 2:Clinicopathologic risk factors correlation with Oncotype DX RS

	Oncotype RS Low n (%)	Oncotype RS Intermediate n (%)	Oncotype RS High n (%)	Univariate analysis p value	Multivariate analysis p value
Age				0.014	0.116
≤50	5 (16.7)	23 (76.6)	2 (6.7)		
>50	11 (45.8)	9 (37.5)	4 (16.7)		
Tumor size				0.288	0.117
≤2 cm	9 (23.7)	25 (65.8)	4 (10.5)		
>2 cm	7 (43.7)	7 (43.7)	2 (12.6)		
Tumor grade				0.034	0.995
G1\G2	15 (30)	31 (62)	4 (8)		
G3	1 (25)	1 (25)	2 (50)		
PR status				0.304	0.997
PR+	16 (31.4)	30 (58.8)	5 (9.8)		
PR-	0 (0)	2 (66.7)	1 (33.3)		
KI67%				0.013	0.995
≤20	15 (36.6)	24 (58.5)	2 (4.9)		
>20	1 (7.7)	8 (61.5)	4 (30.8)		

Table 3:Clinicopathologic risk factors correlation with chemotherapy.

	No adjuvant chemotherapy n (%)	Adjuvant chemotherapy n (%)	Univariate analysis p value	Multivariate analysis p value
Total patients	42 (77.8)	12 (22.2)		
Age			0.124	0.063
≤50	21 (50)	9 (75)		
>50	21 (50)	3 (25)		
Tumor size			0.08	OR 6 (CI, 1.2-30.9) p<0.031
≤2 cm	32 (76.2)	6 (50)		
>2 cm	10 (23.8)	6 (50)		
Tumor grade			0.89	0.924
G1\G2	39 (92.9)	11 (91.7)		
G3	3 (7.1)	1 (8.3)		
PR status			0.634	0.238
PR+	40 (95.2)	11 (91.7)		
PR-	2 (4.8)	1 (8.3)		
KI67%			0.106	0.182
≤20	34 (81)	7 (58.3)		
>20	5 (19)	5 (41.7)		

Table 4:Oncotype DX RS correlation with chemotherapy

Adjuvant chemotherapy n %	Oncotype RS Low n (%)	Oncotype RS Intermediate n (%)	Oncotype RS High n (%)	Univariate analysis p value	Multivariate analysis p value
No	15 (35.7) (93.75)	25 (59.5) (78.1)	2 (4.8) (33.3)	0.01	0.168
Yes	1 (8.3) (6.25)	7 (58.4) (21.9)	4 (33.3) (66.7)		

Table 5:Characteristics of patients who had breast cancer recurrence

Patients	Date Dx M\Y	Age Y	Size Cm	Grade	Ki67%	Risk Score	Relapse (M\Y)	Time to Relapse (Y)
1	10\2016	38	4	2	5%	6	12\2018	2.17
2	11\2013	44	0.6	2	10%	16	12\2019	6.08
3	10\2012	33	1.4	3	40%	17	07\2018	5.75
4	11\2017	35	1.8	2	25%	22	01\2019	1.16