Pathologic complete response rates after Neoadjuvant chemotherapy and pembrolizumab In patients with Triple Negative Breast Cancer treated at The Royal Marsden. (Real life data - A retrospective analysis)

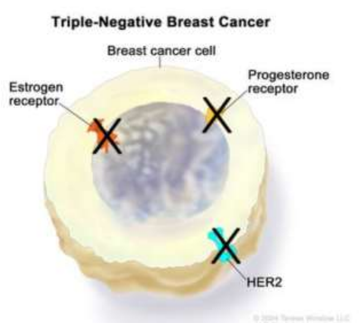
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Introduction

- **Triple-Negative breast cancer (TNBC)** a clinical challenge as it typically has a more aggressive behaviour, higher risk of recurrence and poorer prognosis[1].
- Chemotherapy remains the mainstay of preoperative treatment for early-stage TNBC, although the KEYNOTE-522 study demonstrated that adding Pembrolizumab to chemotherapy increases pathological complete response rate, reduces risk of recurrence and improves overall survival in this setting.
- However, real-world efficacy data is limited. This study aims to evaluate the pathologic complete response (pCR) rates in TNBC patients treated with neoadjuvant chemotherapy and pembrolizumab at our Institution.

Materials and Methods

- We retrospectively retrieved data on patients diagnosed with stage I-III TNBC receiving neoadjuvant chemotherapy and pembrolizumab (neoadjuvant treatment [NAT]) at **The Royal Marsden Hospital between June 2021 and June 2024.**
- We collected data on patient demographics, tumour characteristics, treatment and surgical pathology.
- We used simple statistics to evaluate the rate of pathologic complete response after NAT.



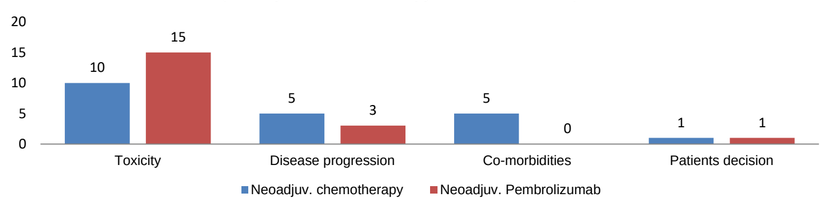
Results

Fig 1: Demographics, tumour and treatment characteristics

Characteristics (at commencing NAT)	Category	Frequency (%) (N = 78)
Age	<50	40 (51.3)
	≥50	38 (48.7)
Menopausal status	Pre menopausal	39 (50.6)
	Peri menopausal	10 (13.0)
	Post menopausal	28 (36.4)
Ethnicity	Asian	35 (44.8)
	Black	4 (5.1)
	Middle Eastern	1 (1.3)
	White	35 (44.8)
WHO Performance Status (ECOG)	0	77 (98.7)
	2	1(1.3)
Stage	I	2 (15.4)
	IIA	32 (41.0)
	IIB	21 (26.9)
	IIIA	16 (20.5)
	IIIB	6 (7.7)
	IIIC	1 (1.3)
Histology	Ductal	74 (94.9)
	Lobular	1 (1.3)
	Others (Medullary, Metaplastic, Poorly differentiated	3 (3.8)
Grade	2	11 (14.1)
	3	65 (83.3)
	4	2 (15.4)

Neoadjuv. chemotherapy	Complete	57 (73.0)
	Discontinued	21 (26.9)
Reason for discontinuation	Toxicity	10 (12.8)
	Disease progression	5 (6.4)
	Others (Patients decision, complications)	6 (7.7)
Neoadjuv. Pembrolizumab	Completed	59 (75.6)
	Discontinued	19 (24.4)
Reason for discontinuation	Toxicity	15 (19.2)
Surgery	Breast Conservation	43 (55.1)
	Mastectomy	35 (44.9)
Nodal surgeries	Sentinel Lymph node biopsy	43 (55.1)
	Axillary node clearance	17 (21.8)
	Targeted axillary dissection	16 (20.5)
Pathologic Complete Response	Stage I	2 (2.3)
	Stage II	30 (38.5)
	Stage 3	9 (11.5)
	Grade 2	3 (3.8)
	Grade 3	37 (47.4)
	Grade 4	1 (1.3)

Fig 2: Reason for Discontinuation
(Neoadjuvant chemotherapy & Pembrolizumab)



- Seventy-eight patients were included in this analysis. The median age at diagnosis was 49 years. Most (n=32; 41.0%) had stage IIA at diagnosis and invasive ductal carcinoma was the most common histological type (n=74/78; 94.9%). 58/78 (74.3%) patients completed chemotherapy and 48/78 (61.5%) completed eight cycles of pembrolizumab prior to surgery.
- Overall, 41/78 (52.6%) patients achieved a pCR, with the highest frequency noted in the earlier stage tumours (Stage I; n=2/2; 100%;) and the higher grade tumours (Grade 3 n = 37/65;56.9%).
- pCR was seen in 29/57;50.8% of the patients completing chemotherapy; and in 34/59; 57.6% of those completing eight cycles of neoadjuvant pembrolizumab.

Fig 3: Tumour Staging

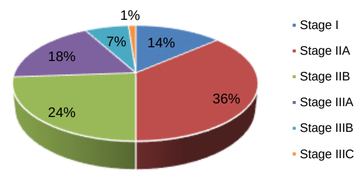


Fig 4: Tumour Response

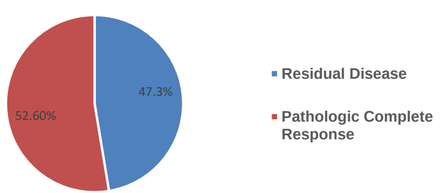
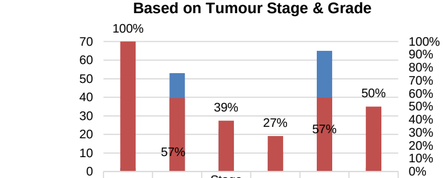


Fig 5: Pathologic Complete Response Based on Tumour Stage & Grade



	Stage I	Stage II	Stage III	Grade 2	Grade 3	Grade 4
No of Patients	2	53	23	11	65	2
PCR %	100%	57%	39%	27%	57%	50%

No of Patients PCR %

Conclusion

- Over 50% of patients with stage I to III TNBC who received neoadjuvant treatment (chemotherapy with pembrolizumab) between June 2021 and June 2024 achieved pCR.
- Our real-world experience in a less selected patient population is consistent with published data from registration trials[2,3].
- Our findings provide further rationale to support the use of neoadjuvant chemotherapy and pembrolizumab in patients with early TNBC.
- Further analyses are needed to evaluate the impact of pathologic complete response on survival in the real world.

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References:
1. Arnedos M, Bihan C, Delaloge S, Andre F. Triple-negative breast cancer: are we making headway at least? Ther Adv Med Oncol. 2012;4(4):195–210. 10.1177/1758834012444711.
2. Schmid P, Cortes J, Pusztai L, et al. Pembrolizumab for Early Triple Negative Breast Cancer. N Engl J Med. 2020;382:810-821.10.1056/NEJMoa1910549
3. Perry, L.M., Sevilimedu, V., Polidorio, N. *et al.* Predictors of Pathologic Complete Response with Neoadjuvant Chemo-Immunotherapy in Early-Stage Triple-Negative Breast Cancer. *Ann Surg Oncol* **32**, 3991–4001 (2025). https://doi.org/10.1245/s10434-025-17081-7