C-03

Impact of chemotherapy schedule modification on breast cancer patients: a single-centre retrospective study

Gobi Hariyanayagam A/L Gunasekaran[1] , Prof Dr. Mohamed Azmi Bin Ahmad Hassali[2]
Wan Mohd Akmal Bin Wan Sabri[1],Dr Muhammad Tahar Bin Rahman[3]
1. Oncology Pharmacy, Hospital Seri Manjung 2.Pharmaceutical Sciences, USM
3. Surgical Department, Hospital Seri Manjung, Perak

NMRR-18-2114-43244

INTRODUCTION

Background

In clinical practice, chemotherapy schedule modifications are done routinely for medical-related complications such as chemotherapy side effect or non-medical reasons such as a patient's social schedule or facility administrative reason

Problem

- Schedule modification contributes to nonconformity of chemotherapy trial protocol which established the survival benefit of the regimen.
- Studies have reported a lower survival rate among patients who experienced dose delay and schedule modification.

Research Aim

The impact of schedule modification on overall survival (OS) are relatively unknown . Evaluating chemotherapy schedule modification is one research area that may help to improve breast cancer survival.

Objective

This study aims to investigate the impact of schedule modification on Overall survival and the hazard of death among breast cancer patients adjusted for other traditional prognostic factors

METHODOLOGY

Study Design

This retrospective cohort study was conducted among female breast cancer patients receiving chemotherapy in Hospital Seri Manjung, from January 2013 to December 2017, and patients were followed until 31 December 2018.

Inclusion and exclusion

- Inclusion : female patient's ≥ 18 year's old, primary neoplasia of the breast, received anthracycline-based or taxane-based therapy, and completed ≥ 2 cycles of chemotherapy.
- Exclusion criteria : patients with recurrent cancer, patients with the non-complete medical record, changes of chemotherapy regimen during treatment, and death before completion of a chemotherapy regimen.

Statistical Analysis

- Survival analysis : Kaplan–Meier with Breslow test (Generalized Wilcoxon) analyses to estimate OS .
- Pairwise comparison over strata was performed to determine significant interaction between each variable category
- Two-tailed *p*-value of < 0.05 was considered to be statistically significant.

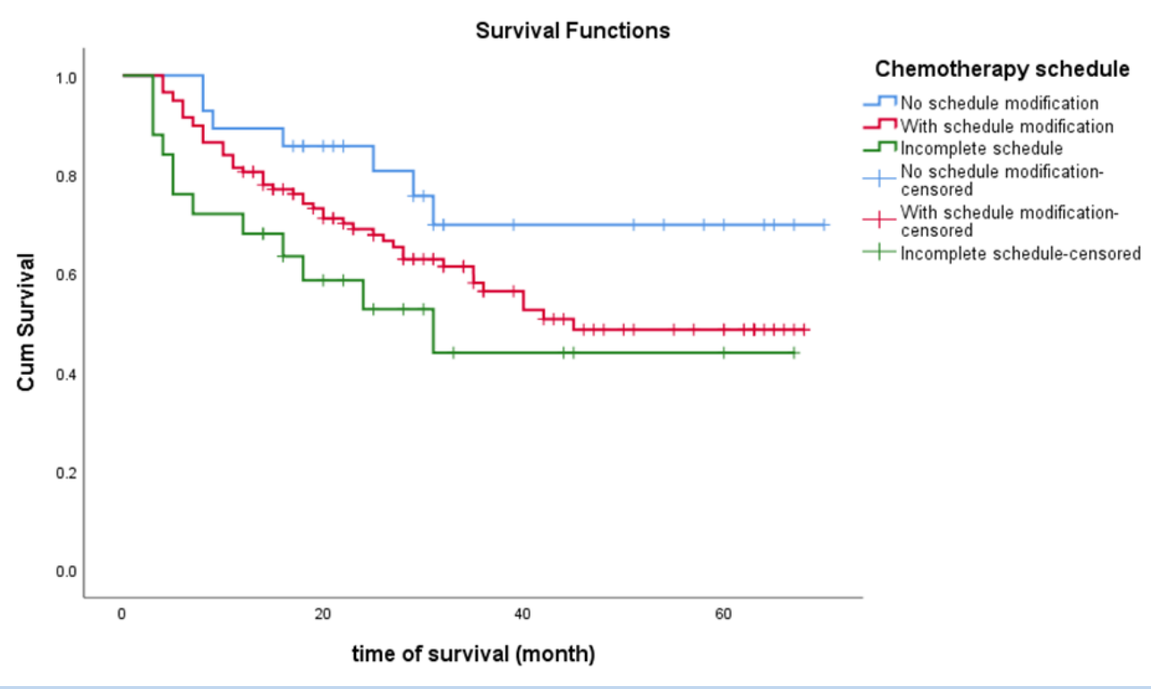
RESULT

Table 1 Overall survival according to characteristic of patients (N=171)

Demographic characteristics	Total	OS (%)	P Overall
Age at chemotherapy			.219
<50	57	71.9	
≥50	114	55.3	
Ethnic			.853
Malay	105	62.9	
Non-Malay	66	57.6	
Tumour Stage			<.001
Stage I	6	100	
Stage II	32	74.3	Pairwise comparison
Stage III	95	71.0	1-4** , 2-4**, 3-4**
Stage IV	38	16.2	1-2ns, 2-3ns, 1-3ns
Molecular subtypes			.030
ER+ HER2-	55	72.7	
ER+ HER2+	41	46.3	
ER- HER2+	16	50.0	Pairwise comparison
ER- HER2-	29	51.7	1-2* , 1-4* , 2-5* , 1-5
Result unavailable	30	73.3	ns , 24ns
Treatment modality			<.001
Adjuvant	109	79.8	
Neoadjuvant	34	38.2	Pairwise comparison
Palliative	28	14.3	1-2** , 1-3** , 2-3*
Type of chemotherapy			<.001
Antracycline based	109	59.2	
Taxane based	16	6.2	Pairwise comparison
Antracycline + Taxane	46	82.6	1-2** , 1-3* , 2-3**
Schedule modification			.047
No schedule modification	28	75.0	
With schedule modification	118	59.3	Pairwise comparison
Incomplete schedule	25	52.0	1-2 ns , 1-3* , 2-3 ns

Pairwise comparisons *$p < 0.05$, **$p < 0.001$, ns- not significant

Survival distribution for chemotherapy schedule



- The Breslow survival distributions for the treatment completion were statistically different, $\chi 2$ (2) = 6.136, p =.047

- Among 171 patients included in the analysis , 931 cycles were observed including 201 cycles rescheduling , which corresponded to a delay of 1554 days.
- Medical reasons contributed to 69.6% (140) of cycle schedule modifications with 1320 (84.9%) of days delayed while non-medical reasons contributed to the remaining 30.4% (61) of cycle schedule modifications with 234 days delay.
- 16.4% (28) patients had No Schedule modification : OS 75.0% , mean survival time of 54.86 month (95% CI: 45.29, 64.43)
- 69% (118) patients had Schedule Modification : OS 59.3% , mean survival time of 43.71 month (95% CI: 38.60, 48.83)
- 14.6% (25) patients had Incomplete Schedule : OS 52.0% , mean survival time of 36.85 month (95% CI: 24.52, 48.89).

Discussion & Conclusion

- Only 16.4% of the patients received chemotherapy within the optimal time frame as recommended by the clinical trial protocol.
- Delaying the administration of chemotherapy in response to clinical , patient and administrative is common clinical practice.
- The high of proportion schedule modification (83.6%) in our study was anticipated because non-medical schedule modification criterion were included
- Chemotherapy schedule modification increased the duration between chemotherapy cycles, which consequently reduced the treatment's dose intensity.
- Clinical outcome of chemotherapy treatment could be partially explained by the sub-optimal administration of chemotherapy in which thresholds of dose intensity are not reached.

Scan me for additional analysis and research article

Thank you