Assessment of the Feasible Utilization of a Chemotherapy Toxicity Risk Score for Geriatric Patients with Cancer in a Community Cancer Clinic

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Background

- An increasing number of patients diagnosed with cancer are ≥ 65 years old (Wildiers et al., 2014).
- Older patients are more susceptible to chemotherapy toxicity due to having dealt with comorbidities and social determinants of health. These comorbidities can further complicate the treatment and diagnosis of cancer increasing the risk for mortality (Mohile et al., 2018).
- In addition, the prevalence of specific comorbidities may be higher in certain racial groups that could lead to poor treatment outcomes (Mohile et al., 2018).
- Recent studies suggest that a newly developed tool called the Chemotherapy Toxicity Risk Score (CTRS) is able to predict a patient's risk for chemotherapy toxicity (Nishijima et al., 2018).
- This tool has been validated in academic cancer center among a predominantly white cohort of patients.
- Our goals are to 1) determine the feasibility of utilizing the CTRS in a community cancer clinic, and 2) assess the applicability of the tool in a multiethnic patient population.

Objectives

- Evaluate CTRS ability to predict NCI CTCAE grade 3-5 toxicity.
- Assess the Feasibility of implementing CTRS in a community cancer clinic through the measurement of workload on clinical staff.

Eligibility Criteria

- Age ≥ 65 years
- Solid tumor
- Starting new Chemotherapy regimen, first or subsequent line receiving chemotherapy given by a Hawaii Oncology physician at Queen's Physician Office Building 1, Kuakini Medical Plaza, Queen's Cancer Center, or a medical or gynecological oncologist at Queen's Cancer Center.
- Able to read and write in English
- Life expectancy ≥ 3 months
- Able to give full consent without Assistance
- Concurrent radiation is not allowed

Eligible Treatments:

Intravenous cytotoxic chemotherapy, Combination of chemotherapy and immunotherapy, and Oral cytotoxic chemotherapy

Ineligible Treatments:

Targeted therapy, Immunotherapy without chemotherapy, Hormone therapy

Study Design and Chemotherapy Toxicity Risk Score

Prior to treatment
- Pt fills out CTRS
- MAs generate CTRS score
- MD is blinded to score

During treatment:
- Pt completes Patient Reported Outcomes, standardized assessment of side effects
- MD and research staff complete CTCAE form, standardized grading of side effects

Sample size and endpoints:
- 55 patients
- CTRS AUC 0.70, 80% power, α=0.05
- CTRS completion time of <5 minutes

CTRS Questionnaire Scoring and Score Categorization

Table 1. Prediction Model and Scoring Algorithm for Chemotherapy Toxicity

Variable	Value/Response	Score
Age of patient	≥ 72 years	2
	< 72 years	0
Cancer type	GI or GU cancer	2
	Other cancer types	0
Planned chemotherapy dose	Standard dose	2
	Dose reduced upfront	0
Planned No. of chemotherapy drugs	Polychemotherapy	2
	Monochemotherapy	0
Hemoglobin	< 11 g/dL (male), < 10 g/dL (female)	3
	≥ 11 g/dL (male), ≥ 10 g/dL (female)	0
Creatinine clearance (Jeliffe, ideal weight)	< 34 mL/min	3
	≥ 34 mL/min	0
How is your hearing (with a hearing aid, if needed)?	Fair, poor, or totally deaf	2
	Excellent or good	0
No. of falls in the past 6 months	≥ 1	3
	None	0
Can you take your own medicine?	With some help/unable	1
	Without help	0
Does your health limit you in walking one block?	Somewhat limited/limited a lot	2
	Not limited at all	0
During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc)?	Limited some of the time, most of the time, or all of the time	1
	Limited none of the time or a little of the time	0

Total Risk Score		%Risk
Low Risk	0 to 3	25
	4 to 5	32
Mid Risk	6 to 7	50
	8 to 9	54
High Risk	10 to 11	77
	≥12	89

Results

Age	Gender	Ethnicity	Diagnosis	Chemotherapy dose	CTRS	MD PS	CTCAE ≥ 3	ER/ Hosp
91	Female	Japanese	Ovarian	Reduced	16	1	Yes	No
73	Female	Japanese	Ovarian	Standard	9	0	NA	No
79	Female	Japanese	Ovarian	Standard	9	1	NA	No
65	Female	Hawaiian	Endometrial	Standard	11	1	Yes	No
77	Male	Chinese	Lung	Standard	13	2	NA	Yes
74	Male	Chinese	Pancreatic Adenocarcinoma	Reduced	9	1	NA	Yes
66	Male	Samoan	Lung	Standard	13	2	Yes	No
76	Male	Filipino	Head and Neck	Reduced	4	0	NA	Yes

Table 1: Characteristics of Patients Enrolled. (CTRS: Chemotherapy Toxicity Risk score, PS: Eastern Cooperative Oncology Group Performance Status by Physician, CTCAE: Common Terminology Criteria for Adverse Events, ER: Emergency Room, Hosp: Hospitalization).

Discussion and Conclusion

- The study is on going, we continue to collect data and accrue patients.
- We are enrolling a racially diverse population as opposed to the homogeneous populations in published studies evaluating CTRS.
- Age of the patients currently enrolled ranges from 65-91 years with the majority falling between the ages of 65-77 years of age.
- Cancer diagnosis of patients range were diverse.
- In both the female and male groups the oldest and youngest were at high risk.
- One challenge has been tracking patient follow up as adverse events could happen at any time, and may be reported between chemotherapy follow-up visits.
- One success is that patients have been able to complete the CTRS and the other data collection forms independently.

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