Treatment Patterns and Healthcare Resource Utilization Among Patients with Triple Class Exposed Multiple Myeloma: A Population-Based Cohort Study

Alissa Visram[1], Hsien Seow[2], Gregory Pond[3], Ana Gayowsky[4], Arleigh McCurdy[1], Christopher Cipkar[1], Hyra Sapru[1], C. Tom Kouroukis[5], Mohammed Aljama[5], Mohammad Ebraheem[5], Stephen Ronan Foley[5], Hira Mian[5]

Affiliations: [1]Division of Hematology, The Ottawa Hospital Research Institute, The Ottawa Hospital, Ottawa, ON, Canada; [2]Department of Oncology, McMaster University, Hamilton, ON, Canada; [3]Escarpment Cancer Research Institute, McMaster University, Hamilton, ON, Canada; [4]Institute for Clinical Evaluative Sciences, McMaster University, Hamilton, ON, Canada; [5]Juravinski Cancer Centre, Hamilton, ON, Canada

Introduction

- Outcomes of patients with relapsed or refractory multiple myeloma (MM) have improved substantially with access to novel therapeutic agents. However, patients with **triple class exposed (TCE)** MM continue to have poor outcomes.
  - Though newer bispecific antibody and chimeric antigen receptor T-cell immunotherapies have improved outcomes of TCE patients, these therapies are inaccessible outside of clinical trials in many publicly funded healthcare systems, including Canada.
- The healthcare resource utilization of patients with TCE MM has not been well described
  - These data will provide a crucial benchmark to compare to as novel immunotherapies become available.

Aim

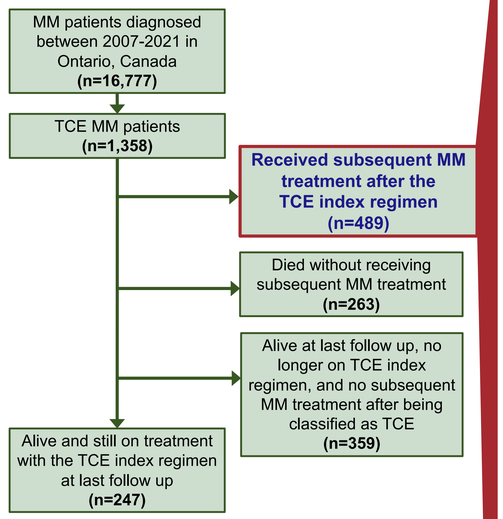
This **retrospective cohort** study aimed to describe treatment patterns, outcomes, unplanned health care utilization and quality-of-life impairments of TCE patients with MM treated with subsequent therapy in Ontario, Canada.

Methods

- This Retrospective observational study utilized data from the **Institute for Clinical Evaluative Sciences (IC/ES)** administrative database, which contains all health records of patients treated within Ontario's publicly funded healthcare system. Multiple databases were linked using a unique patient identifier.
  - Cancer Activity Level Reporting (ALR) and Ontario Drug Benefit Claims Registry (ODB) databases, housed within IC/ES, which contain data on intravenous and oral MM treatment exposure for standard of care and clinical trial regimens.
- **Definitions:**
  - **TCE:** Prior or current treatment with an immunomodulatory drug (lenalidomide or pomalidomide), a proteasome inhibitor (bortezomib, carfilzomib, or ixazomib), and an anti-CD38 monoclonal antibody (isatuximab or daratumumab)
  - **TCE index regimen:** treatment on which a patient was first identified as having met the TCE definition.
- Inpatient hospitalization visits did not include planned chemotherapy infusion visits.
- Patient-reported quality of life was described using the **Edmonton Symptom Assessment System Score (ESAS) -** scores ≥7 corresponding to severe symptoms (Hui *et al.* J Pain Symptom Manage. 2017)
- Overall survival (OS) was determined using the Kaplan-Meier method, and defined as the time from initiation of next-line treatment post TCE index regimen to death or last follow up.
- The data cutoff date was May 31, 2022.

Results

Consort Diagram



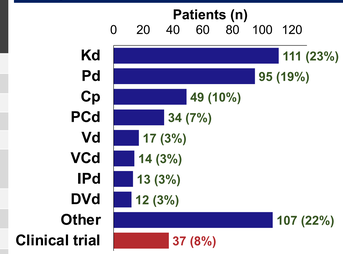
Outcomes of TCE patients receiving subsequent MM therapy

Table 1. Baseline characteristics of TCE patients at the time of initiation of a *subsequent* MM regimen

	TCE patients treated with a subsequent MM regimen (n=489)
Male sex - n(%)	271 (55)
Age at therapy initiation - n(%)	
≤69 years	287 (59)
70-79 years	158 (32)
≥80 years	44 (9)
Median time from diagnosis to next-line therapy initiation - years (IQR)	4 (2-6)
CCI (excluding cancer) – n (%)	
<2	227 (46)
≥2	202 (41)
Missing	*60 (12)*
Patient's place of residence - n(%)	
Urban	435 (89%)
Rural	54 (11)
Prior exposure at therapy initiation - n(%)	
ASCT	325 (66)
Lenalidomide	482 (99)
Pomalidomide	110 (22)
Ixazomib	61 (12)
Bortezomib	484 (99)
Carfilzomib	68 (14)
Isatuximab	11 (2)
Daratumumab	478 (98)
Labs at therapy initiation – n(%)	
Hb <100 g/L	
No	316 (65)
Yes	129 (26)
Missing	*44 (9)*
Platelets <75 x10^9/L	
No	270 (55)
Yes	176 (36)
Missing	*43 (9)*
ANC <1 x10^9/L	
No	321 (66)
Yes	125 (26)
Missing	*43 (9)*
eGFR <30 mL/min	
No	391 (80)
Yes	98 (20)

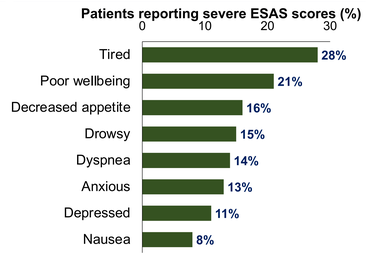
Abbreviations: multiple myeloma (MM), hemoglobin (Hb), absolute neutrophil count (ANC), autologous stem cell transplant (ASCT); Deyo-modified Charlson comorbidity index (CCI)

Subsequent treatments of TCE patients



The next-line treatment regimen was given in an academic versus community treatment center in 235 (48%) versus 254 (52%) of patients

Patient-reported quality-of-life at initiation of next-line treatment



32% of patients had an ECOG PS ≥2 at initiation of next-line treatment

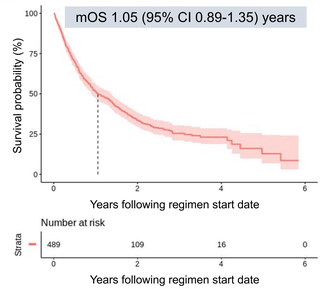
Healthcare resource utilization

While on subsequent treatment:
- 149 (30%) were evaluated in the emergency department (ED)
- 126 (26%) were admitted to hospital
- 48 (10%) were referred to palliative care

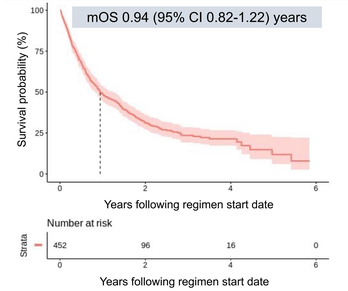
Of the 489 TCE patients that started next-line treatment, 333 (68%) passed away during follow-up:
- 65% (n=217) were referred to palliative care
- 44% (n=147) passed away in hospital

Overall Survival Outcomes

Full cohort *(n=489)*



Treated with Standard of Care regimen *(n=452)*



Conclusion

- In this real-world study, we showed that the overall outcomes of TCE patients with MM remains poor in Canada, highlighting the urgent need for novel therapies.
- We demonstrated that TCE patients receiving subsequent therapy had significant rates of unplanned health care utilization and poor quality of life.
- Future studies will need to assess whether the outcomes, healthcare utilization, and patient-reported quality of life improve as newer immunotherapies are used as standard of care treatments within our publicly funded healthcare system.

Author contact information:
alisvisram@toh.ca

905. Outcomes Research-Lymphoid Malignancies: Poster II
Alissa Visram
SUN-3774
ASH2023