Pharmacist-led Outpatient Autologous Stem Cell Transplant Program

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Disclosures

- I have nothing to disclose

Objectives

- Discuss the daily roles of the pharmacist with outpatient autologous stem cell transplant
- Review the potential cost savings associated with outpatient autologous stem cell transplant

Multiple Myeloma

- One of the most common hematologic malignancies
- Autologous hematopoietic stem cell transplant (aHSCT) cornerstone of treatment
- Outpatient aHSCT began in 1990s as cost-effective option

Wake Forest Baptist Health

- 880-bed academic medical center
- NCI-designated Comprehensive Cancer Center
- 150-bed Cancer Hospital with 20 bed unit to support HSCT patients
  - 3 dedicated beds for outpatient HSCT
- 130 HSCTs annually (60% aHSCT)

Role of Pharmacists in Outpatient Setting

- Chronic Disease Clinics: hypertension, anticoagulation, and diabetes
- Hematology and Oncology clinics: supportive care
- Transplant Clinics: focus on interventions in post-transplant care

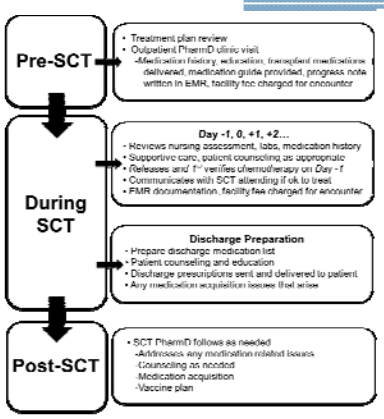
Purpose

With our outpatient aHSCT, the transplant clinical pharmacist was the sole clinician seeing the patients on at least 55-75% of their outpatient transplant visits. To our knowledge, there has been no published literature on a pharmacist-run outpatient transplantation program.

TOPA

Description of the Program

- January 2015, hybrid outpatient aHSCT for multiple myeloma with the first 3-5 days outpatient then admitted for support during neutropenia
- March 2016, transitioned to full aHSCTs in the outpatient setting if allowed by the patient's payer
- 70 patients evaluated from January 2015 to June 2016



Involvement of Pharmacist

Number of transplants	70
Number of pharmacist encounters	313
Mean number of pharmacist encounters per transplant	4.5
Total time spent by pharmacist	10,190 minutes
Mean amount of time spent by pharmacist per transplant patient	145 minutes
Total number of clinical interventions	394
Mean number of clinical interventions per patient	5.6

Inventions of Pharmacist

Type of Intervention	Number of Interventions n=394 (%)
Therapeutic Recommendation	142 (36)
Electrolyte Supplementation	48 (34)
Chemotherapy Induced N/V	23 (16)
Supportive Care: GI symptoms	17 (12)
Pain	15 (11)
Other	39 (27)
Patient Education	125 (32)
Medication Facilitation	61 (15)
Chemotherapy Order Clarification	44 (11)
Other	22 (6)

Unplanned Admissions

- Uncontrolled nausea and vomiting
- Uncontrolled diarrhea
- Fevers and infection
  - Neutropenic fever (35%)
  - *Clostridium difficile* diarrhea (18%)
  - Pneumonia (18%)

Days of Admission

	Benchmark	OP BMT
Length of Stay	17 days	11 days
Readmission Rate	25-51%	12.8%
Infection rate in first 100 days	35-80%	24.2%

Cost Savings of Decreased LOS

- Decreased length of stay (LOS): 17 to 11 days
- Approximate cost per day: $2700
- 6 days decreased LOS: $16,200
- Overall savings for 70 patients: $1,134,000

Cost Savings and Revenue Generation

- Drug cost savings: $460,000 for melphalan
- Facilities fee charges for the pharmacist encounter: $17,605
- Outpatient prescriptions captured through integrated transitions of care program: $7,000

Next Steps: Lymphoma Patients

- BEAM
  - Carmustine Day -6
  - Etoposide Day -5 to -2
  - Cytarabine Day -5 to -2
  - Melphalan Day -1
  - Cell Infusion Day 0
  - Hydration, labs, electrolytes Day +1 until engraftment

Non-financial Benefits and Costs

Benefits

- Relationships with patients
- Practitioner independence

Costs

- Lots of extra days (holidays and weekends)

Conclusion

- Autologous SCT may be done in the outpatient setting
- Regimens that can be safely given
  - Melphalan
  - BEAM
- Cost effective for the medical center
- Allows the pharmacist to be actively involved in the care of the patient

Thanks

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