

Impact of a Long-Acting Erythropoietic Growth Factor on Practice Dynamics in an Oncology Clinic

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Background

- For more than a decade, epoetin alfa, which requires weekly injections, was the only erythropoietic growth factor (GF) available for the treatment of chemotherapy induced anemia (CIA)
- With the introduction of darbepoetin alfa in 2001, practitioners were afforded the advantage of extended interval dosing
- Clinic visits for GF injections require a significant amount of time and effort for both patients and health care staff

Objectives

- To determine the impact of long-acting growth factor use on the frequency of visits to an outpatient oncology clinic
- To measure the time expended for various tasks associated with visits for erythropoietic GF administration

Methodology

- Approved by the institution's IRB and informed consent was obtained
- Conducted in two parts from September 2004– December 2004
- Part I: Prospective Growth Factor Utilization**
 - Consisted of a retrospective chart review to determine the frequency and reason for clinic visits during a single chemotherapy cycle for patients receiving epoetin alfa or darbepoetin alfa for CIA
 - Inclusion criteria
 - Adults ≥ 18 years of age
 - Receiving chemotherapy for solid tumor types including lymphoma
 - Chemotherapy cycle between 14-28 days
 - Receipt of epoetin alfa only
 - Receipt of darbepoetin alfa only
 - Receipt of at least one dose of GF during cycle
 - Complete documentation of GF and lab testing
 - Cycle started between 8/1/03 and 3/31/04
 - Exclusion criteria
 - Patients self-administering epoetin alfa or darbepoetin alfa
 - Receipt of filgrastim or pegfilgrastim
 - Receipt of sargramostim
 - Receipt of both epoetin alfa and darbepoetin alfa in the same cycle
 - Vulnerable patient populations (prisoners, cognitively impaired patients)
 - 125 cycles of therapy sought in each group
- Part II: Prospective Time and Motion Measurement**
 - Consisted of a time/motion evaluation of patients receiving epoetin alfa or darbepoetin alfa
 - Observations were made and times were recorded for each of the events associated with a GF visit (check-in; blood draw; lab processing; pharmacist assessment and counseling; and GF preparation, administration, and documentation)
 - 60 events sought in each category
- Average time per cycle for GF administration was calculated by combining the results of the retrospective review of GF doses administered with the results of the time and motion analysis

Results: Time and Motion Measurements

Event	N	Mean Staff Time (min)
Patient check-in	65	3.7
Phlebotomy	63	10.3
Laboratory processing	57	12.9
Pharmacy assesment and counseling	61	22.6
Nurse prep/admin/document	67	5.9
Total Process Time per Visit		55.4 min

Results: Growth Factor Utilization

	Epoetin alfa		Darbepoetin alfa	
	No.	No/100 cycles	No.	No/100 cycles
Total cycles	130		136	
Patient age, yr				
Mean	61		61	
Range	53-71		57-66	
Gender				
Female	66		95	
Male	64		41	
Cycle duration, days				
Mean	23		22	
Visit Type				
Chemo Only	60	46	44	32
Chemo + CBC	72	55	103	76
Chemo + GF	6	5	6	4
Chemo + CBC + GF	171	132	118	87
CBC Only	110	85	105	77
GF Only	16	12	10	7
CBC + GF	139	107	81	60
Total	574	442	467	343

	Epoetin alfa	Darbepoetin alfa	P Value
Cycles	130	136	
Visits, mean (SD)			
All	4.4 (1.9)	3.4 (2.5)	<.001
Chemotherapy	2.4 (1.3)	2.0 (1.0)	<.01
Growth factor	1.2 (1.0)	0.7 (0.6)	<.001
CBC only	0.8 (1.3)	0.8 (1.2)	NS
Laboratory			
CBCs obtained	3.8 (1.6)	3.0 (1.4)	<.001
Growth Factor			
Number of doses	2.6 (0.9)	1.6 (0.6)	<.001
Dose amount	43,800 units	226 µg	NA

Hours Saved with Reduced Visits

	# Cycles	Visits Reduced per Cycle	Total Visits Reduced	Total Time Saved (h)
Darbepoetin alfa	136	1	136	126*

*136 visits x 55.4 min/visit = 126 hours of staff time

Savings Opportunities

	Cycles	Visits/Cycle	Total Visits	Total Time, h*
Epoetin alfa	130	4.4	572	528
Darbepoetin alfa	130	3.4	442	408
Time savings with darbepoetin alfa				120

Results

- Average time for events associated with a growth factor visit was **55.4 minutes**
- Total visits per cycle were reduced by 23% in the darbepoetin alfa group, resulting in **one less visit** (4.4 vs 3.4) per single average chemotherapy cycle
- Growth factor doses per cycle were reduced by 38% in the darbepoetin alfa group, resulting in **one less dose** (2.6 vs. 1.6) per average chemotherapy cycle
- Conversion of the 130 cycles of epoetin alfa to darbepoetin alfa would result in a **reduction of 130 clinic visits** and an **avoidance of 120 hours staff time** performing growth factor related activities

Conclusions

- Use of a long-acting growth factor such as darbepoetin alfa has the potential to significantly impact an outpatient oncology clinic by:
 - Reducing the number of clinic visits for GF administration
 - Reducing the amount of staff time spent on growth factor related activities
- Education regarding need for CBC visits on non-GF weeks may be indicated
- Average time for events associated with a GF visit (55.4 minutes) may be conservative

Disclosure

The authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities:

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 Andy Pultz
 Ronald Moleski
 John Reitan
 Gary Milkovich
 Sam Penza Amgen
 Colleen Allen Amgen