Diabetes Care Management During Cancer Treatment

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Published In/Presented At

Harper, G., Sharma, J., Habeck, C., Coyne, C., Kincaid, H., Hamadani, R., Rivera, A., Perilli, G., & Sully, N. (2013). *Diabetes care management during cancer treatment.* Presented at: 2013 American Society of Clinical Oncology (ASCO) Quality Care Symposium in San Diego, CA.

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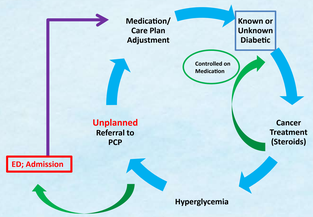
Background

- Persons with Diabetes receiving cancer treatment, especially with steroids, are at increased risk for uncontrolled hyperglycemia, emergency department visits and hospitalizations
- Care coordination of persons with diabetes between primary care and oncology specialists is often inadequate
- Few studies in the literature aimed at improving diabetes care management in cancer patients

Usual Diabetes "Management" in Cancer Patients



Objectives

- Decrease diabetes related emergency department (ED) visits in persons with diabetes receiving cancer treatment
- Improve patient satisfaction with care integration, self efficacy, and diabetes treatment
- Improve provider satisfaction with care coordination and communication

Methods

- A comparison population of persons with diabetes undergoing active cancer treatment was selected from the patient registry of a hospital employed physician group
- Patients with known or newly diagnosed diabetes were referred for diabetes care management (CM)
- CM intervention:
  - Diabetes education with emphasis on self-care by nurse Certified Diabetes Educator (CDE)
  - Nurse practitioner (NP) and CDE collaboration on care plan, communication to the PCP, and plans for co-management
  - Creation of clinical practice guidelines (CPG) for use in the chemotherapy infusion suite

Patient Measures

Domain	Instrument/source
Demographics	Medical record
Self efficacy	Diabetes Empowerment Scale - Short Form[1,2]
Care integration	Ambulatory Care Experiences Survey (ACES) - Integration of care subscale[3]
Quality of Life	Functional Assessment of Cancer Therapy - General (FACT-G)[4]
Satisfaction with Treatment	Diabetes Treatment Satisfaction Questionnaire[5]

Provider Measures

Domain	Instrument/source
Collaboration and Satisfaction	Collaboration and Satisfaction about Care Decisions (CASCD) – study modified – collaboration scale[1]
Satisfaction with communication and coordination	Developed for study

1 Baggs JG. Development of an instrument to measure collaboration and satisfaction about care decisions. Journal of Advanced Nursing. 20:176-182, 1994.

1 Anderson RM, Funnell MM, Fitzgerald JT, Marrero DG: The diabetes empowerment scale: a measure of psychological self-efficacy. Diabetes Care 23: 739-743, 2000.

2 Anderson RM, Fitzgerald JT, Gruppen LD, Funnell MM, Oh MS: The Diabetes Empowerment Scale- Short Form (DES-SF). Diabetes Care 26(5): 1641-1642, 2003.

3 Safran DG, Karp M, Coltin K, Chang H, Li A, Ogren J, Rogers WH: Measuring Patients' Experiences with Individual Primary Care Physicians. Results of a Statewide Demonstration Project. J. Gen Med 21:13-21, 2006.

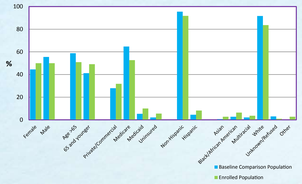
4 Cella D. Assessment methods for quality of life in cancer patients: the FACIT measurement system. International Journal of Pharmaceutical Medicine 14: 78-81, 2000.

5 Bradley C, Plowright R, Stewart J, Valentine J, Witthaus E. The Diabetes Treatment Satisfaction Questionnaire change version (DTSQc) evaluated in insulin glargine trials shows greater responsiveness to improvements than the original DTSQ. Health and Quality of Life Outcomes 2007, 5:57 -

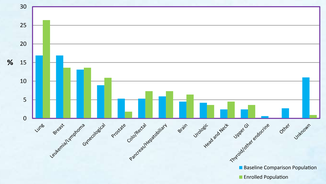
Patient Characteristics

- Comparison and CM populations were similar demographically and by tumor type
- Quality of Life scores (FACT–G) at enrollment in the CM population were slightly lower than the normative scores reported in the literature

Patient Characteristics
Comparison and CM Populations



Patient Tumor Type
Comparison and CM Populations



Quality of Life in CM Patients

CM Paraticipant Survey Baseline Mean Scale Scores (n=81)			Normative Data of Cancer Sample (n=2236)		
Scale (n)	Mean Score	SD	Scale (n)	Mean Score	SD
FACT-G	78.18	*16.28*	FACT-G	80.9	*17.0*
PWB	20.64	*6.0*	PWB	21.3	*6.0*
SWB	23.17	*4.96*	SWB	22.1	*5.3*
EWB	18.11	*4.50*	EWB	18.7	*4.5*
FWB	16.27	*6.78*	FWB	18.9	*6.8*

Source: Copyright 2004, David Cella in Brucker et al (2005)

Provider Surveys

- Similar levels of satisfaction with care decisions are reported between PCPs and specialists
- PCPs report a higher level of satisfaction with communication from specialists than specialists report satisfaction with communication from PCPs
- PCPs report higher level of satisfaction with oncologist communication than with endocrinologist communication

Baseline Provider Satisfaction Collaboration and Satisfaction About Care Decisions (n=252)**

Subscale	PCP Perspective: Between Specialist and PCP Mean Score	SD	PCP Perspective: Between Physician and Nurse Mean Score	SD	Specialist Perspective: Between PCP and Specialist Mean Score	SD
Collaboration	4.5	*1.39*	5.0	*1.23*	4.16	*1.53*
Satisfaction	4.7	*1.27*	5.4	*1.15*	4.5	*1.58*

Score range = 1-7; higher the score the better the collaboration and satisfaction
**Baseline = before patients started enrollment into diabetes care management

Baseline PCP Satisfaction with Specialist Communication

Area of Communication	Cancer Mean Score	SD	Diabetes Mean Score	SD
Method of communication	1.85	*0.83*	2.11	*0.83*
Quality of information provided following consultation	1.63	*0.75*	1.96	*0.90*
Timing of referral response	1.78	*0.81*	2.39	*1.03*
Procedures ordered by specialist	1.74	*0.72*	1.98	*0.81*
Timing of receiving results of tests ordered by specialist	1.88	*0.76*	2.05	*0.91*
Recommended treatment by specialist	1.62	*0.68*	1.82	*0.78*
Provision of summary of care record	1.76	*0.77*	2.01	*0.87*
Collaboration in patient self-care support	2.01	*0.96*	2.23	*0.96*

Range = 1-5; lower score more satisfied

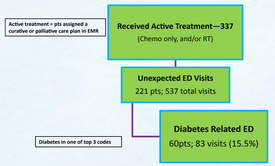
Baseline Specialist Satisfaction with PCP Communication

Area of Communication	Mean Score	SD
Method of communication	3.36	*1.39*
Quality of informaiton provided prior to consultation	3.38	*1.19*
Clarity of reason for referral	3.92	*1.19*
Patient's understanding of reason for referral	3.64	*1.08*
Provider's management of patient chronic diseases	3.50	*1.31*
Provision of summary of care record	3.77	*1.09*
Collaboration of patient self-care support	3.36	*1.45*

Range = 1-5; lower score more satisfied

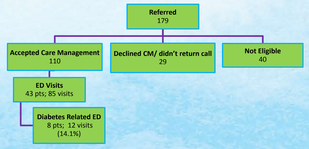
Results

Comparison Group
(4/1/11 - 3/31/12)



- 221/337 patients (pts) identified in the cancer center EMR as having undergone active cancer treatment (chemo only, and/or RT) accounted for 537 visits to the ED
- 83 (15.5%) of these visits were found to have diabetes present in one of the top 3 discharge codes for the visit

Patients Referred for Care Management (CM)
(10/1/12 - 7/3/13)



- 110/179 patients referred by cancer center oncology practices for diabetes CM were seen at least once by the CDE
- 43 CM patients accounted for 85 visits in the LVH-ED
- 12 (14.1%) of these visits were diabetes related

CM Participant Changes in Self-Efficacy and Care Satisfaction

Variable	Median Score: Pre-intervention	Post-intervention	P-value*
Self-efficacy (n=32) (Score range 1 to 5)	4.22 (3.30-4.75)	4.81 (4.50-4.98)	0.000
Care integration (n=28) (Score range 8 to 100)	88.00 (76.67-100.00)	90.00 (83.33-100.00)	0.626
Satisfaction with treatment (n=40) (Score range 1 to 6)	5.16 (4.49-6.00)	5.58 (5.33-5.83)	0.004

Note: Sample sizes differ due to missing values. If less than half of the items on the scale were completed, the case was excluded from analysis.

* Calculated using Wilcoxon Signed Ranks Test

CM Patients 2 Months After Enrollment

- 82.4% reported that their PCP almost always seemed informed and up-to-date about the diabetes care they received from the CDE or NP.
- 95.0% rated the help the CDE and NP gave them in making decisions about the care he or she recommended for them as either very good or excellent.
- 97.5% rated the quality of the diabetes care they received as either very good or excellent.

CM patients rated the coordination of their diabetes and cancer care as 9.23 out of a possible 10 points, where 10 is excellent.

Conclusions

- Patient empowerment and satisfaction with treatment may be improved by diabetes CM
- PCPs surveyed before enrolling patients in CM are more satisfied with oncologist communication than oncologists are with PCP communication
- ED admissions for diabetes related diagnoses among cancer patients persisted among CM patients, although the percentage of ED visits was slightly lower than in the comparison population.
- Patients who received CM were highly satisfied with their care and reported that their PCPs were informed and up to date.

Key Lessons

- PCP engagement in co-management matters
  - APCs and care managers more responsive than MDs
  - Care management "platforms" vary among practices
  - PCPs ambivalent about the "cancer center" providing day to day oversight of patients with diabetes receiving cancer treatment
- Patient "appointment fatigue" limits the opportunities for CDE visits
- Oncologist "buy in" to clinical practice guidelines is critical to point of service (infusion center) intervention for hyperglycemia, but—oncologists uncomfortable with day-to-day diabetes medical management
- Despite high satisfaction with education and support by patients with diabetes undergoing cancer treatment, current reimbursement for diabetes CM limits the sustainability for this pilot model.
- Diabetes education/CM alone may be insufficient to avoid diabetes related ED visits among persons with diabetes receiving cancer treatment