Oncologists' responsibility, comfort, and knowledge managing hyperglycemia in patients with cancer undergoing chemotherapy

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Background

- Hyperglycemia is a frequent complication of chemotherapy (20-60% patients) due to corticosteroids or specific chemotherapeutic agents.[1]
- Hyperglycemia is associated with worse overall (HR=2.05, 95% CI 1.67-2.51; P<0.001) and disease-free (HR=1.98, 95% CI 1.20-3.27; P=0.007) survival compared to normoglycemia.[2]
- United States (US) and European oncology guidelines omit guidance for hyperglycemia management during chemotherapy.[3,4]
- US oncologists perceive that chronic disease management is the responsibility of the primary care physician, feeling less comfortable than the latter prescribing chronic medications, including antidiabetics.[5]
- It is unknown if oncologists perceive hyperglycemia management during chemotherapy as their responsibility and whether they feel knowledgeable and comfortable doing so.

Aim

- To assess oncologists' perceived responsibility, comfort, and knowledge managing hyperglycemia in cancer patients undergoing chemotherapy.

Methods

Cross-sectional study utilizing a questionnaire conducted between June 30, 2022 and August 30, 2022.

Convenience sample of US practicing oncologists identified and recruited via Qualtrics. Research team provided Qualtrics with quotas with regard to age, gender, and race to reflect the US oncology workforce.

Questionnaire consisted of **46 items** grouped into **5 sections**: 1) responsibility for managing hyperglycemia during chemotherapy; 2) comfort in managing hyperglycemia during chemotherapy; 3) knowledge regarding hyperglycemia management during chemotherapy; 4) approach to hyperglycemia management; and 5) demographics and practice characteristics.

Questionnaires were interviewer-administered by Qualtrics's sample partners.

Descriptive statistics were calculated. **Student t-tests** and **one-way ANOVA** compared mean comfort and knowledge scores across demographics and practice setting characteristics. **Multivariable linear regression** identified predictors of comfort and knowledge scores.

Results

SAMPLE N=229

Mean 52.1 years

Mean 22.6 years of experience

68% Men

91.3% White
6.1% Hispanic or Latino
2.2% African-American
0.4% Not disclosed

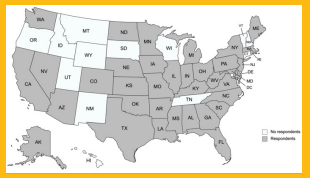

Figure 1. Respondents' geographic distribution.

- Oncologists perceived the primary responsibility of hyperglycemia management during chemotherapy to belong to **endocrinologists** in patients with and without diabetes (76.9% and 48.9%, respectively), followed by **diabetologists** (15.7% and 10.9%) and **primary care physicians** (7.4% and 31.4%).
- No respondents selected oncology or primary care nurse practitioners or pharmacists.

Reasons for referral: lack of time to manage hyperglycemia (62.4%), belief that patients benefited more from being referred to an alternative provider (54.1%), not perceiving hyperglycemia management to be within their scope of practice (52.4%), patients having baseline uncontrolled diabetes (48.5%), and lack of comfort (33.2%) or knowledge (31.4%).

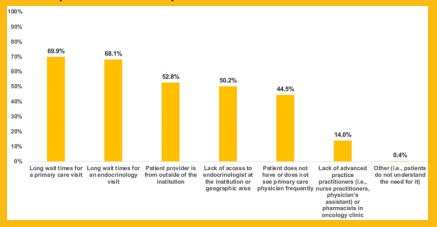

Figure 2. Barriers to patient referral for hyperglycemia management.

Table 1. Barriers to treating hyperglycemia (values closer to 1 denote not at all a barrier; values closer to 10 denote serious barrier).

	Mean (SE)
Oncologist knowledge about when to start insulin	8.5 (0.07)
Oncologist knowledge about how to adjust insulin	8.5 (0.07)
Oncologist knowledge about what insulin type works best	8.3 (0.08)
Oncologist knowledge about how to start insulin	7.2 (0.07)
Fear of causing patient hypoglycemia	5.3 (0.11)
Oncologist knowledge about treating hyperglycemia	4.5 (0.04)
Provider preference to defer hyperglycemia management to other specialties or to outpatient providers	4.0 (0.09)
Provider preference to defer hyperglycemia management until chemotherapy regimen is complete	2.8 (0.08)
Lack of guidelines on how to treat hyperglycemia	2.2 (0.07)
Other (no additional details provided)	1.0 (0.00)

Note: The manuscript describing this work has been published while the abstract was being reviewed: https://pubmed.ncbi.nlm.nih.gov/37421495

Results (cont.)

- Mean (SE) **comfort score:** 73.5 (0.38) out of 120.
- Mean (SE) **knowledge score:** 11.3 (0.09) out of 16.

Table 2. Multivariable linear regression model predicting comfort score (n=229).

Variable	Estimate	SE	95% CI	P-value*
Gender (ref=Man)				
Woman	1.67	0.77	0.16, 3.18	**0.0301**
Practice size (ref=<11)				
Practice size 10 or less	-2.75	1.13	-4.96, -0.53	**0.0151**
Practice location (ref= Urban)				
Suburban	6.98	2.27	2.53, 11.44	**0.0021**

aOR, adjusted odds ratio; CI, confidence interval; SE, standard error
Bayesian information criterion (BIC) = 1465.9
*Bold values indicate significance at p-value<0.05
Note: Comfort scores range from 12 to 120

- No significant association between knowledge score and any of the demographic or practice characteristics in either the bivariate and regression analyses.

Conclusions

- Oncologists identified endocrinologists and primary care physicians as those primarily responsible for managing hyperglycemia during chemotherapy and to whom they most frequently referred patients.
- Long wait times were among the top barriers to patient referral to endocrinology and primary care.
- Oncologists who identified as women, practicing in suburban areas, and working in practices with 10 or less oncologists self-reported higher comfort managing hyperglycemia during chemotherapy.

References

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