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Betancourt, Nicolas J
Johnson, Austin N
Clawson, Rebecca C
et al.

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Electronic consultation in supportive oncodermatology: a single center retrospective cohort

Nicolas J Betancourt[1] MD, Austin N Johnson[1] BS, Rebecca C Clawson[2] BS, Justin M Ko[3] MD MBA, Jasmine K Rana[3] MD

Affiliations: [1]Stanford University School of Medicine, Stanford, California, USA, [2]Eastern Virginia Medical School, Norfolk, Virginia, USA, [3]Department of Dermatology, Stanford University School of Medicine, Stanford, California, USA

Corresponding Author: Jasmine K Rana MD, Department of Dermatology, Stanford University School of Medicine, 900 Blake Wilbur Drive, MC 5356, Stanford CA 94305, Tel: 650-498-6000, Fax: 650-498-5008, Email: jrana@stanford.edu

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To the Editor:

Supportive oncodermatology is an emerging subspecialty that has been shown to decrease anti-cancer therapy disruption and improve outcomes [1]. We hypothesized electronic consultations (econsults), asynchronous communications between providers in a shared medical record, can further enhance access to and timeliness of dermatologic care for cancer patients.

Retrospective chart review was performed for 167 patients undergoing oncologic therapy at an academic institution from May 2020 to January 2021 whose medical oncology providers (N=68) submitted econsults to dermatologists (N=2) with expertise in supportive oncodermatology working full-time at the cancer center in a newly implemented store-and-forward econsult program (approved by the Stanford Institutional Review Board on April 2, 2021 and renewed on 5/20/2022). We evaluated patient characteristics, chief complaints, management recommendations, outcomes, and timing of care. Study data were collected and managed using REDCap and analyzed using Fisher's exact test [2].

Patient and econsult characteristics, logistics, and outcomes are detailed in **Table 1**. Face-to-face (FTF) evaluation was recommended for 91% (152/167) of patients and empiric treatment recommendations for 84% (140/167), in most cases topical corticosteroids for rashes. Dermatologists recommended anti-cancer drug cessation in less than 15% (12/83) of suspected adverse anti-cancer cutaneous events. Median time from econsult request to response was 0 days (i.e., same-day turnaround) and median time from econsult to FTF visit was 14 days.

Eighty-one percent (75/93) of patients with documented FTF data reported using econsult recommended treatments. Among those with adherence to recommendations, 68% (51/75) had improvement or resolution noted on FTF evaluation compared to 38% (7/18) who did not adhere to treatment recommendations (P=0.03, Fisher's exact test). Collectively, 14/167 (8%) patients experienced anti-cancer treatment disruptions.

Patients receiving anti-cancer therapy are uniquely vulnerable to adverse events and toxicities related to therapy and are at-risk for cancer progression if treatment is withheld. Our findings suggest that econsults may be an important triage tool to improve timeliness of specialty dermatologic care to reduce unnecessary treatment disruption. Many patients benefited from empiric treatment recommendations and were seen by dermatologists with expertise in supportive oncodermatology within two weeks of initial econsult.

Further, our study observed positive outcomes. Most cases (58%, 64/110) demonstrated resolution or interval improvement upon post-econsult FTF

evaluation. This proportion is likely an underestimate as 50% (21/42) of those who did not attend post-econsult evaluation cited improvement or cancelled their appointments with unknown clinical status. Patients who were improving were significantly more adherent to treatment recommendations than those who were not. This suggests econsult recommendations may be effective and also highlights the role of FTF follow-up to improve patient adherence.

Most econsults reviewed in this study were converted to FTF evaluation in contrast to many econsult programs that decrease rates of FTF encounters [3-5]. This divergence is likely multifactorial owing to less well-characterized cutaneous adverse effects of novel anti-cancer drugs, differential diagnoses requiring bedside testing (e.g., KOH testing, wound cultures, skin biopsy), and the unique risk-benefit ratios for empiric recommendations in this medically complex and immunosuppressed population. Reducing FTF visits may be one goal to improve cost-savings. However, decreasing time-to-treatment and increasing access to care are also important quality measures that need to be investigated further [5-8].

This single-institution retrospective study is limited by small sample size, variable racial/ethnic group representation, absent comparator group, and lack of follow-up data for patients who did not attend FTF visits. Although further research is necessary to expand on the utility of econsults in this setting, this initial observational study shows that supportive oncodermatology econsults are valued by oncologists, enhance outcomes when patients are adherent to recommendations, and may be useful triage tools for ensuring timely FTF visits with patients at risk of anti-cancer therapy interruptions.

Potential conflicts of interest

The authors declare no conflicts of interest.

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Table 1. *Demographics, logistics, and outcomes of econsult patients undergoing oncologic therapy.*

Variable	Patients (N=167)
Age	
Mean +/-SD	59.1 +/-15.5
Median [range]	60 [20-92]
Sex (%)	
Males	63 (37.7)
Females	104 (62.3)
Ethnicity (%)	
Hispanic or Latino	18 (10.8)
Race (%)	
White/Caucasian	85 (50.9)
Asian	56 (33.5)
Other Race[a]	28 (16.8)
Cancer subtype (%)	
Breast	49 (29.3)
Hematologic/blood	39 (23.4)
Lung	39 (23.4)
Digestive/gastrointestinal	22 (13.2)
Other cancer[b]	18 (10.8)
Econsult purpose (%)	
Rash/dermatitis	144 (86.2)
Neoplasm/lesion	15 (9.0)
Nail issues	10 (6.0)
Other[c]	12 (7.2)
Duration of complaint[d] (%)	
Acute	116 (69.5)
Chronic	25 (15.0)
Unknown/not specified	26 (15.6)
What was the recommendation in the econsult? (%)	
Empiric treatment	140 (83.8)
In-person evaluation	152 (91.0)
Additional lab/diagnostics	4 (2.4)
Reassurance/general monitoring	8 (4.8)
General class of empiric treatment(s) suggested by econsult specialist? (% of sub-group, N=140)	
Antiviral	19/140 (13.6)
Antifungal	21/140 (15.0)
Oral antibiotics	18/140 (12.9)
Topical antibiotics	42/140 (30.0)
Oral steroids	2/140 (1.4)
Topical steroids	104/140 (74.3)
Antihistamine	26/140 (18.6)
Other	20/140 (14.3)
Was the complaint suspected to be related to an adverse effect of anti-cancer therapy?	
Yes	83 (49.7)
No	37 (22.2)
Unknown/unclear	47 (28.1)
Did the consulting dermatologist recommend stopping anti-cancer therapy in those with expected adverse effects (% of sub-group, N=83)	
Yes	12/83 (14.5)
No	71/83 (85.5)

Status of the skin complaint by the time of evaluation (% of sub-group which attended FTF follow-up, N=110)	
Resolved	14/110 (12.7)
Improving	50/110 (45.5)
Not improving or worse	46/110 (41.8)
Total anti-cancer therapy disruptions following econsult[e]	14 (8.4)
Calendar days from econsult order to response	
Mean +/-SD	0.71 +/-1.25
Median [range]	0 [0-6]
Time spent on econsult by dermatologist (%)	
<10 minutes	42 (25.2)
11-20 minutes	71 (42.5)
>20 minutes	40 (24.0)
Unknown/not provided	14 (8.4)
Econsult feedback from ordering provider (%)	
Appropriate	106 (63.5)
Unclear/too complex/required follow-up question	12 (7.2)
Not provided	49 (29.3)
Calendar days from econsult recommendation to FTF evaluation (for those that occurred, N=110)	
Mean +/-SD	16.0 +/-11.5
Median [range]	14 [0-47]

[a]Including Black/African American, American Indian, Native Hawaiian and "Other" as indicated by electronic medical record.
[b]Any cancer subtype with less than five percent of N was lumped into "Other Cancer".
[c]Including mucositis, hair loss, or otherwise as indicated by referring provider on econsult.
[d]Acute defined as less than 6 weeks, Chronic defined as greater than 6 weeks.
[e]Period of determining anti-cancer therapy disruption was measured from date of econsult until two months following econsult or immediately following subsequent face to face evaluation, whichever occurred first.
econsult, electronic consultation; FTF, face to face; SD, standard deviation.