Table I. Weighted baseline features of patients with and without psoriasis

Variable	History of psoriasis (n = 77)	No history of psoriasis (n = 3054)	*P* value*
Age, mean (y)	41	39	.19
Male sex (%)	48.6	49.2	.93
BMI (kg/m^2), mean	31	28.1	.03
History of hypertension (%)	79.8	74.6	.59
History of smoking,† (%)	52.7	49.4	.51
History of diabetes mellitus, (%)	0.6	5.3	.18
History of migraines, (%)	31.6	25	.24

BMI, Body mass index (calculated as weight in kilograms divided by height in meters squared).
*Based on *t* test for continuous variables and χ^2 or Fisher exact test for categorical variables.
†Smoking at least 100 cigarettes in lifetime.

Table II. Risk factors for migraines in the multivariable model

Variable	Odds ratio (95% confidence interval)	*P* value
Male sex	0.4 (0.29-0.55)	<.001
Age	0.98 (0.96-0.997)	.027
BMI	0.99 (0.97-01.02)	.49
History of hypertension	1.23 (0.75-2.02)	.38
History of smoking	1.22 (0.84-1.77)	.28
History of diabetes mellitus	1.11 (0.66-1.87)	.68
History of psoriasis	3.97 (1.76-8.95)	.003

BMI, Body mass index (calculated as weight in kilograms divided by height in meters squared).

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REFERENCES

1. Brezinski EA, Dhillon JS, Armstrong AW. Economic burden of psoriasis in the United States: a systematic review. *JAMA Dermatol*. 2015;151(6):651-658.
2. Burch R, Rizzoli P, Loder E. The prevalence and impact of migraine and severe headache in the United States: figures and trends from government health studies. *Headache*. 2018;58(4):496-505.
3. Oliveira AB, Bachi ALL, Ribeiro RT, Mello MT, Tufik S, Peres MFP. Unbalanced plasma TNF-α and IL-12/IL-10 profile in women with migraine is associated with psychological and physiological outcomes. *J Neuroimmunol*. 2017;313:138-144.
4. Egeberg A, Mallbris L, Hilmar Gislason G, Skov L, Riis Hansen P. Increased risk of migraine in patients with psoriasis: a Danish nationwide cohort study. *J Am Acad Dermatol*. 2015;73(5):829-835.
5. Min C, Lim H, Lim JS, Sim S, Choi HG. Increased risk of migraine in patients with psoriasis: a longitudinal follow up study using a national sample cohort. *Medicine*. 2019;98(17):e15370.

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Association between micronutrient deficiency dermatoses and clinical outcomes in hospitalized patients

To the Editor: Macronutrient deficiencies in the hospital setting are highly prevalent and underdiagnosed, and they increase patient mortality.[1] There is a paucity of data on the prevalence and impact of inpatient micronutrient deficiencies, such as vitamins A, B2, B3, B6, and C; copper; and zinc, which manifest cutaneously. Cutaneous manifestations of micronutrient deficiencies are likely underrecognized in hospitalized patients because dermatologic conditions are frequently misdiagnosed by nondermatologist inpatient providers.[2,3] In this matched case-control study, we evaluated the impact of micronutrient deficiencies with cutaneous findings on hospitalized patient outcomes.

Patients were queried from The Ohio State University Wexner Medical Center Information Warehouse. Inclusion criteria were (1) admission date between January 1, 2011, through December 31, 2017; (2) admission to the main or ancillary hospitals of the medical center; and (3) an International Classification of Diseases revision 9 or 10 code for skin disease during hospitalization.

Table I. Length of stay, readmission, and mortality rates by micronutrient deficiency

Vitamin or mineral deficiency	Length of stay, d, mean (SD)	1-year readmission rate, %	Inpatient mortality rate, %	30-day mortality rate, %
Vitamin A	24.1 (28)	77.8	0	11.1
Vitamin A matched controls	6.6 (7.3)	44	0	0
Vitamin B3	7.3 (5.7)	28.6	0	0
Vitamin B3 matched controls	11.1 (12.3)	28.6	28.6	28.6
Vitamin B6	18.6 (13.7)*	50.0	12.5	25
Vitamin B6 matched controls	6.6 (6.7)	50	0	12.5
Vitamin C	7.5 (5.1)	30.0	0	0
Vitamin C matched controls	6.6 (8.4)	40	10	10
Copper	28.4 (23.1)*	40.0	30	40
Copper matched controls	6.0 (8.4)	50	0	0
Zinc	24.2 (22.9)†	57.5	10.9	35*
Zinc matched controls	9.5 (9.4)	59	2.2	7.7
All micronutrient deficiency	21.0 (21.4)†	47.8	10	23.3*
All controls	8.3 (9.0)	47.2	4.5	7.9

SD, Standard deviation.
*$P < .05$.
†$P < .0001$.

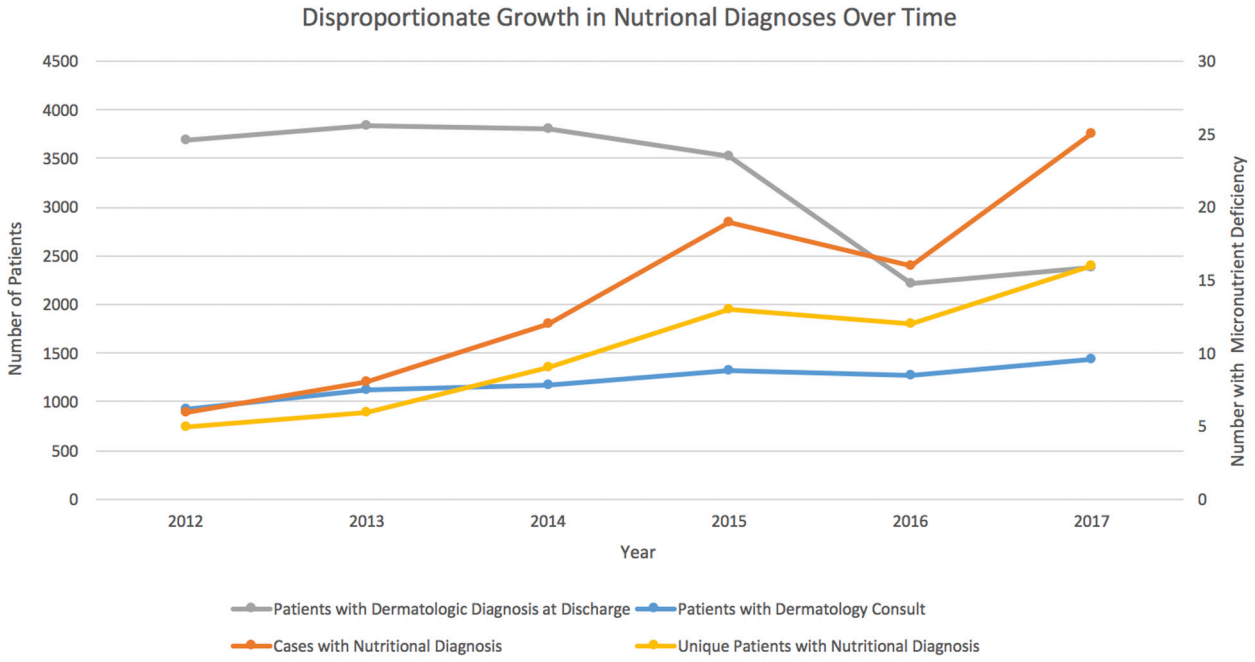

Fig 1. The disproportionate growth in nutritional diagnoses between 2012 and 2017 relative to dermatology consult volume. The numbers of dermatology consults (blue), patients with a dermatologic diagnosis at discharge (gray), and cases of nutritional diagnoses (orange) made in patients with laboratory evidence of a specific micronutrient deficiency (vitamins A, B3, B6, and C; copper; or zinc) between 2012 and 2017 are shown. Unique patients (yellow) are included because some patients had laboratory evidence of more than 1 micronutrient deficiency. In 2012, 3689 patients were discharged with a dermatologic diagnosis. Of those, 922 (25%) patients received dermatology consults, and there were 5 (0.2%) unique patients with a nutritional diagnosis. In 2017, 60.1% received inpatient dermatology consults (142% absolute increase), and 16 unique patients (1.1%) had nutritional deficiencies (320% absolute increase). The diagnosis of nutritional deficiencies increased 3-fold compared with a modest increase in dermatology consult volume over this 5-year period.

Using a keyword search within inpatient consult notes, we identified 1023 patients from the inpatient database with documented differential diagnoses containing micronutrient deficiencies (vitamins A, B3, B6, and C; copper; and zinc or corresponding named syndromes such as acrodermatitis enteropathica, scurvy) during hospitalization. Patients were validated by laboratory evidence of micronutrient deficiency within 1 year of hospitalization discharge date. There were 90 cases of micronutrient deficiencies in 65 unique patients (deficiencies in vitamins A [n = 9], B3 [n = 7], B6 [n = 8], and C [n = 10]; copper [n = 10]; and zinc [n = 46]). There were 18 patients with evidence of more than 1 micronutrient deficiency. Control individuals were matched by age ± 3 years, sex, and comorbidity index in a 1-to-1 manner (n = 89).

Demographic characteristics of patients with micronutrient deficiencies were well matched, including age, sex, Charlson comorbidity index, insurance status, and specific organ system comorbidities. Body mass index differed significantly between case patients (27.7 kg/m^2) and control individuals (34.1 kg/m^2). Cases with micronutrient deficiencies were associated with significantly increased length of stay (LOS) (21 vs 8.3 days, $P < .0001$), 30-day mortality rates (23.3% vs 7.9%, $P < .05$), and inpatient dermatology consults (98.9% vs 40.4%, $P < .001$) (Table I). It is possible that these patients had more prominent skin disease. Alternatively, dermatology consultation may more accurately identify micronutrient-related cutaneous disease, consistent with reports of increased diagnostic accuracy and reduced LOS when dermatologists care for hospitalized patients with skin findings.[4,5] Diagnosis of micronutrient deficiencies increased 3-fold (320%) compared with a modest increase in dermatology consult volume (142%) between 2012 and 2017 (Fig 1). Anecdotally, we attribute this to increased diagnostic awareness and value in the dedicated dermatologic inpatient consultation services established in 2014.

This study had multiple limitations. The small number of patients in each micronutrient deficiency subgroup may have affected the analysis. Data were obtained from a single institution and may lack external validity. Future prospective studies should evaluate the prevalence of micronutrient deficiencies among hospitalized patients with skin disease and corroborate the associations described. In conclusion, this study found associations between micronutrient deficiencies in inpatients with dermatologic conditions and poor outcomes, including substantially increased LOS and mortality rates. Micronutrient deficiencies are likely underdiagnosed, and given the differences in outcomes, increased awareness and testing should be considered in inpatients with dermatologic conditions.

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REFERENCES

1. Waitzberg DL, Caiaffa WT, Correia MI. Hospital malnutrition: the Brazilian national survey (IBRANUTRI): a study of 4000 patients. *Nutrition*. 2001;17:573-580.
2. Falanga V, Schachner LA, Rae V, et al. Dermatologic consultations in the hospital setting. *Arch Dermatol*. 1994;130:1022-1025.
3. Hu L, Haynes H, Ferrazza D, et al. Impact of specialist consultations on inpatient admissions for dermatology-specific and related DRGs. *J Gen Intern Med*. 2013;28:1477-1482.
4. Kroshinsky D, Cotliar J, Hughey LC, et al. Association of Dermatology consultation with accuracy of cutaneous disorder diagnoses in hospitalized patients: a multicenter analysis. *JAMA Dermatol*. 2016;152:477-480.
5. Milani-Nejad N, Zhang M, Kaffenberger BH. Association of Dermatology consultations with patient care outcomes in hospitalized patients with inflammatory skin diseases. *JAMA Dermatol*. 2017;153:523-528.

https://doi.org/10.1016/j.jaad.2019.10.057

Response of alopecia areata of the beard to oral tofacitinib

To the Editor: Alopecia areata of the beard (BAA) affects 28% of men with alopecia areata.[1] Janus kinase inhibitors have recently emerged as a promising targeted treatment for alopecia areata. Although most studies have focused on scalp hair regrowth, there is, to our knowledge, only 1 case report