Immunoglobulin A expression in adult cutaneous leukocytoclastic vasculitis and its effect on hospital outcomes

To the Editor: Leukocytoclastic vasculitis (LCV) is a small-vessel inflammatory disorder mediated by antibody-complex deposition.[1] Previous studies have shown that patients with immunoglobulin (Ig) A vasculitis are more likely to develop systemic comorbidities and refractory disease compared with patients who have non-IgA vasculitis, whereas other studies suggest that direct immunofluorescence (DIF) in LCV has limited value.[2,3] A recent analysis shows that adults with IgA vasculitis have worse renal outcomes than children with this disorder, but data assessing IgA status in adult LCV patients and its impact on clinical outcome are lacking.[4] We investigate whether routine DIF for initial diagnosis of acute LCV is associated with significant kidney involvement, prolonged hospital stays, and increased inpatient mortality in patients with IgA vasculitis compared with patients with non-IgA vasculitis.

Inpatient data from 2012-2018 at our institution were used to identify patients with new onset, biopsy-proven LCV with DIF analysis. Sixty-three patients met initial criteria. Categorization of patients was based on the presence of IgA on DIF of the initial LCV biopsy specimen.

The 2 groups were well matched at baseline, with similar sample size, age, body mass index, and comorbidity burden measured using the Charlson Comorbidity Index. The 2 groups also had similar insurance, reason for admission, active problems on admission, discharge diagnosis, and disposition (summarized in Table I). There was no difference in readmission rates, inpatient mortality, or 30-day mortality between the 2 groups. Patients with IgA vasculitis had a longer lag-time from admission to inpatient consultation

Table I. Population characteristics

Demographic	IgA vasculitis (n = 32)	Non-IgA vasculitis (n = 31)	*P* value (α = .05)
Age, years, mean ± SD	57.41 ± 17.67	52.90 ± 12.81	.253
Sex, n (%)	Female: 11 (34.4%) Male: 21 (65.6%)	Female: 10 (32.3%) Male: 21 (67.7%)	.859
Race, n (%)	White: 29 (90.63%) Black: 2 (6.25%) Other: 1 (3.13%)	White: 27 (87.10%) Black: 3 (9.68%) Other: 1 (3.23%)	.833
Body mass index, kg/m^2, mean ± SD	31.55 ± 8.88	31.31 ± 9.84	.917
Charlson Comorbidity Index, mean ± SD	2.03 ± 2.56	2.48 ± 3.00	.550
Insurance, n (%)	Medicare: 13 (40.63%) Medicaid: 11 (34.34%) Managed care: 6 (18.75%) Uninsured: 2 (6.25%)	Medicare: 7 (22.58%) Medicaid: 14 (45.16%) Managed care: 8 (25.80%) Uninsured: 2 (6.45%)	.321
Top 3 primary admission diagnoses, n (%)	Cutaneous disorder: 15 (46.88%) Extracutaneous infection: 9 (28.13%) Neurologic disorder: 2 (6.25%)	Cutaneous disorder: 16 (51.61%) Extracutaneous infection: 8 (25.81%) Respiratory distress: 2 (6.45%)	—
Top 3 active problems on admission, n (%)	Vasculitis: 14 (43.75%) Cutaneous ulcer: 3 (9.38%) Cellulitis: 3 (9.38%)	Cutaneous ulcer: 9 (29.03%) Unspecified rash: 8 (25.81%) Vasculitis: 7 (22.58%)	—
Top 3 discharge diagnoses, n (%)	Cutaneous disorder: 15 (46.88%) Extracutaneous infection: 11 (34.38%) Neurologic disorder: 2 (6.25%)	Cutaneous disorder: 15 (48.39%) Extracutaneous infection: 11 (35.48%) Cardiac arrhythmia: 3 (9.68%)	—
Discharge disposition, n (%)	Home or self-care: 12 (37.50%) Home health service: 7 (21.88%) Hospice, death: 5 (6.25%) SNF: 5 (15.63%) Other: 6 (18.75%)	Home or self-care: 10 (32.26%) Home health service: 6 (19.35%) Hospice, death: 3 (9.68%) SNF: 7 (23.58%) Other: 5 (16.13%)	.727
Time to consultation, days, mean ± SD	6.70 ± 8.09	2.24 ± 3.57	.009

Ig, Immunoglobulin; *SNF*, skilled nursing facility.

Table II. Select outcomes

Outcomes	IgA vasculitis (n = 32)	Non-IgA vasculitis (n = 31)	*P* value (α = .05)
Length of stay, days, mean ± SD	16.88 ± 13.91	11.48 ± 7.75	.063
Death during hospitalization, n (%)	2 (6.25%)	2 (6.45%)	.947
Death in 30 days, n (%)	7 (21.88%)	7 (22.58%)	.956
Readmission in 365 days, n (%)	10 (33.33%)	12 (41.38%)	.535
CKD ≥ stage 3 at diagnosis, n (%)	3 (9.38%)	5 (16.13%)	.474
Renal biopsy, n (%)	5 (15.63%)	3 (9.68%)	.710
IgA deposition on renal biopsy, n (%)	3 (60.00%) (n = 5)	1 (33.33%) (n = 3)	1
Positive skin cultures on admission, n (%) (N = 63)	1 (3.13%)	3 (9.68%)	—
Top 3 organisms isolated from skin cultures, n (%)	*Enterobacter cloacae*: 1 (3.13%) *Klebsiella oxytoca*: 1 (3.13%) *Staphylococcus epidermidis*: 1 (3.13%)	*Staphylococcus aureus*: 3 (9.68%) *Streptococcus agalactiae*: 1 (3.23%) *Citrobacter freundii* complex: 1 (3.23%)	
Positive blood cultures on admission, n (%) (N = 63)	8 (25.00%)	5 (16.13%)	.384
Top 3 organisms isolated from blood cultures, n (%)	*Staphylococcus aureus*: 6 (18.75%) *Serratia marcescens*: 1 (3.13%) *Staphylococcus epidermidis*: 1 (3.13%)	*Staphylococcus aureus*: 3 (9.68%) *Pseudomonas aeruginosa*: 1 (3.23%) *Streptococcus pyogenes*: 1 (3.23%)	

Baseline laboratory values (n = 55)

		n = 29	n = 26	
Creatinine (mean ± SD), mg/dl		1.37 ± 0.88	1.09 ± 1.04	.279
Abnormal creatinine, n (%), mg/dl		13 (44.83%)	3 (11.54%)	.008
Blood urea nitrogen (mean ± SD), mg/dl		23.82 ± 13.55	24.00 ± 30.77	.987
White blood cell count (mean ± SD), cells/microliter		11.29 ± 3.64	10.39 ± 5.38	.465
Positive ANCA, n (%)		2 (7.14%) (n = 28)	7 (24.14%) (n = 29)	.066
Proteinuria (mg/dL), n (%)	None (0)	15 (51.72%)	13 (50.00%)	.363
	Trace or low (1-29, 30-99)	7 (24.14%)	8 (30.77%)	
	Medium or high (100-299, >299)	7 (24.14%)	5 (19.23%)	
Hematuria (RBC/HPF), n (%)	None (0-2)	17 (58.62%)	14 (53.85%)	.227
	Trace or low (3-9, 10-19)	5 (17.24%)	6 (23.10%)	
	Medium, or high (>20)	7 (24.13%)	6 (23.10%)	

Laboratory values at 365 days (n = 32)

	n = 17	n = 15	
Creatinine (mean ± SD)	1.26 ± 0.60	0.79 ± 0.19	.006
Abnormal creatinine, n (%)	7 (41.18%)	0 (0%)	.008
Continued LCV at 1 year, n (%)	0 (0%)	3 (15.00%)	.087

ANCA, antineutrophil cytoplasmic antibody; *CKD*, chronic kidney disease; *Ig*, immunoglobulin; *LCV*, leukocytoclastic vasculitis; *RBC/HPF*, red blood cells/high-powered field.

(6.7 vs 2.2 days; $P = .0086$; Table I). Both groups showed an increased rate of bacteremia greater than expected rates of 5%-10% in hospitalized patients[5] (Table II). After exclusion of patients with known preexisting chronic kidney disease stage III or higher, the two groups had similar baseline creatinine, blood urea nitrogen, and white blood cell counts. However, the baseline creatinine at diagnosis was greater in the IgA vasculitis cohort when dichotomized as abnormal. Both the mean creatinine at 1 year (1.26 vs 0.79 mg/dL; $P = .0064$) and as a dichotomous value were greater in the IgA vasculitis cohort compared with the non-IgA vasculitis cohort (Table II).

Our data suggest that adult patients with IgA vasculitis have increased risk of renal impairment at diagnosis and 1-year follow-up than patients with non-IgA vasculitis; thus, obtaining a DIF at initial biopsy of acute LCV may be warranted to predict future kidney risk. There appears to be little value in the use of DIF to assess risk for readmission rates, inpatient mortality, or length of stay. Although the groups were well balanced, the IgA vasculitis cohort was more likely to have a consultation later during the

hospitalization, suggesting that many of these patients developed the disease in the hospital (Table II). Although not statistically significant, the longer hospital stays in IgA vasculitis are likely explained by the later consultation and, thus, diagnosis and intervention. The limitations of this study include the retrospective design, small sample size, high dropout rates, and different time courses—namely, that nonspecific immunodeposition might have been the result of later biopsies and IgA degradation. Prospective validation is needed to confirm these results.

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Gender and racial underrepresentation in academic dermatology positions in the United States: A retrospective, cross-sectional study from 2007 to 2018

To the Editor: According to the US Census Bureau, by the year 2044, more than half of the US population is projected to belong to racial and ethnic minority groups.[1] As minority populations continue to increase, diversification of the health care workplace is crucial for providing high-quality patient care.

Patients of minority groups are more satisfied from race-concordant visits and experience longer and more engaged visits from their physicians.[2] Physicians of underrepresented minority (URM) groups are more likely to practice in underserved areas and treat patients with limited access to health care.[2] Furthermore, increased diversity in the learning environment prepares trainees to serve diverse populations.[2] This is very significant in dermatology; despite the lower incidence of skin cancer, Black patients present with more advanced melanomas, resulting in worse prognosis and higher mortality.[3]

Using the annual reports from the American Association of Medical Colleges, we conducted a retrospective cross-sectional study to investigate the trends in gender and racial representation in academic dermatology positions across the United States from 2007 to 2018. During this 12-year period, the total number of academic dermatology appointments increased by 53.0%, but White dermatologists made up the majority (67.9%) and were overrepresented in higher academic ranks such as chairs (78.7%) and full professors (79.2%). As the ranks decreased in hierarchy, other races increased in representation, particularly Asian individuals. Black and Hispanic individuals made up only 2.7% of academic dermatologists, respectively, with negligible increases in representation over the past 12 years (Fig 1).

A recent review indicates that the number of Black and Hispanic applicants for medical schools remains low and that only 6% to 8% of matriculated medical students are Black or Hispanic.[4] Consequently, there is a bottleneck in the recruitment process at medical schools, and diversity should continue to be prioritized as an explicit goal in the medical school selection process. Emphasis on test scores and grades systematically disadvantages individuals of URMs, who often lack financial resources and opportunities.[5] In addition, dermatology is one of the most competitive specialties, with higher Step 1 test scores, more publications, and higher medical