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Accuracy of commercial panels to evaluate myositis autoantibodies: A single-institution perspective

To the Editor: Laboratory panels for myositis-specific antibodies (MSA) and myositis-associated antibodies (MAA) are increasingly being used in the diagnosis and prognostication of dermatomyositis (DM).[1,2] However, many commercial panels used in clinical settings have limited validation compared to other methodologies.[3] To understand the accuracy of commercial myositis panels in the clinical setting, we performed a cross-sectional analysis of patients with DM, comparing commercially available myositis panels to panels performed in the research setting.

Eighty patients from a DM database at the University of Pennsylvania had sera that were assayed at Johns Hopkins University for MSA/MAA, including TIF1-γ, Mi-2α, Mi-2β, SRP, Ku, Ro-52, MDA-5, SAE-1, PM-75, PM-100, Jo-1, PL-7, PL-12, OJ, and EJ. Anti—TIF1-γ was detected using an enzyme-linked immunosorbent assay from MBL (Woburn, MA). All other antibodies were detected using the EUROIMMUN line blot assay (Autoimmune Inflammatory Myopathies 16 Ag panel, Lubeck, Germany).[4] Charts were reviewed for demographics and commercial myositis panel results. Commercial tests were *concordant* if their results matched that of the research panels and *discordant* if results differed. Panel results were categorized by the time difference between the commercial and research panels (the bleed date). Summary statistics were performed with the data (Table I).

Of 80 patients, 27 (33.8%) had commercial assays performed. The median age was 49.8 years. Most patients were female (92.6%) and white (88.9%). Commercial myositis panels were performed at ARUP Laboratories (Salt Lake City, UT; 13 panels, 48.1%), Quest Diagnostics (Secaucus, NJ; 7 panels, 25.9%), RDL Reference Laboratory (3 panels, 11.1%), Immco Diagnostics (Williamsville, NY; 3 panels, 11.1%), and Oklahoma Medical Research Foundation (Oklahoma City, OK; 1 panel, 3.7%). Of these 27 patients, 19 (70.4%) were positive for MSA/MAA using the research panels compared to 7 (25.9%) using the commercial panels (Table I). ARUP Laboratories had 5 panels (41.7%) showing discordant antibodies, and Immco Diagnostics had 1 discordant antibody (33.3%) (Table I). Although Quest and RDL had 100% concordance in our cohort, they did not test for anti-TIF1-γ, SAE1, NXP-2, or MDA-5, with the Quest panels also not testing for anti—Ro-52 or PM-Scl. We did not observe a relationship between antibody discordancy and bleed date differences.

The findings are limited by the sample size, bleed date differences, and the cross-sectional nature of the study. Furthermore, there is a possibility, although unlikely, that research panels yielded false positive results. Despite this, our findings show that commercial myositis panels will require improved precision and standardization to be a vital component of the DM workup. In our experience, a positive myositis autoantibody may help diagnose and treat DM in cases with uncertain clinical presentation or bring attention to antibody-specific DM phenotypes. However, a negative myositis panel result does not

Table I. Discordancy rates between commercial myositis panels and the research laboratory myositis panels, based on commercial laboratory and bleed date time differences

Commercial laboratory (N = 27)	Modality	Antibodies analyzed in panel	Bleed date difference					
			<1 month (n = 5)		1 month to 1 year (n = 13)		>1 year (n = 9)	
			Discordance rate (%)	Discordant antibodies (n)	Discordance rate (%)	Discordant antibodies (n)	Discordance rate (%)	Discordant antibodies (n)
ARUP Laboratories (n = 13)	LIA	PM/Scl, SAE1, MDA5, NXP2, TIF1-γ	2/4 (50)	TIF1-γ (1) Ro-52 (1)	1/3 (33.3)	Ro-52 (1)	2/6 (33.3)	Ro-52 (1) PM-Scl (1) Mi-2 (2)
	IP	Mi-2, PL-7/12, EJ, Ku, SRP, OJ						
	Multiplex bead assay	Ro 52, Jo-1						
Quest Diagnostics (n = 7)	Line blot	OJ, EJ, PL-7/12, Jo-1, Ku, Mi-2	N/A	N/A	0/5 (0)	N/A	0/2 (0)	N/A
RDL Reference Laboratory (n = 3)	Radio IP assay	Ro-52, OJ, EJ, PL-7/12, SRP, Jo-1, PM/Scl, Ku, Mi-2	0/1 (0)	N/A	0/2 (0)	N/A	N/A	N/A
Immco Diagnostics (n = 3)	LIA	OJ, EJ, PL-7/12, SRP, Jo-1, Ku, Mi-2	N/A	N/A	1/3 (33.3)	OJ (1)	N/A	N/A
	ELISA	Ro-52, PM/Scl						
Oklahoma Medical Research Foundation (n = 1)	IP	Ro-52, OJ, EJ, PL-7/12, SRP, Jo-1, PM/Scl, Ku	N/A	N/A	N/A	N/A	0/1 (0)	N/A
All laboratories			2/5 (40%)		2/13 (15.4%)		2/9 (22.2%)	

ELISA, Enzyme-linked immunosorbent assay; *IP*, immunoprecipitation; *LIA*, line immunoassay; *N/A*, not applicable.

change our clinical management. The utility of myositis panels is further limited by the time it takes to receive the results (median of 14.5 days in our cohort), at which point treatment would likely begin for all but those with uncertain diagnoses. Providers need to be made aware of the limitations of commercial myositis panels and the full range of autoantibodies that can be assayed and be kept current as new antibodies are discovered.

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A national webinar for dermatology applicants during the COVID-19 pandemic

To the Editor: Drastic adjustments to medical education during the COVID-19 pandemic have left medical students concerned about changes to the residency application process. Elimination of in-person away rotations, delayed or cancelled subinternships, and the transition to virtual interviews are among the difficulties faced by dermatology applicants this cycle. Statements released by the Association of Professors of Dermatology (APD) in April and June 2020 addressed student concerns and suggested modifications to the application process (Table I).[1,2] To complement these statements, the Dermatology Interest Group Association (DIGA) hosted a webinar for dermatology residency hopefuls. Similar webinars have been held by national specialty organizations in orthopedic surgery, ophthalmology, and emergency medicine.[3,4]

DIGA is a national student-run organization composed of 120 medical school chapters that serves as a forum for the exchange of information among students interested in dermatology. With support from the APD, a webinar titled "The Shifting Landscape of the 2020-2021 Dermatology Application Cycle in the Era of the COVID-19 Pandemic" was developed. Six US residency program director panelists participated in the event.

A total of 996 viewers attended the webinar. An optional poll was administered; only medical students were asked to respond. Of 679 respondents, 62% were fourth year students, 19% were third year, 14% were preclinical, and 4% identified as other. Minorities underrepresented in medicine accounted for 31% of respondents; 25% of respondents reported attending an institution not affiliated with a dermatology residency program. During the webinar, panelists collectively addressed this year's residency application process via questions prompted by physician moderators (Table II). These questions had been collected from medical students via Google questionnaires administered by DIGA in the weeks before the event. Additional real-time questions from viewers were answered both verbally and in written form in Zoom's (San Jose, CA) question-and-answer and chat functions.

Program director panelists also presented highlights from the APD consensus statement,[2] such as promoting application to fewer programs to allow for holistic review. Panelists emphasized that one recommendation letter may be written by any faculty member with whom a student has worked closely, regardless of specialty. This is important given that one quarter of our attendees interested in dermatology do not have a home program. Virtual away rotations were described as opportunities to learn more about specific programs but should not be perceived as necessary to match into dermatology. The webinar was recorded and is freely available for reference.[5]

The COVID-19 pandemic has presented significant challenges for graduate medical education. Fortunately, the broad adoption of video conference communication has translated into unique opportunities for medical students to stay informed on issues of significant value to them. The large number of webinar viewers suggests acute interest in this format, and discussions for a future webinar on virtual interviews have begun. Underrepresented

Table I. Recommended changes to the residency application process from the Association of Professors of Dermatology consensus statement

• Students submit no more than 60 applications to dermatology programs (recommended: 40-60).
• Students accept no more than 15 interviews (recommended: 12-15).
• Programs do not offer in-person away rotations, except for students without home dermatology residency programs.
• Programs conduct virtual interviews for all applicants.