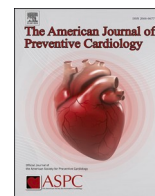


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Fellow's Voice

More than skin deep: Recognizing cardiovascular co-morbidities in medical dermatology. A Fellow's Voice



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In medical school, I met a young woman with severe psoriasis, obesity, and hyperlipidemia, who pointed to plaques padding her knees. I learned she skipped school because the lesions embarrassed her. Further questions revealed heart attacks ran in her family. I asked more questions about her family history of heart disease until she snapped, “why does that matter here?” Our young patient deepened my interest in disorders like psoriasis, systemic lupus erythematosus (SLE), and dermatomyositis – multi-system, inflammatory disorders in medical dermatology that elevate cardiovascular (CV) risk [1–3]. I informed her that inflammation in psoriasis may exacerbate or accelerate atherosclerotic CV disease (ASCVD) independent of traditional CV risk factors [4].

Psoriasis, lupus, and dermatomyositis patients suffer from a greater proportion of heart attacks and strokes compared to rates in the general population. Under-recognition and undertreatment of traditional CV risk factors, including smoking, hyperlipidemia, and hypertension in these populations, presents a significant problem in and of itself [5,6]. Common ASCVD risk estimation tools like the Pooled Cohorts Equations may underestimate CV risk in patients with inflammatory disease. The need to perform targeted screening, consider appropriate risk calculators, and implement care models for inflammatory disorders including but not limited to psoriasis, lupus, and dermatomyositis remains critical [7]. In this fellow's voice, I will briefly overview and call attention to the intersection among psoriasis, lupus, and dermatomyositis with CVD.

In psoriasis, one of the more well-studied inflammatory disorders in cardiology, significant gains have been made to evaluate and lower CV risk. In the last decade, low-density granulocytes, a type of neutrophil, were identified as an immune cell promoting early, high-risk coronary plaque formation [8]. Traditional CV risk factors, including hyperlipidemia (46%), hypertension (42%), type 2 diabetes (18%), and obesity (14%) have been reported in a large cohort of 467,097 patients with psoriasis [9]. This work follows several endpoint studies, including a

landmark one showing a three times higher risk of myocardial infarction (MI) in young patients with severe psoriasis compared to the rate in the generation population [10].

In 2019, the American Academy of Dermatology and the National Psoriasis Foundation released recommendations to address cardiometabolic disease in patients with psoriasis with an emphasis on early, aggressive CV risk factor screening and modification [11]. That same year, the American College of Cardiology (ACC) and American Heart Association (AHA) guideline on primary prevention of CVD recognized psoriasis in a category of inflammatory diseases, along with HIV, lupus, and rheumatoid arthritis. As a risk enhancer of ASCVD, psoriasis may warrant earlier initiation of a statin in patients with lower ASCVD risk scores [12]. Interestingly, a prospective, observational trial in patients with severe psoriasis showed one year of biologic therapy reduced total and non-calcified coronary plaque burden by 8%, on par with the effect of a low-dose statin [13].

In lupus, a disorder that disproportionately affects women, CVD outcomes include not only ASCVD, but also pericarditis, vasculitis, and antiphospholipid syndrome. An increased prevalence of CV risk factors, including dyslipidemia, obesity, diabetes, hypertension, and metabolic syndrome, has been reported in patients with lupus compared to those in the general population [14]. The risk of MIs was elevated in patients with systemic manifestations (SLE) as well as in patients with cutaneous manifestations (CLE). A pooled meta-analysis showed a three times higher risk of MI and two times higher risk of stroke in patients with SLE [15]. The more striking observation pertains to women with SLE aged 35 to 44 years who may have a 50 times higher risk of MI than women of that age in the general population [16]. In patients with CLE, increased rates of ASCVD events have been reported compared to the general population but not as high as those of SLE [17].

These findings in SLE and CLE suggest a skin screening can be the first warning sign of CVD. It is thus imperative to recognize and

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preemptively treat CV factors in SLE to lower ASCVD risk, especially considering overlooked sex disparities in CV outcomes. Statins, for example, are safe in lupus patients, and should be used as appropriate including in reproductive age women. While statins are generally still discontinued during pregnancy and breastfeeding (except in the highest risk cases), unintended exposure to statins early in pregnancy is unlikely to cause fetal harm. Thus, statins should not be avoided in women of child-bearing potential. The ACC/AHA guideline recognized SLE as a chronic inflammatory disease and risk enhancer for ASCVD management, which may be complicated by the need for systemic steroids and drug-drug interactions.

In dermatomyositis, a lesser-studied autoimmune disorder, ASCVD has been reported in both adults and children. Children with juvenile dermatomyositis present with elevated CV risk, including hypertension, obesity, uncomplicated diabetes, lipodystrophy, and stroke [18]. Serial CV management with labs and potential noninvasive imaging to monitor ASCVD progression may need to occur. In adults, the odds of having an MI in dermatomyositis were three times greater than odds in the general population [19]. Additionally, the rate of mortality from an ischemic stroke in dermatomyositis were two times higher than compared to that in the general population [20]. However, the ACC/AHA guideline do not explicitly recognize dermatomyositis as a risk enhancer for ASCVD management. Additionally, patients with dermatomyositis or other autoimmune conditions may have joint problems and muscle aches, which can limit physical activity and lifestyle modification.

In summary, the risk of CVD in psoriasis, lupus, and dermatomyositis is higher than that in the general population. Recognition of CV risk factors that may be greater in prevalence and/or higher in absolute levels remains the first step for CVD management in patients with inflammatory disorders. Preventive cardiologists possess the expertise to manage traditional CV risk factors in these patients. Still, the complexity of the disorders may warrant new multidisciplinary clinics. Many academic institutions have recently built cardio-rheumatology programs integrating shared care models. Formal subspecialized fellowships in cardio-rheumatology, -inflammation, or -dermatology are not currently offered. Only time will tell how rapidly this space will emerge as a dedicated subspecialty. For now, it is imperative that we optimally care for the CV health of patients with inflammatory disorders, like the young woman I met in medical school, with concern and without delay.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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