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Skin Disease and Cardiovascular Risk: Uncovering a Critical Clinical Connection

Announcer:

You're listening to *On the Frontlines of Psoriasis* on ReachMD. And now, here's your host, Dr. Mary Katherine Cheeley.

Dr. Cheeley:

This is *On the Frontlines of Psoriasis* on ReachMD. I'm Dr. Mary Katherine Cheeley, and joining me to discuss the recent article on the connection between skin and cardiovascular diseases are Dr. Joel Gelfand and Dr. Michael Garshick. Dr. Gelfand is a dermatologist at the University of Pennsylvania and the Director of the Psoriasis and Phototherapy Treatment Center and the Center for Clinical Sciences in Dermatology. And Dr. Garshick is a cardiologist and the Director of the Cardio-Rheumatology Program at NYU Langone Health, as well as an Assistant Professor of Medicine and Dermatology at NYU Grossman School of Medicine.

Fellas, welcome to the program.

Dr. Garshick:

Thanks so much for having us here today.

Dr. Gelfand:

Great to be here, Mary. Thanks for having us.

Dr. Cheeley:

So let's start at the beginning. Dr. Gelfand, tell me, why did you decide to explore the connection between skin and cardiovascular diseases?

Dr. Gelfand:

Well, you know, this has been a really important topic in my career, and it has been something that really fits with traditional dermatology, which is trying to understand how things in the skin relate to the overall health of a patient. And when I started my career, we were just starting to better understand the immune-based nature of psoriatic disease as well as atherosclerotic disease, and so that was a major motivating factor for the work that I embarked on, because if you looked at the cartoons that described the pathophysiology of atherosclerosis and cardiovascular events, and then the cartoons of the pathophysiology of psoriasis, they are all quite similar. They have shared cellular pathways and cytokine pathways. Things like antigen-presenting cells, T-cells, macrophages, and 1 cytokines are all things that are involved in both conditions.

Dr. Cheeley:

And I want to explore that a little bit more. So, Dr. Gelfand, what did you find about the relationship between dermatologic and cardiovascular conditions?

Dr. Gelfand:

Well, our focus has been mainly on psoriasis where the disease pathophysiology is well understood. And we're able to study the condition pretty well in large medical record databases because it's a fairly discrete condition, and we have studies to validate the diagnosis of psoriasis, and we know what we're actually looking at. And so, clearly, psoriasis patients have higher rates of, of cardiometabolic disease. They develop diabetes at higher rates than they should. They develop cardiovascular events and premature mortality at higher rates, often independent of traditional risk factors and in a way that is related to severity of skin disease.

This work has expanded to other inflammatory skin conditions, things like hidradenitis, for example. There's emerging data there. Those

patients have increased cardiovascular risk. That's a very severely inflammatory condition. There's also evolving data in conditions like atopic dermatitis that may be associated with increased cardiovascular disease as well. So there's a number of types of inflammatory diseases in the skin that likely have impacts on the overall cardiovascular health for a patient.

Now, beyond that, the skin is a very dynamic organ and is often a sign of stomach complications. So we've known for years that you can pick up signs of things like endocarditis, for example, based on embolic findings that occur in the skin, and particularly the digits. There are cholesterol issues that could show up in the skin in what's called xanthomas, so there are a variety of connections between the skin and heart disease that we've been aware of for quite some time.

Dr. Cheeley:

Turning to you now, Dr. Garshick, how does understanding dermatologic signs improve the early diagnosis or risk stratification for cardiovascular conditions?

Dr. Garshick:

Right. So I think a lot of this is—what Dr. Gelfand already touched on—was that in a lot of these dermatologic conditions, inflammation is really not just related or relegated to the system that we first identified it in, and so these conditions we jokingly say are more than skin deep and can affect the vasculature. And then on top of that, many of these autoimmune skin conditions—and rheumatologic conditions as well—tend to have a higher risk of the traditional cardiometabolic risk factors like hypertension, high cholesterol diabetes, etc. And so, as a cardiologist, it's really important for me to understand what the dermatologic condition is. The same comorbidities frequently correlate with this dermatologic condition, and that allows me to then screen for them in a more targeted manner. So, for example, if these dermatologic conditions are associated with weak hearts or cardiomyopathies, or in the case of psoriasis, if they're associated with obesity, high cholesterol, hypertension, and also enhance cardiovascular risk, we'll more likely than not just test for these other conditions but also more aggressively treat them.

Dr. Gelfand:

Yeah, I should just mention, you know, Mike and I coauthored an article in JAMA Cardiology about psoriasis about if there's a risk factor or a risk marker. You know, risk factor sort of implies a causal relationship, and risk marker a more predictive relationship. For clinicians listening, it's sort of a distinction that's not that critical when it comes down to it. I think that one of the challenges of identifying people with cardiovascular risk is that people can't see or feel their risk factors. Their cholesterol could be elevated. Their blood pressure could be elevated. They could have insulin resistance. They don't really know it, whereas, when people have inflammatory skin disease, it's often a sign of additional issues that are going on with the patient's underlying health status. And in that particular paper that Mike and I were looking at and writing about, you know, there's evidence that people who have genetic risk factors for developing atherosclerosis develop psoriasis at higher rate than they do other inflammatory skin problems. And so what that tells you is that the direction may go in both directions. It may be that for a patient who presents with psoriasis in their, say, mid 40s or 50s or something like that, what you're really seeing is the systemic inflammation from atherosclerosis now promoting inflammation of other organs, in this case the skin with the psoriasis. And so it's an opportunity to then say, okay, well, we need to look a little deeper with this patient, check the blood pressure, check the cholesterol, check their glucose, and make sure there's no other issues that are at play.

Dr. Cheeley:

For those just joining us, this is *On the Frontlines of Psoriasis* on ReachMD. I'm Dr. Mary Katherine Cheeley, and I'm speaking with Dr. Joel Gelfand and Dr. Michael Garshick about the relationship between skin and cardiovascular symptoms.

Dr. Garshick, I want to stick with you for a little bit. Can you elaborate on how cardiovascular medications may exacerbate dermatologic conditions or how dermatological therapies might alter the risk of cardiovascular or cardiometabolic diseases?

Dr. Garshick:

Sure. So I think Joel and I, in our previous question, already touched on part of this, which is how dermatologic conditions alter the risk of cardiovascular or cardiometabolic diseases. In terms of other than just dermatologic therapies, there are some medications which can exacerbate some of the cardiometabolic things that we frequently encounter. There are some medications such as retinol which can change the cholesterol profiles. JAK inhibitors as well can increase the cholesterol profile slightly.

I would say something that comes up that cardiologists aren't always aware of is some of our antihypertensive medications specifically hydrochlorothiazide or some of the thiazide diuretics can cause increased photosensitivity, so cardiologists aren't aware of this, but dermatologists are acutely aware of this, and so they oftentimes recommend more aggressive sunscreen prevention measures because I'm sure in general they recommend sunscreen, so now they want to be even more aggressive. So those are some of the things that I think about frequently when I think about medications in the skin/heart connection.

Dr. Gelfand:

From my perspective, I think there's a lot of stuff we're taught in medical school about beta blockers exacerbating psoriasis and what I usually tell my colleagues in internal medicine, the cardiologists, you do what you need to do to lower that person's risk of cardiovascular events and mortality, and we will address the psoriatic disease if there are issues. For the most part, those reports are anecdotal. We don't really have causal data that beta blockers and other therapies we routinely use for cardiovascular prevention cause adverse effects for people with psoriasis.

The other thing that we keep in mind, the point about hydrochlorothiazide there for people with fair skin, is there's a variety of data that that may increase their risk of skin cancers. And so, usually, what that means for me clinically is my patients who already have a history of skin cancer or have had more than one skin cancer ideally, we'd like to be on antihypertensives that aren't hydrochlorothiazide hoping that would then lower their risk of skin cancer over time. But again, we could usually treat through in most circumstances.

Dr. Cheeley:

So as we close today, I'm going to lightning round both of you one time. So, Dr. Gelfand, we'll start with you. What areas in cardiadermatology are most in need of further investigation or clinical trials?

Dr. Gelfand:

Well, fundamentally, we need to figure out if treating psoriasis lowers a risk of cardiovascular events and mortality over time. We need to figure that out. And then we need to do more work in our other common inflammatory diseases, like hidradenitis/atopic dermatitis, because it's likely that it's a lot of undiscovered cardiovascular risk in those patients as well.

Dr. Cheeley:

Dr. Garshick, your turn.

Dr. Garshick:

I think that there's a lot of exciting translational work to do on the platelet phenotype, weight, and lipid control in the psoriasis patient population, but still, I think that from the practical standpoint, it's just still the really, really easy stuff that we're still not doing as well which is identifying and treating traditional risk factors. It's so basic and such low-hanging fruit, but it's still actually highly needed and probably where you're going to get the most bang for your buck. For example, we have a paper in review related to hidradenitis suppurativa, and we copied some of Joel's work and other people's works on just looking at the rates of prevention medications in these patients, and it was like 8 percent were on optimal medical therapy despite having diabetes and dyslipidemia, so there's just a lot of easy work to do—implementation work that is. It's hard implementation work, but it's somewhat easy conceptually.

Dr. Cheeley:

So, Dr. Garshick, your question—and then, Dr. Gelfand, I'll get you to answer it as well—how do you envision this knowledge that you guys—that we just spent time talking through—impacting the diagnosis and treatment of dermatologic and cardiovascular diseases?

Dr. Garshick:

Hopefully, it's further enhanced recognition of this problem amongst dermatologists. I will say my wife frequently lectures or gives Journal Club to the dermatology residents at Cornell, and whenever they bring up a psoriasis and cardiovascular disease manuscript, there's this collective groan of "Uh, another one. Yes, we know this exists." But despite that, perhaps amongst the more senior dermatologists out there, it's not known, but then also, despite them knowing, these patients still aren't being referred in the labs checked, so hopefully, this conversation today can stimulate that, which is getting prevention labs checked and referring them to either their primary care doc or preventive docs, when needed.

Dr. Cheeley:

Dr. Gelfand?

Dr. Gelfand:

I agree wholeheartedly. The best I hope everyone gets is that it's easy. Okay? It's very easy to explain to the patient that psoriasis is a way to cardiovascular disease. Patients actually expect us as dermatologists to educate them about this. They welcome this information from their dermatologist. And then it's simple to add on the labs and check a blood pressure on patients because we're often getting labs anyway, and if they're abnormal, you've done a big favor for that patient. And if they're not abnormal, you also did a favor because the patient now is alert to what lifestyle changes they may want to consider to live longer, healthier lives.

Dr. Cheeley:

This has been such an amazing conversation. I feel like I could just sit and chat with you guys for another two hours, but we do have to let people go. Dr. Gelfand, Dr. Garshick, thank you so much for spending your time with us and explaining this and making it seem so easy that it can be done in a regular clinic appointment. Thanks for chatting with us about cardiadermatology and its potential impacts

on clinical practice. It was wonderful having you on the program, fellas.

Announcer:

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