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Identifying Underlying Mechanisms and Unmet Needs in CHE

Announcer:
You're listening to *DermConsult* on ReachMD, and this episode is sponsored by LEO Pharma Inc. Here's your host, Dr. Raj Chovatiya.

Dr. Chovatiya:
This is *DermConsult* with ReachMD, and I'm Dr. Raj Chovatiya. I'm an Associate Professor at the Rosalind Franklin University Chicago Medical School and Founder and Director of the Center for Medical Dermatology and Immunology Research in Chicago, Illinois. Here with me today to discuss the pathophysiology and unmet needs in the management of chronic hand eczema, or CHE for short, is the expert himself, Dr. Benjamin Ehst. He's a board-certified dermatologist with a doctorate in immunology. He is also an investigator at the Oregon Medical Research Center and a dermatologist at the Broadway Medical Clinic in Portland, Oregon. Dr. Ehst, welcome to the program.

Dr. Ehst:
Thanks Dr. Chovatiya. It's a pleasure to be here, and I'm looking forward to the discussion.

Dr. Chovatiya:
Well, let's jump right into it. Maybe we can start with a little background on chronic hand eczema, or CHE. It's not something maybe we're super familiar with in a US audience, given that a lot of the work's been done here internationally. What are some of the various causes, and how do you really define CHE?

Dr. Ehst:
If you want to define this, which is normally done in clinical trials, and we're trying to make a push to have a more formal definition for clinicians. It's an eczema-type rash on the hands that either returns more than twice within a year, usually despite therapy, or it lasts for more than three months out of that year, and that's chronicity there.

Causes was the other question. So one of the trickiest things I think with hand eczema in general, and especially chronic hand eczema, is there are numerous causes, and there are various ways to define those causes. I tend to think of this as either an external process or an internal process, and usually it's not one or the other—it's a combination of these things—which makes it challenging not only to diagnose, but also to treat.

So some of the internal things can be atopic diathesis. One of the common forms of chronic hand eczema is an atopic chronic hand eczema, and that's seen in patients that have tendencies towards airborne allergies, asthma, and atopic dermatitis in general. It can manifest on the hands. The more common extrinsic causes tend to be irritants, and our hands are exposed to the environment constantly. So simple things like soaps, which most of us hopefully are using every day, can irritate your hands. That's a big cause of chronic hand eczema. There are allergens we come into contact with as well, which trigger an allergic immune response, and that's another big cause of chronic hand eczema and eczema in general.

Dr. Chovatiya:
It's interesting, right? The way you put it just makes a lot of sense in terms of definition. It's still kind of confusing for us in derm, and I think it's because of this internal/external debate that you put forward in terms of pathophysiology. How is CHE different than the way we typically think about our rashes versus lumping and splitting?

Dr. Ehst:
Well, so everybody lumps or splits depending on what their preference is. And I think when you're training, we're all, as dermatologists,

taught to split these apart and try to define them. And part of the challenge with hand eczema in general is it's hard to do that because the process itself is usually multifactorial. So as a scientist, you like to think of a very simplistic, reductionist approach that says there's one particular trigger of this thing, and that's hard to do with chronic hand eczema. So that's the challenge. I think from a treatment standpoint, you would like to hope that matters. And there are targeted therapies that are being developed where we can say, this intrinsic pathway, say it's a TH2-part of the immune system. That's what we think is active in this form of hand eczema, so let's target that. And mentally, I can conceptualize that. Or I can think if there's a different pathway that may be driven by a different part of the immune system and use a therapy targeted to that.

Practically, it can be challenging because of this overlap, and none of these are discrete pathways, I don't believe. At times I want a therapy that can address multiple pathways at once. But you're right, that's the challenge of defining this well because it's not a single entity; you can't necessarily always split these accurately, and there's some question about, in the end, does it matter? It's frustrated clinicians, it's frustrated scientists, and I think it's led to a delay in approving or seeking better treatments.

Dr. Chovatiya:
And I think on that vein of frustration, even when we transfer it from the clinician to the patient, we oftentimes tend to associate extent of the disease, for whatever reason, as the way that we define burden and severity. And this one's a little different because we're typically now limiting ourselves to maybe a couple of percentage points of the entire human body. Could you comment on some of the physical, social, emotional, and even occupational impacts of chronic hand eczema when you think about patients?

Dr. Ehst:
Yeah, certainly. You're right, it's limited because it's the hands. But think about your hands and how important they are to you. And again, your interactions with the world around you involve your hands. So I always try and think about when I get a paper cut. Just imagine how it hurts to have a single paper cut. Imagine having 10 or 20 paper cuts on your hands. Patients that deal with chronic hand eczema can have not even these little fine fissures; they can have really deep fissures, and so imagine just trying to use your hand throughout the day when you have something as small as a single paper cut. So physically it's burdensome because you are using your hands, so if you have irritation, you have itching, you have pain, or you have oozing, those things lead to difficulty in gripping. There are studies that show 10 to 20 percent of patients who deal with chronic hand eczema have lost time from work. Their productivity goes down because they can't physically do their work. Hobbies are affected. Same thing, you may be coming into contact with irritants that make it worse in a hobby. You could also be limited in doing your hobby because your hands are blistered or bleeding. Socially, again, we interact with other humans using our hands, and so we know this can lead to decreased social interactions, whether that's romantic interactions or just friendship. It can cause depression and it can lead to social isolation because again, you're very cognizant of what your hands look like and feel like to others, and the simple act of greeting someone is usually a handshake.

Dr. Chovatiya:
To really add to that list of challenges that exist in this condition, what about where we are at with therapy currently? Are there limitations or challenges with just what we can do with what we have right now?

Dr. Ehst:
There sure are. So the good thing is, many acute forms of hand eczema we can treat fairly well. And again, it depends on identifying what you think could be causing it, what could be the underlying cause, or if are there any triggers. Sometimes simple elimination can help. So using avoidance of a known allergen, something that you come into contact with, even if it's infrequent, can really help. Maintaining the function of the barrier of the skin like it's supposed to function with simple things like using lotions and moisturizers, other emollients, that helps too.

But a lot of that takes time. It takes effort. And when it becomes chronic, you're doing that consistently for months and months and months. Most of our therapies currently are topical, and they're directed towards the topical part of the skin. They involve creams and ointments, and then having go to work 30 minutes later can still be annoying. Many patients resort to wearing gloves. So the actual tolerance and use of these products is difficult at times.

We have side effects with some of the better treatments, which are generally cortisone creams or ointments or corticosteroids, but with long-term use especially, we start to worry about side effects like thinning of the skin and permanent atrophy. So that's a huge limitation for someone who's dealing with this for months or years. We have other topical products that may not work as well because the barrier on the hands is thicker, so just trying to penetrate through the thicker skin can be challenging for a topical product. Many products can either burn or sting or irritate further, so there's some limitation.

Dr. Chovatiya:
For those of you just tuning in, you're listening to *DermConsult* on ReachMD. I'm Dr. Raj Chovatiya, and I'm speaking with Dr. Benjamin

Ehst about current unmet needs in the management of chronic hand eczema.

So let's switch gears a little bit, Dr. Ehst. I'm going to ask you maybe a two-parter here as it relates to pathophysiology of chronic hand eczema. What can you tell us about the interplay between barrier disruption, immune dysregulation, genes, and environmental factors that trigger the changes that we see? And in line with your treatment algorithm that you outlined for us, how can clinicians ensure, based on that information, they're actually treating the right type of CHE? Does it even matter?

Dr. Ehst:
Yeah, good point. Interplay is the great word there because this is usually an interplay between different factors. Similar to most dermatitis or eczema that we tend to treat, some people tend to favor an outside-in approach, some an inside-out approach, but in general, you have issues with the way the skin is functioning as a barrier, and then you have underlying inflammation, and there's interplay there. So if you think about the skin, it's supposed to protect your internal environment from the external environment, so any noxious stimuli, irritants, or allergens that we come into contact with on a daily basis, the skin is supposed to function like armor. When you have a tendency towards hand eczemas and chronic hand eczema, you may have genetic factors that have limited the way that barrier works. And you may have external irritants and other factors that contribute to an already disrupted barrier and make it further disrupted.

And so then, going back to how do you make sure you're appropriately targeting this? On the one hand, you could say it doesn't matter because if we have something that's multifactorial and we have a targeted treatment that can go after these different things, why not just pick something that works? And I get that argument. As a clinician, sometimes that's all I want. I want something that's going to work, and I don't want to have to completely define this. However, because there are ways to define it, you can potentially do things other than just prescribe medications. So, as I was alluding to before, say there is an allergen; well, identifying the allergen and eliminating that may actually solve your problem. So there are approaches now. The challenge, as you know, is trying to tease it apart. It goes back to you need a good history and that is what potentially is coming into contact with the hands. Is it someone whose occupation drives more exposure to allergens and irritants? If we think there's an allergen involved, we can do patch testing. It's a bread-and-butter for a dermatologist where we're actually trying to put little external patches on the skin to see if there's an allergic response to something, and then if you can identify that in something the patient comes into contact with, that may help immensely.

Dr. Chovatiya:
As those comments bring us to the end of today's program, I want to thank my guest, Dr. Benjamin Ehst, for sharing his insights on the management of CHE and the underlying mechanisms that contribute to its burden. Dr. Ehst, it was so great speaking with you today.

Dr. Ehst:
Thanks Dr. Chovatiya. Pleasure to be here.

Announcer:
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