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Journal Club: S. Aureus-Driven AD Exacerbation

**Dr. Christopher Bunick:**
Welcome to Atopic Dermatitis Journal Club for Practical Dermatology. I'm Dr. Christopher Bunick, Associate Professor of Dermatology and Translational Biomedicine at the Yale University School of Medicine. With me today is a special guest, Dr. Hebert. Dr. Hebert, thank you for being here.

**Dr. Adelaide Hebert:**
Thank you, Dr. Bunick. I'm proud to join you today in this discussion. Currently I serve as Chief of Pediatric Dermatology at the UT Health McGovern Medical School in Houston, Texas, where I have worked for the past 41 years.

**Dr. Christopher Bunick:**
Dr. Hebert, you recently published an article in the Journal of Drugs and Dermatology titled *A Consensus on Staphylococcus aureus Exacerbated Atopic Dermatitis and the Need for a Novel Treatment*. What are the challenges involved with recognizing and managing Staphylococcus aureus driven atopic dermatitis in clinical practice?

**Dr. Adelaide Hebert:**
Well, we recognize that atopic dermatitis plays such a key role in driving flares of atopic dermatitis, and even when patients are not actively infected, they are colonized with Staph aureus organisms in excess to what we would see in patients who are not affected with atopic dermatitis. These Staphylococcal organisms unfortunately, are disruptive of the barrier, and as a patient suffers with the inflammatory cytokines that accompany atopic dermatitis, the scratching can lead to of course a more defective barrier, secondary infection, which is perhaps more obvious and more problematic, and we really do not have a single drug or a single strategy that normalizes that microbiome and allows the atopic patient to have relief of their disease state.

**Dr. Christopher Bunick:**
So what I hear you describing is this link between barrier disruption, staphylococcus colonization, or overgrowth in that disrupted barrier and then more inflammation and then it becomes a vicious cycle. Is that what you think our patients are going through with atopic dermatitis?

**Dr. Adelaide Hebert:**
I do. I think that we haven't really learned how to control Staphylococcus in the most meaningful and effective way as of yet. We also don't have a perfect drug or management strategy that allows us to have full control of this disease. If we could normalize the microbiome, indeed, I think we would've. One of the greatest challenges that we face with atopic dermatitis really under better control.

**Dr. Christopher Bunick:**
When our colleagues in dermatology are evaluating atopic dermatitis patients, is Staphylococcus aureus infection in the AD skin readily visible? Is it something they can see or is it something they can't see?

**Dr. Adelaide Hebert:**
Frequently we can detect atopic dermatitis secondary infection with Staph aureus, and that's often the driver of a flare which brings the patient into our clinic. We know that, however, in the interval, those patients are still colonized with Staphylococcus aureus, and so it's really just a step away from perhaps that secondary infection more clinically manifest.

**Dr. Christopher Bunick:**

Now in your article there were a number of consensus statements. Can you give us kind of an overview or summary of the importance of these statements and what they mean?

**Dr. Adelaide Hebert:**
Well, in light of the fact that we don't have a single medication or strategy to rectify all the signs and symptoms of atopic dermatitis, including not only the Staphylococcal colonization or infection, the buried effect, the dry skin, the parietis, all of these ingredients in the milieu of atopic dermatitis represented challenge. We are still looking forward to new strategies to find at least a single or a multiple strategy approach to ideally get these patients under long-term control. We know we have acute flares and then we have long-term management strategies that we have to develop and also educate our patients regarding this remains still an imperfect arena for us in the atopic dermatitis realm. We keep trying and we're getting better, but we haven't really gotten to a perfect environment yet for this disease state.

**Dr. Christopher Bunick:**
Yeah, I think that perfect environment is a great summary. There is some data showing that some biologic therapies in atopic dermatitis, they reduce Staphylococcal aureus counts, certainly not eliminate it, but they head it the right direction. Showing that when you decrease the inflammation and you get barrier healing that you do get decreased Staph aureus. So it's sort of headed the right direction.

So Dr. Hebert, what should we be worried about with regard to Staphylococcus aureus resistance in atopic dermatitis patients?

**Dr. Adelaide Hebert:**
Sadly, we have worldwide seen increasing resistance to both topical, as well as oral and systemic antibiotics, not only in atopic dermatitis, but across the medical arena. We have to be respectful and be good stewards of antibiotic use because dermatologists are among the doctors who use antibiotics for acne, atopic dermatitis, other secondarily infected skin conditions with frequency. But knowing that these patients do need a means to control the colonization and at times the true secondary infection of the skin and atopic dermatitis, we sometimes have to use antimicrobials or antibiotics judiciously. Again, not a perfect environment, but if we can control the Staph aureus a priori, perhaps we wouldn't need antibiotics or antimicrobials the way we do currently.

**Dr. Christopher Bunick:**
I will say from personal experience, I've had some ad patients where I've used a narrow spectrum oral antibiotic, and for suspected Staph aureus impotentization, the degree of inflammation of the skin can go down tremendously, even just treating the Staph aureus and probably some of the anti-inflammatory effect of the antibiotic. So certainly that has plays a role in the treatment paradigm of atopic dermatitis.

**Dr. Adelaide Hebert:**
I've seen that as well, and I will say one of the most common hospital admissions we have in the Texas Medical Center is secondarily infected atopic dermatitis, often in young children, and these children suffer tremendously. And even in 24 hours usually getting an IV antibiotic in cases because their infection is so severe and doing some very careful and strategic skin care, these patients turn around very rapidly and then the parents go home and feel that they can manage the child's disease better. The whole family benefits from this hospitalization, everybody gets a little break, some sleep, as well as an education on furthering the betterment of that child's skin care.

**Dr. Christopher Bunick:**
And to your point, I think talking about these issues is incredibly important when you're on a consultative or hospital service because the parents of children with atopic dermatitis need a lot of education and hand-holding. And so understanding this is critical to helping those parents of the child feel comfortable that their child is being cared for and they know what to do when they go home.

**Dr. Adelaide Hebert:**
I think education is really the cornerstone of successful outcomes when you're managing atopic dermatitis, particularly in the pediatric population where you rely on the parents to really conduct the care of that child when they go home. And often these parents are sleep-deprived and the children are very uncomfortable, restless, perhaps overactive at times, and it's hard to watch your child suffer and you to be very tired on top of that. So we work very hard to bring that situation under control to the best of our ability.

**Dr. Christopher Bunick:**
In your article, you also talk about the need for an effective treatment for AD that has a long-term safety profile that allows for a long-term continuous use in children as young as age two. What can you tell us about that?

**Dr. Adelaide Hebert:**
Well, we've been very fortunate in recent years that some new medications, even as recent as December of 2024, have come to the market with FDA approval in the treatment of atopic dermatitis. Some of these medications actually reduce the burden of disease and

improve the quality of life, improve the barrier function, and again, just having a safe and reliable, even steroid-free medication in the management of atopic dermatitis has really made our work so much easier. Parents are very excited to have medicine they haven't seen before that, again, works on so many arenas of atopic dermatitis.

**Dr. Christopher Bunick:**
But what you would like to see is also therapies that actually tackle the bacterial component, driver of AD, and rebalance the skin microbiome. Correct?

**Dr. Adelaide Hebert:**
Yes. And we have an upcoming study that we hope perhaps to recolonize the skin with unique bacteria. We haven't started that study yet, but I think the frontier looks really very bright. I'm hoping this study will come to fruition and again, give us an option that we simply haven't had before in actually using the microbiome as really a focus of primary efficacy in atopic dermatitis management.

**Dr. Christopher Bunick:**
Thank you to our audience for joining myself and Dr. Hebert as we talk about atopic dermatitis and the Atopic Dermatitis Journal Club for Practical Dermatology. Thank you.