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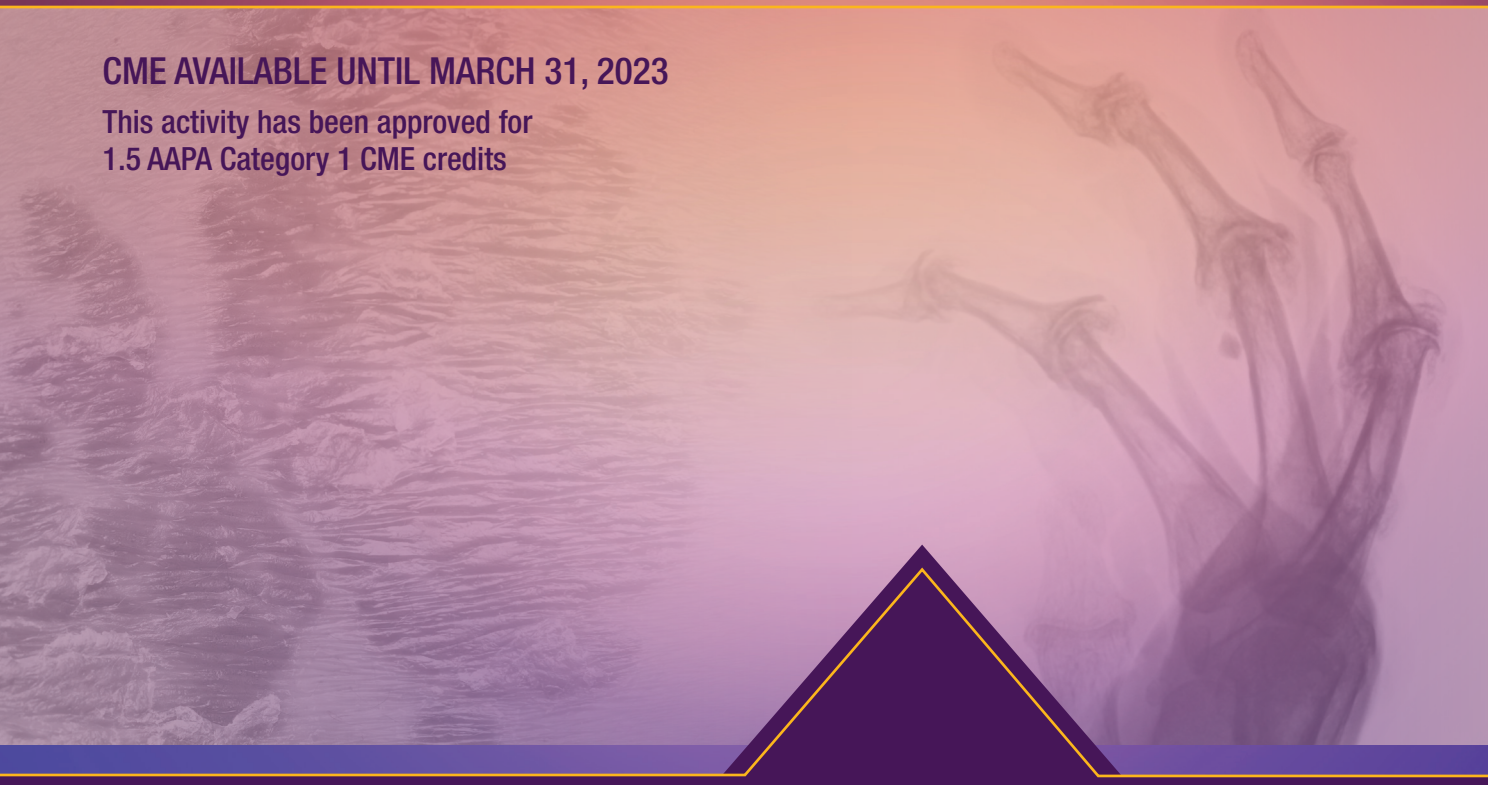

Optimizing Patient Care in

PSORIASIS + PSORIATIC ARTHRITIS

Integrating Management to Improve Outcomes

Contents

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Produced by MedicalLogix

ACCREDITATION INFORMATION

ACTIVITY OVERVIEW

Psoriasis and psoriatic arthritis (PsA) are chronic inflammatory diseases that can substantially undermine the functional abilities and quality of life of affected individuals. Psoriasis is the most prevalent autoimmune disease in the United States, affecting more than 8 million Americans. The most common subtype is plaque psoriasis, which accounts for 80% to 90% of cases. Patients with psoriasis may find it difficult to perform usual activities of daily living, particularly when psoriatic lesions are present on the hands and feet. The physical toll of psoriasis can lead to problems such as fatigue, sleep disturbances, and reduced performance at work. Moreover, the toll on daily life often causes emotional difficulties arising from feelings of shame, embarrassment, and stress, which can lead to social isolation. Patients are also at risk for a variety of comorbid conditions, among which metabolic syndrome and cardiovascular disease (CVD) are of particular concern. In spite of the marked impact of psoriasis and PsA on patients' lives, these conditions continue to be underdiagnosed and undertreated. PAs have pivotal opportunities to improve the care of patients with psoriasis and PsA through improved knowledge of clinical presentations, diagnostic approaches, treatment strategies, and management of comorbidities.

AAPA TAKES RESPONSIBILITY FOR THE CONTENT, QUALITY, AND SCIENTIFIC INTEGRITY OF THIS CME ACTIVITY.

EDUCATIONAL OBJECTIVES

- Assess patients presenting with symptoms of psoriasis and psoriatic arthritis and utilize appropriate testing to support the evaluation.
- Integrate patient specific clinical information to categorize disease severity.
- Formulate patient specific treatment plans for the management of psoriasis and psoriatic arthritis by incorporating currently available data and guideline recommendations.
- Evaluate patients with psoriasis and psoriatic arthritis for common comorbidities and facilitate comprehensive patient care.
- Implement effective strategies for the use of telemedicine in patient management.

ACCREDITATION STATEMENT

This activity has been reviewed by the AAPA Review Panel and is compliant with AAPA CME Criteria. The activity is designated for 1.5 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation. Approval is valid through March 31, 2023.

Estimated time to complete this activity: 90 minutes.

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OFF-LABEL/UNAPPROVED PRODUCT(S) DISCUSSION

This program discusses the off-label use of tacrolimus and pimecrolimus.

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ANDREW HERBER, PA-C

Hello, and welcome to this *Clinical Dialogue* and *eCase Challenge* program, "Optimizing Patient Care in Psoriasis and Psoriatic Arthritis: Integrating Management to Improve Outcomes." I'm Andy Herber, a physician assistant in Hospital Internal Medicine at the Mayo Clinic in Rochester, Minnesota.

Joining me in this conversation are two expert clinicians, Ben Smith and Michael Keene. Ben is an Assistant Professor and Associate Program Director at the Florida State University College of Medicine School of Physician Assistant Practice in Tallahassee, Florida. He works clinically as a rheumatology PA.

Mike is a dermatology PA in Raleigh, North Carolina, and an adjunct faculty member at Duke University School of Medicine. My thanks to both of you for your involvement in this important continuing medical education activity.

So, let's get started. Before we delve into the diagnostic and management considerations of psoriasis and psoriatic arthritis, it's important to provide some background regarding the link between these two conditions. Both psoriasis and psoriatic arthritis are chronic inflammatory diseases that can substantially undermine the functional abilities and quality of life of affected individuals.

Psoriasis is the most prevalent autoimmune disease in the United States, affecting more than eight million Americans. Up to 39% of patients with psoriasis will go on to develop psoriatic arthritis, potentially leading to joint destruction and further disability. Since both the skin and joints are involved, patients with psoriatic arthritis may have an exponentially greater impairment in function and quality of life.

EPIDEMIOLOGY

Psoriasis

- One of the most prevalent autoimmune diseases in the United States[1]
  - Affects more than 8 million Americans
  - Up to 39% of patients will develop psoriatic arthritis[2]

Psoriatic arthritis

- Preceded by psoriasis in 85% of cases[3]
  - Exponentially greater negative impact on function and quality of life due to skin and joint involvement[4]
- Can occur in those with no history of skin disease[3]

1. National Psoriasis Foundation. Statistics. 2020.
2. Racakonda TD, et al. *J Am Acad Dermatol*. 2014;70:512-516.
3. National Psoriasis Foundation. *Psoriatic Arthritis*. 2020.
4. Lee S, et al. *P&T*. 2010;35:680-689.

Although psoriatic arthritis is preceded by psoriasis in 85% of cases, it can also occur in patients who have no history of skin disease. Let's begin with how to identify these patients.

MICHAEL KEENE, PA-C

Thanks, Andy for having me tonight; I appreciate the invitation to be here. Psoriasis is unique in some sense in that there is no real standard set of criteria for diagnosis; it is a clinical diagnosis. We establish that through, of course, our history and our physical exam. The most common form of psoriasis that we see is the plaque form.

And when we think about plaque psoriasis, of course, it's the classic erythematous plaques and the silvery scale that we think about on the elbows, the knees, the scalp; you know, that is the most common presentation for it. But having said that, it certainly can occur in other places on the body as well, the neck, the hands, the trunk. Even the genitalia can be involved.

Oftentimes, too, people will have nail involvement. In fact, 50% of the cases of psoriasis that you see walking in your door will be individuals who have, at the point in time of being seen, nail involvement in one form or other, nail pitting, lysis, oil drop sign in their nails. And in fact, 90% of cases of psoriasis will experience nail findings at some point in time during their disease.

PSORIASIS – DIAGNOSIS

Clinically diagnosed[1]

- No standard testing

Plaque psoriasis[1,2]

- Most common subtype
- Characteristics: erythematous plaques, possibly silvery scales
- Elbows, knees, scalp commonly involved
  - However, may appear anywhere on the body
  - Nail involvement in >50% of cases and up to 90% at some point[3]

1. Kim WB, et al. *Canad Fam Phs*. 2017;63:278-285.
2. Racakonda TD, et al. *J Am Acad Dermatol*. 2014;70:512-516.
3. Baran R. *Presse Med*. 2014;43:1251-1259.

And of course, when we see psoriasis clinically, the other things on the differential that we would be considering would be eczema, contact dermatitis, allergic and irritant types, especially, say, on the feet, dorsal feet, the wrists, the neck, seborrheic dermatitis on the scalp. And then certainly with the nail involvement, oftentimes onychomycosis should be on the differential; it's very difficult to distinguish onychomycosis from psoriasis, in fact, clinically.

ANDREW HERBER

Great, thanks. So Ben, like you guys in rheumatology, you love ordering lab tests. You've got your ANCAs and your C-reactive proteins. There's got to be a lab test for psoriasis, right?

BENJAMIN SMITH, DMSC, PA-C, DFAAPA

So Andy, that's the real interesting thing about psoriasis; there really isn't a diagnostic lab test that's utilized when diagnosing psoriatic skin disease, you know, so that's something to keep in mind. And that can be frustrating for patients and providers as well.

PSORIASIS – DIAGNOSIS (CONT.)

- Differential diagnosis
  - Includes eczema, contact dermatitis, seborrheic dermatitis, onychomycosis, others[1]
- No blood tests available to confirm diagnosis[2]
- Histopathological assessments generally not useful for diagnosis of psoriasis[2]
  - May assist with differential diagnosis

1. Pinton PC. *Clin Dermatol.* 2013;2:60-66.
2. Raychaudhuri SK, et al. *Autoimmun Rev.* 2014;13:4890-4895.

So being that psoriasis is something that we see cutaneously, or on the skin, you might ask yourself, shouldn't we biopsy these lesions. And it's very uncommon in clinical practice that we would biopsy something if we're considering psoriasis unless, you know, there's some diagnostic dilemma that we're facing based on the physical appearance or, maybe it's the lesion is not quite characteristic of what we think of as being psoriatic in nature.

ANDREW HERBER

Great. Thanks, Ben. So Mike, so I'm swimming with my in-laws, I got an in-law that has psoriasis and he shows me this rash every time we get together and he says, "Is it getting better? Is it getting worse?" How do I know as a practicing clinician the severity of psoriasis?

MICHAEL KEENE

So there's really two factors to consider when we try to categorize severity of psoriasis. And of course, many of us have heard of the BSA, or body surface area, you know, the palm, including the fingers, being 1% of the body as kind of a measure for determining, less than 5% being mild body involvement, 5 to 10% generally being considered moderate, and then more than 10% being considered severe. So that's one factor as to how much of the body involvement you see. And in fact, about almost 25% of the individuals you'll see coming in your office are considered moderate-to-severe psoriasis sufferers.

But the other part of it, too, is how the psoriasis affects function and the activities of daily living. I'll give you an example of one of my patients, he's an obstetrician. His body surface area is very, very low; it just happens to be his hands are the most involved area on his body. For him, he's severe. His BSA is very, very low but it's a severe psoriasis for him because it affects his job; he's unable to perform his duties.

PSORIASIS – SEVERITY

- Based on percentage of body surface area (BSA) involved[1]
  - Mild – up to 3%
  - Moderate – 3% to 10%
  - Severe – greater than 10%
- Nearly 25% of patients are classified as having moderate-to-severe disease[2]
- Determination of severity should consider the impact of disease on individual functional abilities and psychosocial functioning[1]

1. National Psoriasis Foundation. *About Psoriasis.* 2019.
2. National Psoriasis Foundation. *Statistics.* 2019.

ANDREW HERBER

Thanks, Mike. So Ben, psoriasis, I think about it, it's just on the skin, right, or does it actually involve other organs?

BENJAMIN SMITH

Yes, we see the manifestations most commonly on the skin, but I think it's really important that we all now, at this time, recognize the truly systemic nature and systemic inflammatory nature of what psoriasis is. And I think that helps raise the level of importance of this condition for sure.

ANDREW HERBER

Mike, so in order to go from psoriasis to psoriatic arthritis, do I just need psoriasis on the joint to make that diagnosis or is there other things that you're looking at?

MICHAEL KEENE

You know, essentially, clinically, when folks present, the typical presentation, as we were mentioning a minute ago,

is that the skin precedes the joint involvement, but that's not always the case. And in fact, a patient may present with arthritic pain and very little skin involvement, enough that would maybe be difficult to make the diagnosis of psoriasis on the skin despite the fact they have the joint pain going on. Some may present with no skin involvement at the time of the diagnosis of an arthritic condition. So, it doesn't always pan out the way that is typical.

I will say, too, even nail involvement is kind of an important characteristic as, you know, the folks that do have more nail involvement tend to be the ones that have more arthritic issue.

This is an autoimmune disease and we need to treat it as such, given that it can affect not just the skin but the joints as well.

ANDREW HERBER

Ben, anything to add there?

BENJAMIN SMITH

Yes, building on this concept or idea that psoriasis is a systemic condition, there are those who come with joint pain that, you know, in thinking we may not initially put the two together, the psoriasis and joint pain. And this is so vitally important because of psoriatic arthritis, which is an inflammatory condition which can cause destructive joint changes. And you know, with these joint changes, there obviously could be function, loss of function for patients with this as well. So I think having the sensitivity and being aware that psoriatic arthritis exists, an inflammatory joint condition, an inflammatory arthritide, is tremendously important.

The population in which psoriatic arthritis most often manifests itself is in the early-to-mid decades of life and I think that's a vitally important thing to keep in mind and to think of. Certainly, we can see the onset at any age but, you know, early-to-middle-aged individuals, this is a consideration when someone comes with joint and skin symptoms.

So what do you think about? You know, certainly, all joint pain with psoriasis is not psoriatic arthritis but, you know, we think about those inflammatory history of joint pain, such as morning stiffness. And stiffness that lasts a long time, that may be particularly worse after inactivity and may improve with activity when we're up and physically active.

There are other really extraarticular or periarticular manifestations to note as well, such as dactylitis, that diffuse, swollen joint, which we've learned perhaps in our schooling and have seen clinically, we call a "sausage digit" as well.

One of the additional interesting features about psoriatic arthritis is this thing we call enthesitis, where these periarticular structures, these tendon or ligament insert areas, get irritated and inflamed and certainly can be very symptomatic for persons. Inflammatory joint pain, stiffness, dactylitis, enthesitis are things that we think about.

We think about peripheral joints being affected, smaller joints of the hand and feet, and other more medium-sized joints perhaps at times as well. But let us not forget the axial spine, axial skeleton as a potential site of involvement psoriatic disease, as well. So really, when we talk about psoriatic arthritis, it's a matter of putting these symptoms together, listening to the patient, simply an observation of recognizing psoriasis and when we do that, coupled with inflammatory joint symptoms, it helps us arrive at diagnosis, which is absolutely vital to do early in the course.

PSORIATIC ARTHRITIS – DIAGNOSIS[1]

- Most commonly appears after onset of psoriasis
  - However, may also occur in patients without previous skin manifestations
- Nail involvement may correlate with a more severe onset
- Classic features
  - Early morning stiffness
  - Stiffness after prolonged sitting or inactivity
  - Dactylitis ("sausage digits")
  - Enthesitis and pain where ligaments and tendons insert into bone
- May impact both peripheral joints and other areas (such as axial skeleton)

1. Ritchlin CT, et al. *N Engl J Med.* 2017;376:2095-2096.

ANDREW HERBER

So Ben, I have somebody with sore joints and I have a rash that's got some kind of plaque or scaly-looking features to it. Is it always going to be psoriatic arthritis or what else is on your differential here? What other things come into play that you kind of have to rule in or think about?

BENJAMIN SMITH

Well, I think it's important, if you're considering psoriasis or psoriatic arthritis and you've got a skin rash, perhaps the first step is to confirm the psoriasis diagnosis. And again, when you couple that with inflammatory joint pain the differential is important to consider.

You know, a cousin to psoriatic arthritis, although it is a different condition, is certainly rheumatoid arthritis. Rheumatoid often presents with a symmetric polyarthritis. We sometimes see that with psoriatic arthritis as well, or you may have more oligoarticular or only a few joints involvement with it.

The other condition particularly if it's an oligoarticular manifestation, could be gout, crystal arthritis as part of the differential as well. Sometimes synovial fluid analysis may be beneficial. Like psoriasis, there truly is no diagnostic laboratory test that rules in psoriatic arthritis. With these differentials in mind, doing a rheumatoid factor may be in order; we'd expect it to be negative in psoriatic arthritis. If gout is considered, perhaps a uric acid might be ordered as well.

X-rays, radiographic study, plain films of joints, hands, feet perhaps are also very helpful. We see common radiographic changes in psoriatic arthritis, particularly late-stage disease but also early disease.

PSORIATIC ARTHRITIS – DIAGNOSIS[1] (CONT.)

- Differential diagnosis
  - Includes rheumatoid arthritis (RA), gout, other conditions
- No diagnostic laboratory testing available to make a diagnosis
  - Testing for rheumatoid factor; usually negative in patients with PsA
- Plain-film x-rays and possibly other imaging studies can be helpful

1. Liu JT, et al. *World J Orthop.* 2014;18:537-543.

ANDREW HERBER

Alright. Mike, I think we touched on this a little earlier, but if you have the diagnosis of psoriatic arthritis, is there differences in severity? Can you have mild psoriatic arthritis? And then how do you figure that out or how do you counsel patients through that?

MICHAEL KEENE

Yes, you know, it's interesting. It's severity is categorized very, very similarly to the way psoriasis, the skin manifestations are categorized. So again, the number of joints involved, much like the BSA we talked about earlier, would be obviously one factor in determining severity of psoriatic arthritis. And then again, how does it affect functions of daily life? Even a single joint potentially can be a factor to making someone categorically maybe more severe. So, it's very analogous to the way in which we determine severity of psoriasis.

ANDREW HERBER

Ben, do you have anything to add there?

BENJAMIN SMITH

I agree with Mike's comments here. When we ask the question about severity of disease, severity of psoriatic arthritis, I think the number of joints involved certainly plays a role. One joint, monoarthritis, you know, one to three or so, oligoarthritis and more joints than that would be a polyarthritis, by definition.

But I think the other factor here, and we must ask about this, and Mike alluded to this earlier, is this idea of how the person's quality of life and how a person's function is affected. And that's not always corresponding with the number of joints involved. You know, someone can have just a few joints are severely affected and the quality of life and function may greatly and drastically be affected. So, you know, this is a little more subjective somewhat but I think our history taking and documentation helps to support us here, which may help us in terms of treatment options and this really true patient-centered care that we all strive for.

PSORIATIC ARTHRITIS – SEVERITY[1]

- Considerations
  - Number of joints involved
  - Functional limitations
    - Even a small number of affected joints can be debilitating
- Monoarthritis – 1 joint affected
- Oligoarthritis – 2 to 4 joints affected
- Polyarthritis – 5 or more joints affected
- Further differentiation of mild, moderate, severe disease
  - Mild – minimal impact on quality of life
  - Moderate – impacts physical function and ability to perform tasks of daily living
  - Severe – unable to perform tasks of daily living without pain or dysfunction, greatly impacts physical and mental well-being and quality of life

1. Ogdie A, Weiss P. *Rheum Dis Clin North Am.* 2015;41:545-568.

ANDREW HERBER

Mike, you're in dermatology, you guys slather creams and steroids and everything on every kind of rash. How do I know what types of creams to pick here? Do I use creams? Do I add steroid? Can you help me out here?

MICHAEL KEENE

Yes, traditionally, in years past, the primary focus was to use topical medications and they're still utilized to a significant degree depending on the presentation. But I think the important point is we're trying to choose the right strength of the, say if it's a corticosteroid, the right strength for the right location on the body to minimize risk, atrophy, and other side effects.

We're choosing the right vehicle. You know, there are a whole host of vehicles, ointments, creams, gels, foams so we want to make sure that we're putting all the pieces together not only with strength and vehicle, but doing that in a way that obviously will achieve success.

Having said that, you know, there are some other specific agents, even one that's kind of a newer agent, a combination of corticosteroid with retinoic acid, tazarotene, halobetasol mixed with tazarotene. Those are traditionally two medicines, high-potency steroid and retinoic acid, that we've used independently but new medication available now that mixes those two together. So that's an option that simplifies the treatment regimen and obviously, anything we do to make things easier, I think makes things generally more successful.

As far as nonsteroidals are concerned topically, I think most folks are familiar with the vitamin D analog agents that are out there, calcipotriene, calcitriol. They've been around for many years and do have, I think, a role to play for more for maintenance than really rescuing a flare.

The retinoic acid, tazarotene, again can be used particularly for thicker plaques. I think it does have a usefulness in those areas for helping to thin the plaques and reduce the inflammation in the plaques.

Calcineurin inhibitors are also used at times, as well, reminding folks, of course, that tacrolimus and pimecrolimus are off-label for psoriasis but we do utilize them as anti-inflammatories.

And of course, the old standards are still out there, salicylic acid, coal tar, anthralin are still used at times. But with the newer advent or newer agents, particularly the biologics, which we'll be talking about in a minute, I think we're seeing less and less of those being prescribed.

Phototherapy also should be mentioned, narrowband UVB particularly, in the form of either excimer laser and/or the traditional box, still very useful. PUVA is available in some places, although that's somewhat fallen out of favor with the narrowband UVB now being available. The downsides, it's efficacious I think in terms of the results, but the downside is getting into the office to do it for many patients is extremely difficult given they have to come in two times, three times a week on occasion.

PSORIASIS – TOPICAL THERAPIES

Topical corticosteroid therapy[1]

- Various strengths and formulations available
- Choice should be tailored to severity of disease and location of plaques

Topical nonsteroidal therapy[1]

- New combination corticosteroid/retinoid (halobetasol propionate/tazarotene – approved 2019)[2]
- Vitamin D analogues, calcipotriene or calcitriol, retinoids (tazarotene), calcineurin inhibitors (tacrolimus, pimecrolimus – off-label use in psoriasis)
- Salicylic acid, anthralin, coal tar

1. Armstrong AW, et al. *Semin Cutan Med Surg.* 2018 (2, suppl):S40-S44
2. Halobetasol propionate/Tazarotene PI. 2019.

PSORIASIS – PHOTOTHERAPY[1]

- Types
  - UVB – narrowband and broadband
  - UVA with psoralen (PUVA)
- Does require consistent therapy on a regular basis, high patient burden
- Does not address systemic nature of disease
- May consider use in combination with systemic therapies

1. Armstrong AW, et al. *Semin Cutan Med Surg.* 2018 (2, suppl):S40-S44

ANDREW HERBER

Ben, so it sounds like there's a lot of options out there, whether it be phototherapy or creams, but I've got to believe that some of these patients there's some limitations or it's not a one-size-fit-all. Where do you see some snags when you're treating these patients?

BENJAMIN SMITH

Well, I just would be so grateful to Mike and our dermatology colleagues because when we talk about these topicals, I often will defer and ask for their help with these kind of things. It's a great opportunity for collaboration.

But again, we'll remember that psoriasis and again, psoriatic arthritis, are systemic, inflammatory conditions. But these topicals play a tremendous role and can be quite beneficial for patients and, you know, in terms of patients' desires as well. But the systemic conditions often require maybe other combination type treatments also.

ANDREW HERBER

Okay. Mike, what can you tell me? You mentioned biologics earlier on, and with the pandemic now, we've seen kind of a little bit of public apprehension about newer treatments or biologics. So how do you counsel your patients with psoriatic arthritis about some of the newer options? Are they safe? Do they work? Maybe they want to stick with the old stuff that's tried and true. Or do you use some of the new stuff here and how do you get some confidence in them as patients?

MICHAEL KEENE

At first, of course, being that they are immunosuppressive, there was a lot of hesitation I think, at least in our clinic, I'll speak personally. But I feel like the data really has been pointing toward them being safe to use in this setting and environment. And they are such amazingly effective products when it comes to psoriasis and psoriatic arthritis.

The anti-tumor necrosis factor-alpha products were the first class of medicines out there and many people I'm sure have heard of those. We've all seen the commercials on TV. They are very efficacious and have a very good safety track record. Those are infliximab, adalimumab, etanercept, and certolizumab. For psoriatic arthritis only, there's another agent out there as well called golimumab.

These agents, though, must be used in the right patients, the right population. They do have their own set of issues. One of those is that it can increase the risk of infection or activation of tuberculosis, so we want to make sure that we're screening these folks before they start on their medicine. They also have the risk of new-onset heart failure and/or aggravating heart failure in a pre-existing patient, as well as demyelinating disease.

BIOLOGIC THERAPIES – TNFα INHIBITORS

Anti-tumor necrosis factor-alpha (TNFα) inhibitors

- For psoriasis or PsA[1,2]
  - Infliximab, adalimumab, etanercept, certolizumab
- For PsA only[2]
  - Golimumab
- Safety concerns:[3]
  - Risk of new or worsening heart failure
  - Increased risk of infection or activation of tuberculosis
  - Development of demyelinating disease

1. Armstrong AW, et al. *Semin Cutan Med Surg.* 2018 (2, suppl):S40-S44.
2. D'Angelo S, et al. *Open Access Rheum Res Rev.* 2017;9:21-28.
3. Kirkham B. *UpToDate.* 2019;Jul.

And I guess I should add, too, there are two other biologic agents worth mentioning. They are for psoriatic arthritis only, but abatacept is a T-cell co-stimulation modulator and tofacitinib is a JAK inhibitor. It's a new class of agents, I think we'll see a lot more of these coming out in the near future.

OTHER SYSTEMIC THERAPIES

For PsA only

- Abatacept (T-cell costimulation modulator)
  - Safety concerns[1]
    - Increased risk of infection
- Tofacitinib (JAK inhibitor)[2]
- Upadacitinib (JAK inhibitor approved in Dec. 2021)[3]
- Safety concerns for JAK inhibitors[2,3]
  - Serious infection, malignancy, major adverse cardiovascular events, thrombosis

1. Abatacept PI. 2021.
2. Tofacitinib PI. 2020.
3. Upadacitinib PI. 2021.

ANDREW HERBER

So Ben, monoclonal antibodies, obviously is pretty cutting-edge technology in treatment and therapy options. Do you use them a lot for psoriatic arthritis and do they work?

BENJAMIN SMITH

Yes, so as Mike has just really quite eloquently described to us, the TNF-alpha medications, this class of medications offered a sea change for psoriasis and psoriatic arthritis.

But the great news now is, there really are new classes of these biologic products, which there are those who don't respond well to TNF-alpha inhibitors and that's unfortunate, but we do have new classes of medications also. One of the most notable classes in psoriatic disease, skin and joint, are the interleukin antagonists. And there are subcategories of those, the IL-12/23, the IL-17.

You know, the 12/23 product, ustekinumab, is excellent, approved both for psoriasis and psoriatic arthritis. There are a couple of IL-17 inhibitors. And, you know, in clinical practice when I'm considering these for patients, I think the thing that comes to my mind is certainly patient preference. The comorbidities are tremendously important. And, with the IL-17 inhibitors, we want to ask about history of or symptoms suggestive of inflammatory bowel disease because there is a potential that these products could exacerbate inflammatory bowel disease, that being the IL-17 inhibitors.

BIOLOGIC THERAPIES: INTERLEUKIN (IL) ANTAGONISTS

IL-12 and -23 inhibitor – *for psoriasis or PsA*

- Ustekinumab
- Safety concerns – increased risk of infection and malignancy[1]

IL-17 inhibitors – *for psoriasis or PsA*

- Secukinumab
- Ixekizumab
- Safety concerns – new onset or exacerbation of IBD, increased risk of infection[2,3]

IL-17 inhibitor – *for psoriasis only*

- Brodalumab
- Safety concerns – increased risk of Crohn's disease and infection[4]
- Black box warning re: risk of suicidal ideation and behavior[4]

1. Ustekinumab PI. 2020.
2. Secukinumab PI, 2020.
3. Ixekizumab PI, 2021.
4. Brodalumab PI, 2020.

There's also an IL-23 product. And I think the key take-home for our audience and maybe those who don't prescribe these medications is the idea that there are options that we can select based on a patient preference and patient's comorbidities.

But I think the overriding and primary concern or risk factor that we think about with all these products, the TNF products as well as the interleukin products, together with the T-cell product that was mentioned and the JAK inhibitor, is risk of infection. We'll ask about infection, we'll observe for infection and we will be careful and have patients be aware of this as well.

BIOLOGIC THERAPIES: INTERLEUKIN (IL) ANTAGONISTS (CONT.)

IL-23 inhibitors – *for psoriasis only*

- Guselkumab
- Tildrakizumab-asmn
- Risankizumab-rzaa
- Safety concerns – increased risk of infection[1-3]

1. Guselkumab PI, 2020.
2. Tildrakizumab-asmn PI, 2020.
3. Risakizumab-rzaa PI, 2020.

ANDREW HERBER

So, we talked, Mike, a lot about the biologics and some of the new cutting-edge stuff. What about the patient who wants to stick with the old treatments? Is there still a role for methotrexate in this treatment or is that kind of long gone?

MICHAEL KEENE

No, I don't think so. You know, I think, obviously, as we gain over time, I think more and more options in terms of these new biologic agents coming out and more experience using them, time will tell, but I think the DMARDs, as they're called, right, the old disease-modifying antirheumatic drugs that are available for psoriasis and psoriatic arthritis are still available. Methotrexate is still a fairly popular product, I think, at least from a dermatologic perspective.

Less commonly, there's a couple others out there, sulfasalazine, leflunomide. You know, don't see much of those being used anymore, at least from our perspective from a skin standpoint. I'd be curious to hear if Ben is seeing or using much of either one of those agents. But the DMARDs still have a role. The distinct disadvantage to them relative to some of these newer agents is the toxicities and the adverse reaction issues that many people experience with them. It limits their use, I think, to some degree.

And there is another agent to mention, too, which is newer but not a biologic and that is apremilast, which is a phosphodiesterase-4 inhibitor. It's got its set of side effects that can be a bit discouraging for some patients, particularly gastrointestinal diarrhea in the onset of beginning the medication, especially in the beginning can be fairly common, 30% or so, if I remember right, but a very good drug. I certainly wouldn't consider it the most efficacious drug from a skin standpoint, but certainly an option out there to consider.

NONBIOLOGIC SYSTEMIC THERAPIES

For psoriasis or PsA

- Disease-modifying antirheumatic drugs (DMARDs)[1]
  - Methotrexate – inexpensive and efficacious
  - Cyclosporine, acitretin, sulfasalazine, leflunomide – less common due to side effects
- Phosphodiesterase 4 (PDE4) inhibitor
  - Apremilast[2]
    - Oral medication
    - Safety concern – gastrointestinal issues

1. Armstrong AW, et al. *Semin Cutan Med Surg.* 2018 (2, suppl):S40-S44.
2. Apremilast PI. 2020.

ANDREW HERBER

Ben, if you make the decision to use some of these biologic medications, do you have to have that patient come back to the office frequently? Are there things you need to keep an eye on with them? How do you monitor these patients to make sure they're not getting toxicities or the drug is working?

BENJAMIN SMITH

Well, these drug products that we've talked about, both the traditional disease-modifying medications and these newer biologic products, are powerful medications and they absolutely require long-term follow-up so we do monitor patients. Generally speaking, depending on the product they're taking, if a patient's on a medication like methotrexate, we'll see the patient every three months to check in, see how they're doing, check on effect and also monitor with bloodwork, such as a blood count, CBC with differential. And additionally, we'll look at chemistries, such as renal and hepatic function to ensure the patient's tolerating the medications safely.

MONITORING DURING THERAPY

Team approach, responsibility dependent on drug selected

- Rheumatology, dermatology, primary care
- Follow up depends on therapy selection, usually every 3-6 months

Recommended lab work[1]

- CBC, metabolic panel (to include hepatic and renal function), screening for TB and hepatitis

1. Menter A, et al. *J Am Acad Dermatol* 2019;80:1029-1072.

Now, I'd like to comment on Mike's point. In rheumatology, we certainly do use methotrexate for particularly peripheral joint disease. There is some benefit for skin manifestations of psoriasis. There are also, as Mike mentioned, leflunomide and sulfasalazine, although we don't recognize them as being helpful for the skin, but there can be some benefit for inflammatory joint symptoms associated with psoriasis.

The biologics, we also continue to follow-up with patients every three to six months or so. And we'll do a system review lab, blood count, hepatic, liver function as well for those patients over time.

ANDREW HERBER

So Ben, before you start a patient on the biologics, I know in some other disease states, we want to do some screening tests, or we want to make sure that we don't have anything hidden before we start. Is there anything we would do before starting biologics for someone with psoriatic arthritis?

BENJAMIN SMITH

Yes, this is a tremendously important question and it's valid for both those who prescribe these powerful medication, biologics and disease-modifying medications, but also for those who may be referring to someone who will prescribe these medications. You know, because we have so many options today, which is a wonderful thing, we can be selective and should be, based upon a person's comorbidities.

So, in practice, when we're thinking about starting a biologic, for my review of systems and past medical history standpoint, I'll ask things like history of congestive heart failure, history of demyelinating disease, such as multiple sclerosis. I'll ask about history of inflammatory bowel disease. I'll ask about history of tuberculosis exposure or history of positive PPD skin test or QuantiFERON gold test, as well.

I'll ask about lung disease, such as emphysema or asthma history. I'll ask about recurrent infection. And all of these things will influence our recommendations to patients. We'll ask about vaccination history as well. It's most ideal to vaccinate pre-drug but we have some opportunity even later, particularly with killed vaccines. We're comfortable with using those but live vaccines we would avoid with these disease-modifying medications and biologics.

Hepatitis screening is also tremendously important. Asking about that history, hepatitis B and C, particularly and then hepatitis vaccinations with A and B are to be considered.

CONSIDERATIONS BEFORE INITIATING THERAPY[1]

- Screen for diseases that can be affected by therapy selection
  - Including tuberculosis, hepatitis, CHF, MS, IBD, lung disease, recurrent infections
- Obtain CBC with differential and complete metabolic panel
- Determine vaccination status and update if needed
  - COVID, influenza, hepatitis A and B, human papillomavirus (age-appropriate), pneumococcus, meningococcus, varicella, zoster

1. Menter A, et al. *J Am Acad Dermatol* 2019;80:1029-1072.

ANDREW HERBER

Great. So Mike, the patient's come into the office, you do your talking and your education on psoriasis. And then, the old days, we'd hand pamphlets or brochures to patients and then those brochures end up in the back of the car, and then they end up in the recycling bin. When you want to give patients a go-to source for information on psoriasis, what's your go-to? Like what are ones that are best bang for your buck?

MICHAEL KEENE

You know, the National Psoriasis Foundation, which has been around a long time, is a great resource for patients with psoriasis. In fact, there are some more recent contemporary guidelines as the American Academy of Dermatology and the National Psoriasis Foundation have gotten together in 2020 and put out some guidelines regarding management of psoriasis with topical and alternative therapies, non-biologic guidelines, as well, in 2020.

And in 2019, in fact, the same combination of associations put out some management guidelines for biologics as well, which we follow still today.

ANDREW HERBER

Ben, when it comes to psoriatic arthritis, are there some go-to resources that you steer your patients toward?

BENJAMIN SMITH

Yes, certainly. I'm going to echo Mike and highlight the National Psoriasis Foundation and the wonderful work that they do. I think they're a great patient resource. The Arthritis Foundation is another wonderful resource to consider. In terms of guidelines, the American College of Rheumatology, together with the National Psoriasis Foundation, published our most recent guidelines in 2018.

RESOURCES FOR PROVIDERS AND PATIENTS

- National Psoriasis Foundation (www.psoriasis.org)
- Arthritis Foundation (www.arthritis.org)
- AAD-NPF guidelines
  - Use of biologics in psoriasis (2019)
  - Use of phototherapy in psoriasis (2019)
  - Use of systemic nonbiologic therapy in psoriasis (2020)
  - Use of topical and alternative therapies in psoriasis (2020)
- ACR-NPF guidelines
  - Treatment of psoriatic arthritis (2018)

And, you know, being a part of that guideline development, I just would share with those here, it was such an important and iterative process how this occurred. The literature was reviewed. It was critically looked at and reviewed. But the other point I would make, these guidelines came not only from rheumatologist and dermatologist participation, there were health professionals participating in this, as well as patients, and so the patient's voice was heard.

I think the other so important piece to note, and this is so vital for both providers, PAs and patients is, you know, the science is moving forward. And these guidelines are published and I think we should all be sensitive to medical literature as it continues to advance in this world, in this frame with psoriatic arthritis and psoriasis.

This idea of lifelong learning must continue for all of us, particularly in this topic of psoriasis and psoriatic arthritis.

ANDREW HERBER

Great, thanks. So Mike, the days of patients having one comorbidity are long gone. I, for instance, work at a tertiary care center, a hospital, a referral center. Patients are coming in with dialysis and heart failure and numerous other medical comorbidities. What things do I need to keep in mind as a provider with psoriasis and other underlying medical comorbidities?

MICHAEL KEENE

Yes, this is a big issue both for psoriatic as well as psoriatic arthritis patients. Comorbidities, cardiovascular comorbidities, particularly, with them are significant. Much higher rates of dyslipidemia, hypertension, type 2 diabetes, obesity, metabolic syndrome. Because of these factors, the psoriasis patient in particular has a life expectancy that's about five years less than the general population, so it's a significant issue.

Other comorbidities to consider as well are chronic kidney disease, inflammatory bowel disease rates are higher, cancer risk is higher. So again, other medical conditions to pay attention to and be thinking about when you see a psoriasis patient in your office. And then certainly the psychologic aspects to having the condition. These patients, in terms of psychiatric comorbidities, are more prone to depression and suicidality in greater numbers than the general population as well.

ANDREW HERBER

Ben, anything to add there when it comes to psoriatic arthritis?

BENJAMIN SMITH

Again, another important point to echo Mike's statement, again, I'll state a systemic inflammatory disease and so multiple or other organ systems being affected is something we must keep our ears perked and our eyes open for. You know, when I think about this, I think it's important for us to recognize that we must watch bone health. And when I say bone health, a metabolic bone disease such as osteoporosis, looking for thinning of the bone is a valid thing.

You know, we talked about the periarticular manifestations, enthesitis and, when you hear a patient describe that, it may lead you to think about, you know, is this soft tissue pain or like a fibromyalgia syndrome type of presentation.

Secondary fibromyalgia certainly can exist with psoriatic arthritis so is a consideration. Liver function, development of fatty liver is important, and this may influence our medication recommendations for patients. Other systemic inflammatory features, again, we talked about the skin, talked about eye inflammation. All of these things must be considered.

COMORBIDITIES

Psoriasis and/or PsA

- Cardiovascular (CV) risk factors[1]
  - Dyslipidemia, hypertension, obesity, type 2 diabetes, metabolic syndrome
- Other medical comorbidities[2,3]
  - Chronic kidney disease
  - Inflammatory bowel disease
  - Malignancy
- Psychiatric comorbidities(e.g., depression)[4]

PsA[5]

- Osteoporosis, fibromyalgia
- Non-alcoholic fatty liver disease
- Autoimmune eye disorders

1. Radner H, et al. *Arthritis Care Res (Hoboken).* 2017;69:1510-1518.
2. Wan J, et al. *Br Med J.* 2013;347:5961.
3. Eppinga H, et al. *Inflamm Bowel Dis*. 2017;23:1783-1789.
4. Cohen BE, et al. *JAMA Dermatol*. 2016;152:73-79.
5. Haddad A, Zisman D. *Rambam Maimonides Med J.* 2017;80.

It's going to be really interesting as our treatments have increased in number and increased or become more focused, you know, will these comorbidities, what will be the outcome, the betterment or improvement for them as well? I don't think we completely know that answer yet. Intuitively, it would make sense that as we better control inflammation, these extraarticular or other organ manifestations would improve as well.

ANDREW HERBER

Mike, the COVID pandemic has really driven telemedicine so we've seen telemedicine options on a lot of things. I've got to believe telemedicine has to be quite difficult from a dermatologic standpoint. Do you have patients showing their rashes on their screens? And how does that work? Is there a role for telemedicine in dermatology or is that best for just other checks?

MICHAEL KEENE

Yes, it's funny, you would think, dermatology being such a visual discipline that it's ideal for telemedicine, but it's difficult. I mean, and we obviously moved into that venue quite concentrated when this whole pandemic started. We, in fact, were seeing almost exclusively telemedicine for a number of weeks.

But you know, it really is difficult, given the complexities of the exam, the ability to touch, the ability to kind of see and hear the story in front of you versus through a screen, but also the quality of the video being much less than the quality of a live patient in front of you, obviously. It's a challenge to diagnose.

I think where telemedicine may have value still, though, and particularly in regard to psoriasis, is in terms of the patient follow-up once we do have the diagnosis and we are beginning the course of therapy. I think there's a role for it there. It certainly makes things a lot easier from our perspective. We can see -- we know what we're looking at, we already know what the disease is, so monitoring and figuring out progress is much easier than establishing a diagnosis, obviously.

ANDREW HERBER

Ben, in your practice, your psoriatic arthritis patients, what have the pearls and pitfalls of telemedicine been for you?

BENJAMIN SMITH

Yes, it certainly has a place. I remember 15 to 20 years ago, we considered telemedicine and we were a little bit shy or timid to jump in. And I guess we dove in with the COVID-19 pandemic. I agree with Mike; I think there certainly is a role here. In our practice, the role has certainly been with follow-up visits.

And, you know, you certainly are likely aware, in rheumatology as well as other specialties, we are facing a tremendous workforce challenge. Just simply there are not enough rheumatologists, not enough rheumatology PAs. So it's not uncommon that our patients will drive two, two-plus hours to come and see us.

We desire to see the patients in the practice, in the office in-person periodically so we can feel joints. That's really a lot of what we do and look for synovitis or look for inflammatory changes. So, I think the message and lesson for me has been telemedicine has a role and can be effective. And it's something that I suspect in the future we'll continue to learn more about and perhaps apply better in what we do daily in clinical practice.

THE ROLE OF TELEMEDICINE

- Use of telemedicine may improve access to care
  - Especially for patients who may be far from a specialty provider or for whom travel is difficult
- Likely most useful in follow up patient management for patients with an established diagnosis who are clinically stable
- In person interactions are important for diagnosis of disease and establishment of provider/patient relationship

ANDREW HERBER

All right guys, kind of reaching the end here. Mike, you know, currently I work in hospital medicine; I've been doing that for 16 years. I've never seen a patient outpatient. Say I decide to go for a career change tomorrow. I'm in primary care medicine. My first patient comes in with psoriasis. What do I need to know? What are the pearls or can you wrap-up some top-five things I need to know when I'm taking care of this patient?

MICHAEL KEENE

I think in terms of pearls, you know, psoriasis patients, I think an important distinction with this condition is the nature of it being as stigmatizing as it is. I think for those of us that are fortunate enough not to have skin disease of some sort, particularly psoriasis, it's hard for us to wrap our brains around that, I think, ultimately. You know, a recent study was done that suggested a third of the population still considers psoriasis a contagious disease. Forty percent of people have a hesitation to shake a hand of someone who's got psoriasis. Fifty percent of individuals said they'd be very hesitant to date someone with the condition.

So I think when a psoriasis patient walks into my office, there's a couple things that we can do, I think, for them to establish a rapport and a relationship ultimately with them as a patient. One of the things that I think is very important is just to listen to them.

And I know we don't have time like we used to in years past, I think things have become very busy for all of us, but I would encourage you if you're seeing a psoriasis patient for the first time, give them two minutes, three minutes. Just let them talk.

And then the second thing I would say is touch them. So put your hand on that plaque on that forearm. Touch them and show them they are accepted, you know, I'm not afraid of this disease. I'm not afraid of you or your condition. That goes a million miles really to helping establish a trust ultimately with them. And I think with that trust, then you communicate that they're accepted. And I think also with that trust, also you'll establish the rapport that's necessary to see success in their therapy. They're going to trust you for the plan that you come up with ultimately, I think, too.

ANDREW HERBER

Ben, I have to imagine your practice is a lot of referrals for psoriatic arthritis. If you had an opportunity to speak directly to everyone that was referring to you, or a chance to really drive home a couple things that you wish everyone that referred to you knew about psoriatic arthritis, what would you say to them?

BENJAMIN SMITH

I think the key point is to recognize and be sensitive to, when someone comes with joint pain, it sounds inflammatory, and have psoriasis, we truly can make a difference.

To highlight a point that we've made really through this night is there are comorbid conditions and other things that psoriatic patients experience and so, that really interdisciplinary team, primary care providers, dermatology,

SUMMARY

- Important to establish a connection with your patient with psoriasis
  - Listen to them
  - Touch them during examination
- A strong patient/provider relationship will be beneficial when developing an effective treatment strategy
- Be mindful of the connection between psoriasis and psoriatic arthritis
  - Remember to look for psoriasis patients with inflammatory arthritis
- Early and effective interventions are available that can prevent permanent joint damage and improve overall patient functioning
- Optimal patient management requires interdisciplinary teamwork

rheumatology, you know, bringing that team together, we could have most optimum patient care. And in multisystemic conditions, we can all make a difference contributing our expertise.

Again, I'll comment on Mike's point of listening. And as we do that, you know, there's great satisfaction that can come both to providers but certainly to patients and their care team and their families who take part in this. We have tools, pharmacologic and non-pharmacologic now, that make a tremendous difference, to help decrease pain, help improve function, help people from a psychosocial standpoint as well.

ANDREW HERBER

What a fantastic discussion, guys. I'd like to thank both of our expert faculties, Ben Smith and Michael Keene, for their great insights and discussion. And I would like to thank our audience for participating in this *Clinical Dialogue*.

I'm Andrew Herber and on behalf of my colleagues, PAs Ben Smith and Michael Keene, we hope you enjoyed it and thanks a lot for joining us.

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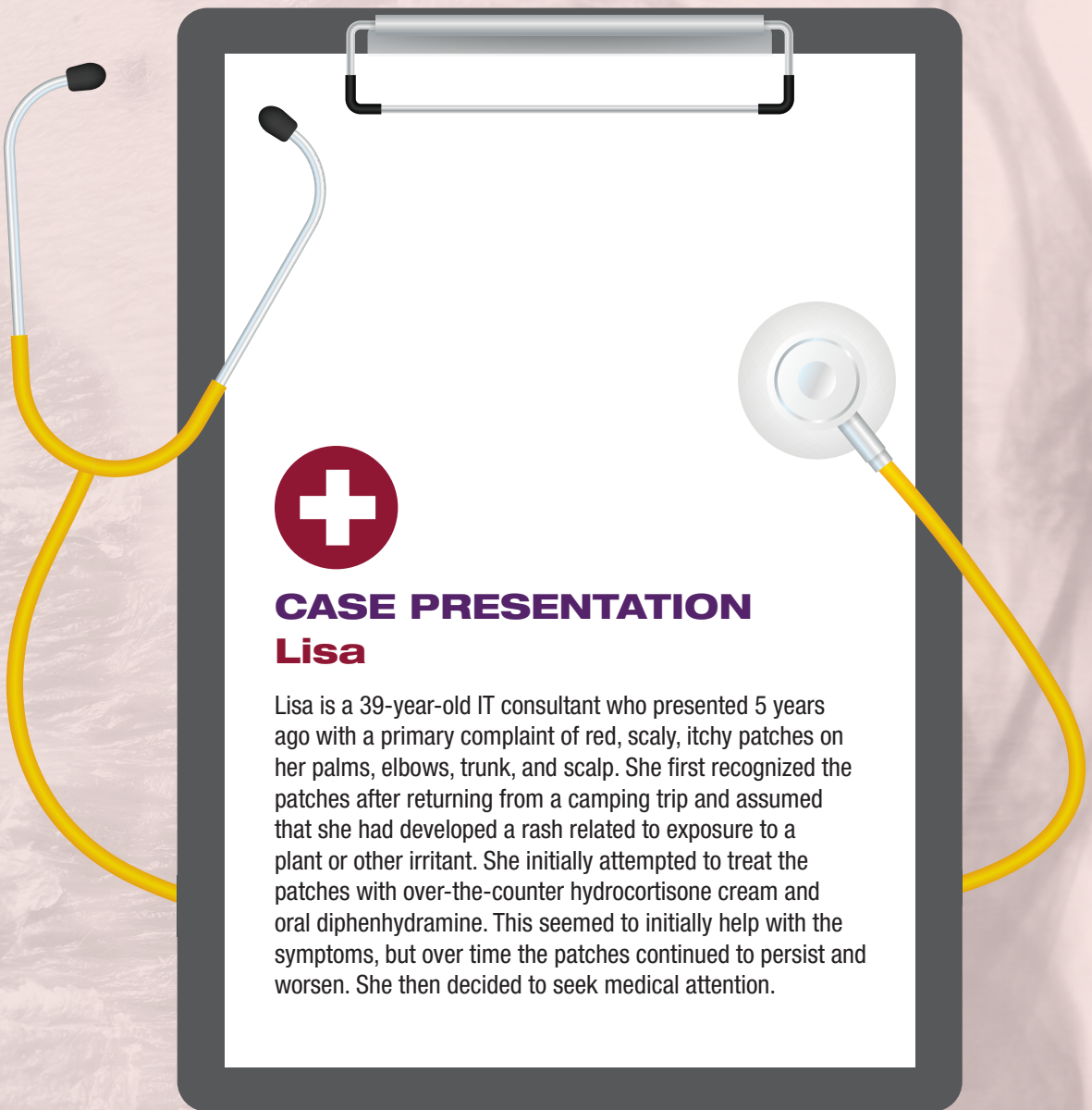
This *eCase Challenge* will examine key principles and considerations when identifying and diagnosing psoriasis and psoriatic arthritis (PsA), determining disease severity, and monitoring patients treated with biologic therapies. Factors related to comorbidities in patients with psoriasis and PsA will also be addressed.



CASE PRESENTATION
Lisa

Lisa is a 39-year-old IT consultant who presented 5 years ago with a primary complaint of red, scaly, itchy patches on her palms, elbows, trunk, and scalp. She first recognized the patches after returning from a camping trip and assumed that she had developed a rash related to exposure to a plant or other irritant. She initially attempted to treat the patches with over-the-counter hydrocortisone cream and oral diphenhydramine. This seemed to initially help with the symptoms, but over time the patches continued to persist and worsen. She then decided to seek medical attention.

QUESTION 1

Which statement is true when evaluating this patient for suspected psoriasis?

- **A.** Specific blood tests can be performed to confirm psoriasis
- **B.** Histopathological evaluations are necessary to establish a psoriasis diagnosis
- **C.** A diagnosis of psoriasis is usually established based on clinical findings
- **D.** The absence of skin findings on certain parts of the body can rule out the diagnosis

Psoriasis often appears between the ages of 15 and 35 years, but can develop at any age.[1] The diagnosis is based on clinical findings.[2] As noted, the most common form is plaque psoriasis, which is characterized by sharply demarcated erythematous plaques that may have adherent silvery scales.[2,3] Although the scalp, elbows, and knees are most commonly involved, psoriasis can appear on any area of the body (such as the nape of the neck, hands, trunk, or genitals).[4,5] Plaques may be associated with symptoms such as pain, pruritus, scaling, and bleeding.[6] Nail involvement (such as pitting, trachyonychia, onycholysis, oil drop sign, and transverse grooves) is present in more than half of cases and affects as many as 90% of patients at some point during their lives.[7]

No blood tests are available for diagnosing psoriasis, and histopathological assessments are not generally helpful, but may be useful for resolving issues concerning the differential diagnosis.[2] Conditions to consider in the differential diagnosis include eczema, contact dermatitis, seborrheic dermatitis, drug eruption, tinea infections, pityriasis rosea, lichen planus, candida intertrigo, and onychomycosis, among others.[8]

Therefore, the correct answer is C.

CASE PRESENTATION CONTINUES

After conducting a thorough clinical evaluation, Lisa was found to have erythematous, scaly patches on her palms, elbows, trunk, and scalp, as well as nail pitting, all of which support a clinical diagnosis of psoriasis. In addition, the presence of plaques had begun to impact her daily activities and social relationships, as she was avoiding activities that would expose more of her skin, such as swimming and going to the beach. She was also conscious of the presence of plaques when in her work environment, especially on her palms.

The next step after establishing a diagnosis of psoriasis for Lisa is to determine the severity of disease, in order to effectively determine the appropriate course of therapy.

QUESTION 2

Which of the following statements is true regarding the determination of severity of disease in patients with psoriasis?

- **A.** Severity of disease is based solely on objective findings
- **B.** Classification of severity can be stratified based on the percentage of total body surface area (BSA) impacted
- **C.** Determination of severity should consider the impact of disease on physical and psychosocial functioning
- **D.** Both B and C

Various approaches may be used to determine the severity of psoriasis. One approach is to calculate the percentage of BSA involved by using the size of the patient's palm, which is considered to equate to 1% of total BSA.[9] If <3% of the BSA is affected, psoriasis is considered to be mild. Involvement of 3% to 10% of the BSA is classified as moderate, and >10% of the BSA is rated as severe.

The impact of the disease on the patient's functional abilities may also be considered in determining severity. For example, psoriasis located on areas of the body that are central to performing activities of daily living, such as the palms or soles of the feet, are of particular relevance. Consequently, a patient can be considered to have more severe disease than would be indicated by the percentage of BSA involved. Almost one-fourth of patients with psoriasis are classified as having moderate-to-severe disease.[9]

Therefore, the correct answer is D.

CASE PRESENTATION CONTINUES

Lisa was found to have plaques covering 8% of her BSA, when using her palm to represent 1% of BSA. When combining this information with the negative impact of her symptoms on her physical and psychosocial functioning, she was determined to have moderate-to-severe disease. She had used OTC hydrocortisone in the past with little

relief, which is to be expected in a patient with more severe disease. Given her busy, high-stress career and time constraints, she was not interested in a trial of phototherapy. After discussion with Lisa regarding the risk-benefit profiles of available therapies for moderate-to-severe psoriasis, she was prescribed a biologic therapy.

QUESTION 3

Which statement regarding the use of biologic therapies for moderate-to-severe psoriasis is CORRECT?

A. Patients being treated with tumor necrosis-α (TNFα) inhibitors should be monitored for the development of new or worsening heart failure

B. Patients who have been previously vaccinated for hepatitis A and B should be re-vaccinated prior to treatment

C. Patients receiving any interleukin (IL) inhibitors should be monitored for an increased risk of new or worsening inflammatory bowel disease

D. Screening for tuberculosis is necessary prior to initiation of biologic therapy only if the patient has a history of recent travel outside of the country

Several biologic therapies that target specific components of the immune system are available for use in patients with moderate-to-severe psoriasis. Biologic therapies indicated for the treatment of moderate-to-severe psoriasis include the anti–tumor necrosis factor-α (TNFα) agents adalimumab, etanercept, infliximab, and certolizumab; the interleukin (IL)–12 and -23 antagonist ustekinumab; the IL-23 inhibitors guselkumab, tildrakizumab-asmn, and risankizumab-rzaa; and the IL-17 antagonists brodalumab, ixekizumab, and secukinumab. All of these agents are indicated for use in adult patients. In addition, etanercept is indicated for patients 4 to 17 years of age, and ustekinumab is indicated for adolescents ≥12 years of age.[10-20]

The biologic therapies are generally well tolerated, without significant side effects, but the possibility of certain adverse events should be taken into consideration. The TNFα inhibitors can increase the risk of infection (such as tuberculosis [TB]) as well as new or worsening heart failure or demyelinating disease.[10-13] The risk of infection is also increased with the IL inhibitors, but, unlike with TNFα inhibitors, heart failure is not a concern.[14-20] Ixekizumab and secukinumab may be associated with new-onset or exacerbation of inflammatory bowel disease (IBD), and brodalumab can increase the risk of Crohn's disease.[17-19] Ustekinumab may increase the risk of malignancy.[14]

Several important steps are necessary before patients start treatment with a biologic agent. Routine blood tests (complete blood count [CBC] with differential and complete metabolic panel) should be obtained, and patients should also be screened for diseases that can be affected by these therapies (such as TB and hepatitis B).[21,22] Patients should be closely monitored during treatment with regular CBCs and complete metabolic panel, assessments of liver and renal function, and screening for TB.

Therefore, the correct answer is A.

CASE PRESENTATION CONTINUES

Prior to starting biologic therapy with a TNFα, Lisa was screened for TB and hepatitis, and updated on all of her recommended vaccinations, including COVID. Following initiation of therapy, she was monitored regularly as described above and followed for any adverse effects.

QUESTION 4

Which statement regarding the diagnosis and management of PsA is true?

A. Both PsA and rheumatoid arthritis will present with a positive rheumatoid factor

B. PsA only occurs in individuals with a history of psoriasis

C. Classic features of PsA include morning stiffness and dactylitis

D. All biologics indicated for the treatment of psoriasis are also approved for the management of PsA

Lisa's psoriasis initially responded well to treatment with a TNFα, and she was able to achieve her goal of almost-clear skin. However, over the last year she began to have several disease flares. She is now also complaining of morning stiffness upon waking and increased stiffness at the end of the workday after prolonged sitting. She has also noticed a red, painful swelling in her toes – she first thought it may be

related to the colder weather but despite keeping her feet warm the symptoms have not improved. During her return visit, diagnostic assessments (including bloodwork and imaging) are performed, and she is found to have developed moderate-to-severe PsA, based on the joints involved and the significant impact on both her functioning and quality of life.

After discussion with Lisa regarding these new developments, and in light of her recent disease flares as well as the onset of PsA while on a TNFα, the decision is made to switch Lisa's therapy to an IL inhibitor.

PsA usually develops between the ages of 30 and 50 years, but can occur at any age.[23] Timely identification of this disease is critical because, if left untreated, PsA can cause irreversible joint damage.[24] Key concerns are that clinicians may lack awareness of the fact that patients with psoriasis can have an arthritic condition, or that PsA can develop even without previous skin manifestations.[23,25,26] The clinical presentation of PsA can be extremely diverse, with symptoms such as peripheral joint inflammation, enthesitis, tenosynovitis, dactylitis, or axial skeleton disorders, either in isolation or in combination with one another.[27] When assessing a patient for the possibility of PsA, key factors to consider are early morning stiffness, stiffness after prolonged sitting or periods of inactivity, and dactylitis, which are classic features.[25] Another classic feature is enthesitis and pain where ligaments and tendons insert into bone, such as the plantar fascia and Achilles tendon insertions at the heel and the patellar tendon insertions.[25]

Several other conditions, most notably gout and rheumatoid arthritis, can mimic PsA and must be ruled out in the differential diagnosis of PsA.[27,28] Plain film x-rays and, if necessary, imaging studies can be useful for establishing the diagnosis.[27] Testing for rheumatoid factor, which is usually negative in PsA, can also help rule out RA.[27]

TNFα inhibitors for psoriasis that are also indicated for PsA include adalimumab, etanercept, certolizumab, and infliximab.[10-13] Golimumab is a TNFα inhibitor indicated for PsA alone.29 Among the IL inhibitors indicated for psoriasis, the IL-12/23 inhibitor ustekinumab and the Il-17 inhibitors ixekizumab and secukinumab are also indicated for PsA.[14,18,19]

Therefore, the correct answer is C.

CASE PRESENTATION CONTINUES

Lisa demonstrated a clinical response to IL inhibitor therapy, with an improvement in symptoms of both psoriasis and PsA at follow-up. At her follow-up visit, Lisa was also evaluated for comorbidities for which patients with psoriasis and PsA are known to be at greater risk.

QUESTION 5

Which statement concerning comorbidities in patients with psoriasis and PsA is CORRECT?

A. The increased risk of cardiovascular disease (CVD) is largely responsible for a decreased life expectancy in these patients

B. The risk of development of inflammatory bowel disease is lower than in the general population

C. Individual risk factors for CVD are prevalent, however there is no increased risk in development of metabolic syndrome

D. Rates of depression are similar in patients with psoriasis and PsA as in the general population

Patients with psoriasis or PsA are at risk for developing a range of comorbidities, most notably conditions associated with increased cardiovascular risk.[30-33] Patients with psoriasis have a life expectancy that is five years less than in the general population, largely due to the increased risk of CVD.[34,35] In a recent meta-analysis of findings from observational studies, including data from nearly 33,000 patients with PsA, the risk of cardiovascular morbidity was 43% higher than in the general population.[36] Studies have also shown that PsA is associated with an increased risk of major adverse cardiovascular events, and a recent systematic review confirmed an increased risk of both cardiovascular morbidity and cardiovascular mortality.[37,38]

A real-world study in patients with psoriasis recently found that the prevalence of comorbid cardiovascular risk factors was 46% for dyslipidemia, 42% for hypertension, 17% for type 2 diabetes, and 15% for obesity.[39] Another recent real-world analysis found that the prevalence of cardiovascular risk factors among patients with PsA was 20% for hypertension, 8% for diabetes, 12% for dyslipidemia, and 6% for obesity.[40] Given these findings, it is not surprising that psoriasis and PsA have been linked to a greater potential for metabolic syndrome.[33,41] Notably, however, a recent real-world, multicenter study found gaps in the treatment of CV risk factors in patients with psoriatic disease.[42] In this study, a total of 59% of patients with hypertension were undertreated, as were 66% of those with dyslipidemia.

Other serious medical and psychiatric conditions may also occur in patients with psoriasis or PsA. For instance,

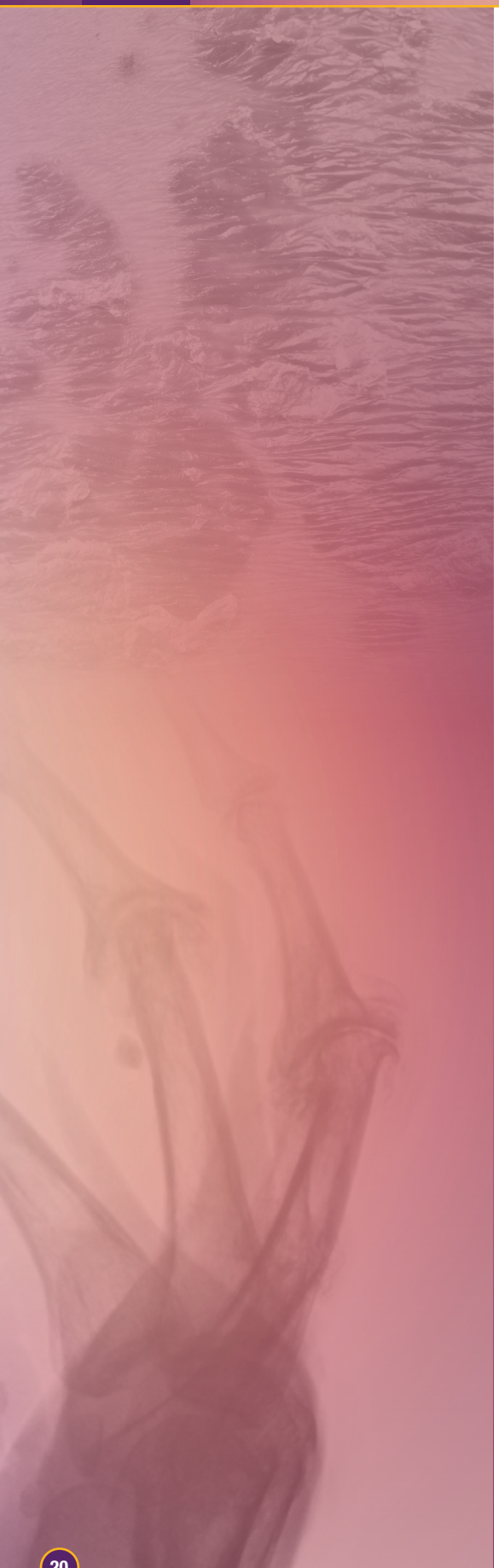
psoriasis has been shown to be an independent risk factor for chronic kidney disease.[43] Accordingly, patients should be monitored for renal insufficiency. In addition, the prevalence of IBD has been shown to be approximately four times higher in patients with psoriasis than in the general population, pointing to the need to monitor patients for this comorbidity.[44] With respect to psychiatric disorders, rates of depression and suicidality are greater in patients with psoriasis than in the general population.[45,46] Of further note is the fact that the risk of major adverse cardiovascular events (myocardial infarction, stroke, and cardiovascular death) is especially increased in patients with psoriasis who have comorbid depression.[47] In addition to cardiovascular risk factors, comorbidities reported in patients with PsA include IBD, osteoporosis, autoimmune eye disease, non-alcoholic fatty liver disease, fibromyalgia, and depression. Considering the potentially serious consequences, PAs should be prepared to recognize, manage, and monitor these comorbidities in patients with psoriasis or PsA to ensure comprehensive care.[33,37]

Therefore, the correct answer is A.

CONCLUSION

Psoriasis and PsA are chronic diseases that can undermine patients' functional abilities, quality of life, and overall health. Early diagnosis is imperative to facilitate timely and effective therapy, with a goal of preserving mobility and quality of life. By remaining vigilant to the possibility of psoriasis and PsA in patients presenting with suggestive symptoms, PAs can help to reduce the impact on overall health.

Biologic therapies have redefined the management of psoriasis and PsA in patients with moderate-to-severe disease. In the primary care setting, PAs can ensure that appropriate steps, such as required vaccinations, are undertaken to prepare patients for treatment. Through ongoing monitoring, PAs can identify and manage adverse effects of therapy while also remaining alert for potential comorbidities associated with disease, in order to provide comprehensive patient care. While this case addresses some important issues regarding therapy, PAs should familiarize themselves with all of the potential side effects of therapy contained with the prescribing information.



We hope that you've enjoyed this *eCase Challenge* and that you've increased your knowledge and confidence in evaluating and managing patients with psoriasis and psoriatic arthritis. Psoriasis and psoriatic arthritis are chronic inflammatory diseases that can have significant negative impact on many aspects of patients' lives. PAs can help reduce the effects of these diseases by being prepared to recognize the presenting symptoms, thereby enabling a prompt diagnosis and initiation of effective treatment.

In the case of psoriasis, the diagnosis is established based on clinical and visual findings after taking into consideration and eliminating a range of differential diagnoses. Many patients with psoriasis will go on to develop psoriatic arthritis, although the latter condition can also appear in the absence of the previous skin manifestations. The clinical presentation of psoriatic arthritis can be extremely diverse, and PAs should be aware of its classic features to appropriately evaluate a differential diagnosis.

Regarding therapies for psoriasis and psoriatic arthritis, biologic agents have significantly advanced the management of moderate-to-severe psoriasis and psoriatic arthritis. PAs can help patients who are candidates for biologic therapy maximize the benefits of these agents by assuring that proper steps such as serology, and evaluation of clinical history, and administration of required vaccinations are taken prior to initiation of therapy.

PAs can also ensure that patients are monitored for adverse effects of therapy. Another concern is that patients with psoriasis and psoriatic arthritis are at increased risk for a range of comorbidities due to the underlying pathophysiology of these diseases. By remaining alert to the likelihood of such conditions, PAs can facilitate timely management of these conditions through comprehensive care.

Fracture liaison services, or FLS, are designed to identify patients who suffer a first fracture, assess their bone metabolic status and institute medical therapy as indicated to prevent a second fracture. Interestingly, FLSs are associated with decreased refracture risk and improved 30-day and 1-year mortality risk.

Several lifestyle modifications have been shown to improve BMD and fracture outcomes, including calcium and vitamin D supplementation, weightbearing exercise and smoking cessation.

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1) Read the educational objectives and faculty disclosures
2) Study the educational materials
3) Go to **www.aapa.org/PPSA22** to complete the post assessments in Learning Central. See page 2 for further information.

QUESTION 1

What is the most common subtype of psoriasis?

A. Guttate psoriasis
B. Pustular psoriasis
C. Plaque psoriasis
D. Inverse psoriasis

QUESTION 2

Which comorbidity associated with psoriasis and PsA is largely responsible for a decreased life expectancy found in these patients?

A. Depression
B. Cardiovascular disease
C. Malignancy
D. Fatty liver disease

QUESTION 3

For which class of medications should patients be monitored for new or worsening heart failure?

A. TNFα inhibitors
B. IL inhibitors
C. JAK inhibitors
D. Phosphodiesterase-4 inhibitors

QUESTION 4

Which diagnostic tool is NOT helpful to establish a diagnosis of psoriasis?

A. Careful clinical evaluation of the skin
B. Examination of nail findings
C. C-reactive protein level
D. Skin biopsy to rule out other conditions

QUESTION 5

Cindy is a 35-year-old hair stylist who presents with red, scaly, itchy patches on her elbows and scalp. She thought she might be sensitive to a newer product she started using in the salon, so she tried to stop using it, but the skin issues persisted. Even though she wears plastic gloves for applying hair color, she wonders if she may have developed an "allergy" to a hair care product. She has tried alleviating the "rash" with moisturizers and over-the-counter hydrocortisone cream, but her symptoms have continued to worsen.

What first step should be taken to establish a diagnosis?

A. Order blood tests to assess whether the patient has psoriasis or contact dermatitis
B. Perform a thorough physical examination
C. Order histopathological assessments
D. Rule out psoriasis since her face or hands are not affected

QUESTION 6

Which statement regarding the diagnosis and treatment of psoriatic arthritis (PsA) is true?

A. All biologics indicated for the treatment of psoriasis are also indicated for the management of PsA
B. PsA develops only in individuals with a history of psoriasis
C. Rheumatoid factor is usually positive in both rheumatoid arthritis and PsA, making it difficult to differentiate
D. Up to as many as 90% of patients with PsA have nail changes during the course of their disease

QUESTION 7

Which of the following is true when using biologic therapies for moderate-to-severe psoriasis?

A. Patients treated with biologic therapy should be counseled and monitored due to an increased risk of infection
B. Patients previously vaccinated for hepatitis A and B should be re-vaccinated prior to therapy
C. Patients receiving a Janus kinase (JAK) inhibitor should be monitored for new or worsening inflammatory bowel disease
D. Screening for tuberculosis prior to initiation of therapy is only needed if the patient has recently traveled outside of the country

QUESTION 8

When considering comorbidities related to psoriasis or PsA, which of the following is true?

A. Autoimmune eye disorders occur more frequently in patients with psoriasis
B. Cardiovascular risk factors are increased in both psoriasis and PsA
C. Comorbid inflammatory bowel disease may occur with psoriasis, but not PsA
D. The risk of fatty liver disease is increased in patients with psoriasis

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