Monitoring Biologic Therapy in Psoriasis and Psoriatic Arthritis

Which Tests Have the Most Value?

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To Test or Not to Test? An Updated Evidence-based Assessment of the Value of Screening and Monitoring Tests When Using Systemic Biologic Agents to Treat Psoriasis and Psoriatic Arthritis

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Biologic Therapy: Risks and Monitoring

Over the past decade, biologic agents have become the standard of care for treating moderate to severe plaque psoriasis and psoriatic arthritis, with additional indications (such as adalimumab for hidradenitis suppurativa) further broadening the use of these systemic drugs. The first-generation biologic agents (infliximab, etanercept, adalimumab) targeted the proinflammatory cytokine tumor necrosis factor alpha and carry a small risk for opportunistic infections, cancer, and reactivation of latent tuberculosis or hepatitis B virus (HBV) infection.

Second-generation (ustekinumab) and third-generation (sekinumab) agents target interleukin (IL)-12/23 and IL-17, respectively. Because these are thought to induce more "skin-specific" and less broad immunosuppression, these newer biologics may carry a lower risk for opportunistic infections and tuberculosis reactivation.

Nevertheless, the current standard of care is to screen all patients for tuberculosis and HBV before initiating any biologic therapy. Furthermore, most clinicians also check baseline liver function tests, complete blood count (CBC), and basic metabolic profile before starting any biologic agent; ordering baseline chest radiography is also common practice.

Grading the Evidence

But how should a growing international cohort of patients on biologic therapy be followed? What type of screening and monitoring tests should be ordered, and at what frequency? Guidelines to date have varied, with no clear consensus on which tests to order and at what frequency.[1-4]

To address this deficiency, Ahn and colleagues performed a meta-analysis of studies evaluating screening tests in the context of biologic therapy for psoriasis and psoriatic arthritis. Their goal was to update screening and monitoring recommendations, using a grading system developed by the US Preventive Services Task Force.[5] Using this methodology, screening tests are considered "grade B" if there is a "high certainty that the net benefit is moderate, or a medium certainty that the net benefit is moderate to substantial." In contrast, grade C screening tests "have a moderate certainty that the net benefit is small."
The meta-analysis included 145 relevant English-language articles published between 2006 and 2014. Of these articles, 26 contained data amenable to qualitative analysis, yielding the following results:

1. Evidence was strongest (grade B) for the benefit of tuberculosis screening.
2. For tuberculosis screening, the interferon gamma release assay had a higher specificity and sensitivity than tuberculin skin testing.
3. Evidence supporting HBV or hepatitis C virus (HCV) screening was weaker (grade C), and should be considered on the basis of patient history and risk factors.
4. Evidence supporting hepatic function monitoring was also weaker (grade C), but should be considered in patients with a history of HBV or HCV or those taking infliximab.
5. There was insufficient evidence to recommend routine HIV screening, but this may be because most biologic studies excluded patients infected with HIV.
6. There was insufficient evidence to recommend monitoring complete CBC, creatinine or creatinine clearance, antinuclear antibodies, C-reactive protein, cholesterol, or triglyceride levels.

**Viewpoint**

Ahn and colleagues set out to update monitoring recommendations for patients with psoriasis who are on long-term biologic therapy. Of note, they did not include data from such IL-17 antagonists as secukinumab. Furthermore, their results do not establish any recommended frequency for testing, although most consensus panels recommend biannual laboratory monitoring.

This study confirmed the importance of tuberculosis screening for all patients before starting and during therapy with infliximab, etanercept, adalimumab, or ustekinumab. There was also increasing evidence to support HBV screening. Although evidence supporting screening for HCV was less compelling, the investigators still advocated checking baseline HCV serology, with hepatic function monitoring for patients with a history of liver disease.

The most intriguing outcome of this study is the idea that clinicians are probably ordering far too many monitoring tests for patients on biologic therapy. This is compounded by the fact that these treatments are designed for long-term use, in many cases for the lifetime of the patient.

Current guidelines[2-4] support extensive laboratory tests every 6 months (CBC with differential, liver function tests, metabolic panel, C-reactive protein, creatinine clearance) in all patients taking biologics for psoriasis and psoriatic arthritis, but with the exception of tuberculosis screening, none of these tests have been shown to protect against any adverse outcomes. By eliminating unnecessary testing and tailoring tests to the individual patient on the basis of his or her medical history and risk factors, clinicians can reduce unnecessary medical expenses. This "smart" approach to testing will also reduce patient anxiety caused by false-positive results or clinically irrelevant laboratory abnormalities.

**Abstract**