



Precision Medicine: Redefining Care for Rheumatoid Arthritis



J. Eugene Huffstutter, MD

**Each patient is unique. What if their treatment path was too?
That possibility is at the core of precision medicine.**

Precision medicine allows patients to receive treatment based on their personal, genetic makeup. It is commonly associated with oncology, where therapies can address patients' genetic biomarkers rather than just the location of their tumor. This personalized approach has already improved cancer care. Now, it has the potential to change how other diseases are treated too.

In the treatment of autoimmune diseases, elements of precision medicine are already evident. Health care providers will “treat to target,” for example, establishing personalized goals for a patient and adjusting treatment step by step to reach that goal. New research and emerging technologies are beginning to complement this type of personalized approach.

In particular, precision diagnostic tools hold great promise for improving treatment outcomes and quality of life for patients with autoimmune conditions such as rheumatoid arthritis.

Challenges in Treating Rheumatoid Arthritis

While the pain associated with rheumatoid arthritis ebbs and flows, it is a constant fact of life for patients with autoimmune disease. Patients report that their rheumatoid arthritis causes achy hands that keep them from playing tennis with friends, that they become depressed about not having the strength to work in their garden, that they're distracted by the pain at work or fearful of the eventual joint damage. The list goes on.

Rheumatoid arthritis can be treated, but finding an effective treatment often involves trial and error. There are more than a dozen different treatments for patients to try! Medications such as non-steroidal anti-inflammatory agents, or NSAIDs, and corticosteroids treat symptoms like pain and inflammation. Other medications called disease modifying anti-rheumatic drugs actually alter the disease. Figuring out which one works for a given patient can take months or years, during which time patients' health and quality of life continue to decline.

Most patients wind up trying a biologic medication called an anti-TNF. The medication works by suppressing the body's response to tumor necrosis factor (TNF), which leads to inflammation. Yet just

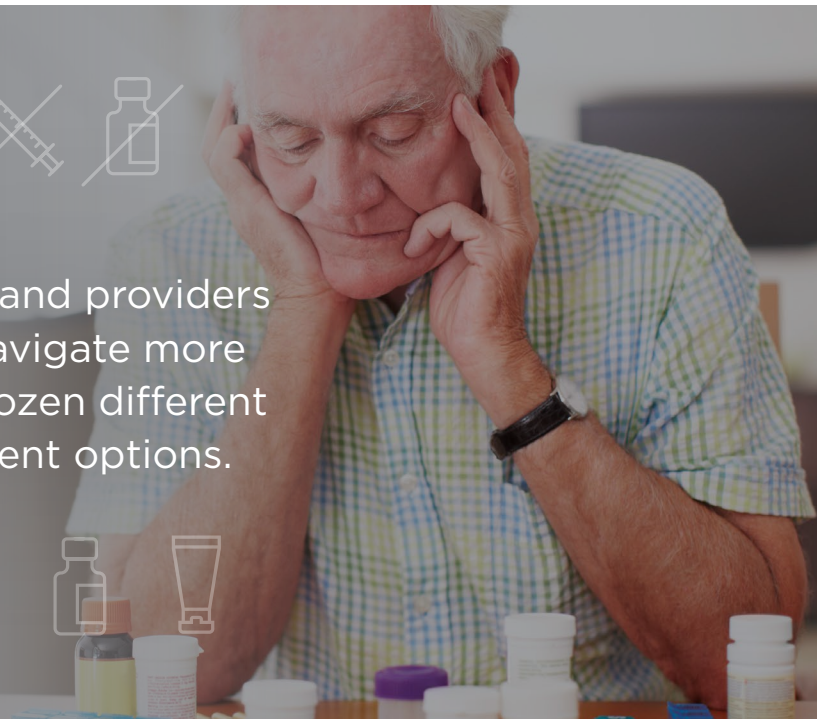
as with the first-line medications, not all patients respond well to these either. Regardless, insurers often require patients to try two or even three anti-TNFs, in a certain order, before trying still other treatment options. The process can stretch on for months or even years, which is detrimental to patients' health and wellbeing. It's also expensive. In addition to living with poorly controlled rheumatoid arthritis, patients may have co-pays or coinsurance for appointments, labs and multiple medications.

It doesn't have to be this way. Precision medicine can eliminate some of the guesswork to more quickly identify an effective treatment or, equally important, an ineffective one.

This can improve patients' lives and produce better health outcomes. And, perhaps most importantly, it can eliminate time during which rheumatoid arthritis can spread to other joints and inflict joint damage that can't be undone.



Patients and providers must navigate more than a dozen different treatment options.



Value of Precision Medicine

Every patient experiences rheumatoid arthritis differently, so it's logical, then, to use patients' genetics to determine their course of care. Although precision medicine is not yet widely available for treating rheumatoid arthritis patients, it's a promising approach that can provide a shortcut to effective treatment.

One example is a recently-released test that can shorten the time between a patient's rheumatoid arthritis diagnosis and finding a treatment that works. The objective is for the test to determine whether patients with rheumatoid arthritis would respond to an anti-TNF medication.

While life-changing for some patients, anti-TNFs are ineffective for up to two-thirds of patients.^{2,3} Thus far, the only way to know who will benefit from the medications has been a "try and see" approach. New diagnostics would allow health care providers to predict a patient's response

to anti-TNFs using just a blood sample.⁴ This means that the one-third of patients who aren't responsive could skip those months of trying different anti-TNFs, a frustrating, harmful and costly process called anti-TNF cycling.

An improved diagnostic test that helps patients stabilize their condition faster may even reduce strain on the rheumatology workforce and reduce wait times for other patients. If some patients needed even a couple fewer appointments, that would free up providers' time to see other patients.

Precision diagnostics like this test also have the potential to generate savings across the health care system. Trying fewer medicines means patients will have fewer doctor's visits and less lab work. The test could help insurers, too, by keeping them from paying for different ineffective, yet expensive, medications over and over again.

BENEFITS OF PRECISION MEDICINE



less time between diagnosis and effective treatment



savings across the health care system



fewer doctor's visits and less lab work

Barriers to Precision Medicine

The precision diagnostic test for rheumatoid arthritis is just recently available. And experienced health care providers know all too well that insurance barriers often make cutting-edge medical technology inaccessible for patients.

Coverage for the diagnostic itself and future tests like it could be a challenge.

Like many new technologies, the anti-TNF diagnostic test may be costly. Before insurers balk, however, they might consider the tens of thousands of dollars they will save on multiple cycles of ineffective medications or related labs and appointments. Patients would save too.

Another challenge may be getting insurers to support health care providers' diagnostic-based treatment approach.

Pharmacy benefit managers, who administer prescription drug coverage for insurers, often

use their formulary to steer patients toward medications they prefer based on profit. That includes requiring patients to use the insurer-preferred medication, despite their doctor's recommendation. In the future, pharmacy benefit managers and health insurers will have to make a decision about continuing to use the current rebate-based system or embrace a different approach that allows for access to new precision medicine treatments.

Technology that allows more patients to benefit from precision medicine represents an exciting step forward. For patients and health care providers to realize that benefit, coverage policies must first allow for access.





Conclusion

Autoimmune diseases like rheumatoid arthritis can be tricky to manage, but precision medicine is helping to change that.

Sustaining this progress will require the ongoing commitment of researchers to continue investigating and the willingness of clinicians and patients to try new diagnostic tools and different treatments.

The support of insurers will also be necessary. Comprehensive coverage gives health care providers the freedom to use innovative tools and tailor treatments for their patients. Finding an effective treatment quickly helps patients retain their quality of life by minimizing the disease's impacts. Insurers have the power to keep the process moving, saving everyone time and money, and allowing for patient-centered care to prevail.

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