NOVARTIS

Using sensitive ultrasound imaging to understand speed of secukinumab response in psoriatic arthritis

Full abstract title: Secukinumab significantly decreased joint synovitis measured by Power Doppler ultrasonography in biologic-naïve patients with active psoriatic arthritis: Primary (12-week) results from a randomized, placebo-controlled phase III study

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Please note that this summary only contains information from the full ACR 2020 scientific abstract and selected supporting references. The results of this study may not reflect those of other studies. This summary is not intended to provide medical advice.

Why was this study done?

People with psoriatic arthritis (PsA) can get tender and swollen joints caused by inflammation. The inflammation of the lining of the joints is called synovitis. Synovitis is one of the manifestations of PsA that needs to be managed.[1]

PsA is a type of inflammatory arthritis that occurs in some patients with psoriasis. Inflammation is one way the body fights infection, but it can also become a problem if it occurs more than needed or happens without a good reason. Research suggests continued inflammation from PsA can result in joint damage later on.[2] In PsA, inflammation results in swollen and painful joints and tendons, and can happen in any area of the body.[2]

Doctors use different innovative and sensitive imaging techniques to visualize inflammation inside the body, such as magnetic resonance imaging (MRI) and Power Doppler ultrasonography (PDUS) scans. PDUS can be used in PsA patients to detect early smaller changes that may not otherwise be identified.

This study investigated how quickly the effects of a treatment called secukinumab can be seen on synovitis caused by PsA, using a PDUS standardized and validated ultrasound scoring system to assess early changes in synovitis severity.

Ultrasound scans use high-frequency sound waves to build up an image of something inside the body. PDUS is a specific ultrasound technique that can be used to see what is happening at the joints in PsA patients from the outside. Its unique features, compared with other ultrasound techniques, include its ability to produce detailed color images from any angle and to detect and monitor even small changes.[3] The images collected can be given a score that reflects the severity of the joint lining inflammation.

Secukinumab is a type of medication called a biologic. It helps reduce inflammation by blocking one of the proteins that activates inflammatory cells.[4]

What did this study look at?

The study looked at how secukinumab treatment affected joint lining inflammation in patients with PsA over 12 weeks (3 months).

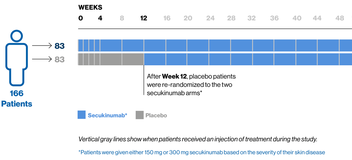
Patients included in the study had active signs and symptoms of PsA even with their current anti-inflammatory treatment and had never received any biologic before. They had ultrasound images showing that the lining of their joints was inflamed, despite them taking other medications to help manage it. The total ultrasound synovitis scores of these patients were about 25 at the beginning of the study (each joint can receive a score of 0-3 to reflect the amount of synovitis) and the investigators looked to see if the score changed after 12 weeks.

The American College of Rheumatology (ACR) scoring system is used to measure symptom improvement in arthritis. It takes into account the number of tender and swollen joints as well as functional ability and other markers of inflammation. A score of ACR20 means an improvement of 20% and ACR50 means an improvement of 50% of arthritis symptoms.

The Spondyloarthritis Research Consortium of Canada (SPARCC) score measures enthesitis, which is the inflammation where the tendons join the bone.

To check if any changes in ultrasound scores were because of secukinumab, rather than the natural fluctuation of the disease, the results were compared with ultrasound scores seen when people with PsA were given an injection containing no treatment (a placebo).

Design of the study

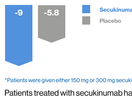


Vertical gray lines show when patients received an injection of treatment during the study.

*Patients were given either 150 mg or 300 mg secukinumab based on the severity of their skin disease

What did this study find?

Patients treated with secukinumab had a 9-point reduction in their ultrasound score of synovitis after 12 weeks. Patients who were given a placebo saw a 5.8-point reduction.



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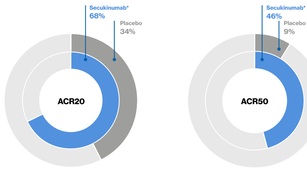
Patients treated with secukinumab had a reduction in their scores as early as Week 1 of treatment.

ACR20/50

After 12 weeks, patients treated with secukinumab had significantly greater improvement in their arthritis-related symptoms versus placebo group as measured by ACR20 and ACR50.



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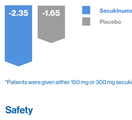
Clinical enthesitis score (SPARCC)

After 12 weeks, patients treated with secukinumab had significantly greater improvement in their enthesitis score compared with placebo.



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Safety

The safety of secukinumab was consistent with previous studies in psoriasis and PsA.

Why does this matter?

This study showed secukinumab can rapidly improve joint inflammation in patients with active PsA over 3 months, with improvements seen from Week 1 of treatment.

Secukinumab treatment also showed significant improvement in broader symptoms of PsA as measured by ACR20 as well as on clinical enthesitis as measured by SPARCC. This is the first large imaging clinical study of this quality using ultrasound to visualize the response of secukinumab on joint inflammation in patients with PsA. This allows for disease changes and treatment response to be monitored very early and with more sensitivity.

How quickly medicines get to work is an important factor when treatment options are considered. Clinical trials involving newer imaging techniques can therefore provide further information about a treatment that may be useful to physicians.

Glossary

ACR20 (American College of Rheumatology 20%) response:
measures an improvement of 20% in the number of tender and swollen joints, functional ability and other markers of inflammation.

ACR50 (American College of Rheumatology 50%) response:
measures an improvement of 50% in the number of tender and swollen joints, functional ability and other markers of inflammation.

Biologic:
a treatment made using living organisms, rather than being chemically synthesized.

Enthesitis
[en-tha-sye-tis]:
pain and tenderness where the tendons and ligaments attach to the bones.

Inflammation:
the body's immune response to an irritant, which involves a variety of cells that release different substances to help the body fight the infection. In some diseases, the immune cells can attack the body by mistake – this is known as an autoimmune disease.

Power Doppler ultrasonography (PDUS):
a specific ultrasound technique that can be used to detect small changes in joints and soft tissue, such as inflammation of the joint lining.

Psoriatic arthritis
[saw-ree-at-ik ahr-thry-tis]:
a form of joint inflammation that affects some people who have psoriasis – a condition that features red patches of skin topped with silvery scales.

Significant(ly):
statistically, the difference between the groups is unlikely to have occurred by chance. This difference is therefore likely to be related to the treatment given to the patients.

SPARCC:
Spondyloarthritis Research Consortium of Canada enthesitis index is a numeric, reproducible, simple tool for evaluation of enthesitis.

Synovitis
[sye-no-vye-tis]:
inflammation of the joint lining.

Who sponsored this study?

Novartis Pharma AG, Basel, Switzerland sponsored both this study and the writing of this plain language media summary.

Further information

More on this study can be found here:
https://clinicaltrials.gov/ct2/show/NCT02662985

References

1. Belasco J, Wei N. Psoriatic Arthritis: What is Happening at the Joint? Rheumatol Ther. 2019;6(3):305-315.
2. American College of Rheumatology. Psoriatic Arthritis. Available from: https://www.rheumatology.org/I-Am-A/Patient-Caregiver/Diseases-Conditions/Psoriatic-Arthritis [Last accessed: November 2020]
3. Radiopaedia. Power Doppler. Available from: https://radiopaedia.org/articles/power-doppler-1?lang=gb [Last accessed: November 2020].
4. Blair HA. Drugs. 2019;79(4):433-443.