Age, sex, smoking status and other common factors may predict which patients with axial spondyloarthritis achieve inactive disease when treated with TNF inhibitors

Introduction

Axial spondyloarthritis is a chronic progressive inflammatory disease characterized by involvement of the joints in the neck, back, hip and pelvis. The onset of axSpA is usually before the age of 45 years. The burden of the disease includes back pain, reduced physical function, reduced mobility, fatigue, anxiety, and depression. If the patient is not treated, they may experience a reduced ability to work, limited social participation, and an overall lower quality of life.

New treatment options with Tumor Necrosis Factor inhibitor (TNFi) have contributed to major improvements in health and quality of life for patients with axSpA. Tumor necrosis factor is a protein in the body that causes inflammation. TNF inhibitors are drugs that help stop inflammation and are used worldwide to treat inflammatory conditions such as axial spondyloarthritis. In addition, TNFi reduce inflammation and can reduce disease progression. Nonetheless, many patients treated with TNFi do not achieve low disease activity or remission as hoped. Remission means a period where the symptoms and underlying inflammation have gone.

About EuroSpA

This study is performed in the EuroSpA Research Collaboration Network. This is a scientific collaboration among rheumatologists and scientific staff from 16 European countries who share registry data to perform studies like this one. The collaboration allows for data regarding larger groups of patients to be collected. This heightens the quality of the study and provides greater certainty to the results than if the study were to be performed in a single country. The 16 countries are Netherlands, Czech Republic, Spain, Slovenia, United Kingdom, Denmark, Estonia, Italy, Iceland, Norway, Portugal, Finland, Romania, Switzerland, Sweden, and Turkey.

What did the authors hope to find?

The primary aim of the study was to identify factors that may predict which patients with axSpA achieve inactive disease after 6 months of treatment with TNFi and which patients do not.

Who was studied?

Data from 21.196 patients with axial spondyloarthritis was included. All patients were between the age of 18 and 90 years and started treatment with TNFi in the study period.

How was the study conducted?

This study is a real-world study based on data from registries. These type of studies helps assess how well medication works and how the patients are doing in real populations. This stands in contrast to clinical studies where the study population is very selected on for example age and absence of other diseases, thereby excluding many people from entering the study.

Data from the 16 countries were collected on a variety of different variables such as age, sex, blood test results, disease activity, functional level, biological drug prescription and treatment start year. Calculations were made to find predictors for achieving inactive disease with TNFi treatment.

Main results

- 26% of patients achieved inactive disease within 6 months from starting treatment with TNFi
- Nine predictors of inactive disease were identified:
    - **Age**: Higher age at treatment start meant less chance of inactive disease at 6 months.
    - **Sex:** Men were more likely to achieve inactive disease at 6 months than women.
    - **Smoking**: Non- smokers were more likely to achieve inactive disease at 6 months than smokers.
    - **HLA-B27:** Patients with a positive HLA-B27 blood test were more likely to achieve inactive disease at 6 months than patients with a negative test result.
      HLA-B27 is a blood test to look for a protein that is found on the surface of white blood cells. It is found in approximately 10% of the general population, and up to 90% of patients with axSpA.
    - **TNFi start year:** Patients who started treatment between 2015 and 2018 were more likely to achieve inactive disease at 6 months than patients who started treatment between 2009 and 2014.
    - **CRP:** Patients with a CRP blood test result higher than 10 mg/l were more likely to achieve inactive disease at 6 months than patients with a CRP blood test result lower than 10 mg/l.
    - **Functional level:** Patients with higher functional level were more likely to achieve inactive disease at 6 months than patients with higher functional level, measured by the Health Assessment Questionnaire (HAQ).
      HAQ is a tool for measuring functional status in rheumatology. There are 8 sections included: dressing, arising, eating, walking, hygiene, reach, grip, and activities.
    - **Fatigue and spinal pain:** Patients with lower fatigue and spinal pain levels were more likely to achieve inactive disease at 6 months than patients with higher fatigue and spinal pain levels, measured by BASDAI.
      The BASDAI consists of a 0 - 10 scale measuring discomfort, pain, and fatigue (0 being no problem and 10 being the worst problem) in response to six questions asked of the patient pertaining to the major symptoms of AS: fatigue, spinal pain, joint pain, or joint swelling.

What do the authors plan to do with this information?

We plan to share the results through information like this. Additional research on the subject is planned.

What does this mean for me?

If you are diagnosed with axial spondyloarthritis and beginning treatment with TNFi, these results might help to understand how good your chances are of achieving remission or low disease activity. If you have any concerns about your disease or your treatment, you should talk to your doctor.

This is a plain language summary of the scientific publication from EuroSpA: "*Predictors of ASDAS-CRP inactive disease in axial spondyloarthritis during treatment with TNF-inhibitors - Data from the EuroSpA collaboration*" by Ørnbjerg, Linde, Georgiadis et. al. The original work was financially sponsored by Novartis. You can read the original article published in Seminars in Arthritis and Rheumatism in 2022 here: https://www.sciencedirect.com/science/article/pii/S0049017222001329?via%3Dihub

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