

How Long Do Patients Stay on Biologic Therapies for the Treatment of Psoriasis?

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Figure 1 – An example of a patient with severe chronic plaque psoriasis.

What question did this research aim to answer?

We know a lot about biologic therapies (antibody-based injectable therapies) for psoriasis from clinical trials. However, clinical trials often exclude patients with other long-term conditions, and often last for a short period of time. This means that results from clinical trials are not fully applicable to all patients attending a typical outpatient clinic for the treatment of psoriasis.

To understand how these drugs are used in real-world situations, we need to look at "drug survival", which is defined by the length of time a patient stays on a drug. Drug survival measures a number of characteristics of the treatment, for example how effective a drug continues to be through time; or whether a drug is likely to be stopped because of an adverse side effect; or how acceptable the treatment is to the patient etc.

What did we do?

We investigated the drug survival of the four commonly used biologic therapies – infliximab, adalimumab, etanercept and ustekinumab – in patients with psoriasis on their first course of biologic therapy. This was performed on information from the British Association of Dermatologists Biologic Interventions Register (BADBIR), a large, ongoing, national psoriasis therapy safety register involving 151 dermatology centres around the UK.

We used a method called survival analysis, which measures the time from the start of therapy to the end of therapy for all the patients eligible for this study.

The main challenge of using data from the real-world to compare different drugs is that patients and doctors are able to choose what they recognise to be the most appropriate drug for them, resulting in a difference between the characteristics of the patient groups on the different drugs. This will lead to an unfair comparison. To overcome this challenge, we performed a "multivariate analysis", which takes into account the measured differences between the groups. These included information about the patient's health and background, for example the age, sex, smoking status and other long-term medical conditions of the patient; as well as information about the patient's psoriasis, for example the length of time they had suffered from psoriasis, the severity of their psoriasis, or whether they also had a type of joint inflammation associated with psoriasis called psoriatic arthritis etc. This also enabled us to investigate whether any of these patient factors could influence drug survival.

What did we find?

- Information from 3523 patients was available.
- 1879 patients were on adalimumab; 1098 patients on etanercept; 96 patients on infliximab and; 450 patients on ustekinumab.
- The overall survival rate, a measure of the proportion of patients remaining on a drug after a period of time, was 77% after one year, dropping to 53% after three years.

- Most patients discontinued their treatment because the treatment was becoming ineffective. In patients who discontinued their treatment because of an adverse side effect, the most common reason for stopping treatment was the development of an infection.
- Looking at the drugs separately, the survival rate for one year was 89% for ustekinumab; 79% for adalimumab; 70% for etanercept; and 65% for infliximab.
- In the multivariate analysis, we found that female patients and smokers were more likely to discontinue their therapy, while patients who also have psoriatic arthritis were less likely to stop their therapy.
- Compared with patients on adalimumab, patients on etanercept and infliximab were 63% and 56% more likely to discontinue, while patients on ustekinumab were 52% less likely to discontinue.
- In other words, after taking into account the measured differences between the characteristics of the patient groups on the different drugs, patients on ustekinumab had the highest likelihood of staying on their drug during the study period as compared to patients on the other biologic therapies.



Figure 2- An example of a pre-filled biologic syringe pen

What does this mean for patients with psoriasis?

This information will form the basis of an informed discussion around biologic therapies i.e. the likelihood that, over time, patients will discontinue their treatment for a variety of reasons.

It will empower patients to initiate the right biologic therapy for them.

It highlights the fact that smoking is associated with a higher probability of discontinuation of a biologic therapy, and may facilitate discussions around smoking cessation prior to the planned start of a biologic therapy.

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Poster based on published article:

Warren RB, Smith CH, Yiu ZZ et al. Differential Drug Survival of Biologic Therapies for the Treatment of Psoriasis: A Prospective Observational Cohort Study from the British Association of Dermatologists Biologic Interventions Register (BADBIR). J Invest Dermatol. 2015 Jun 8. Doi: 10.1038/jid.2015.208

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