

JAK inhibitors & Alopecia Areata

What are JAK inhibitors?

JAK inhibitors are a new class of medication that effect cell signaling that uses the JAK-STAT pathway and prevent the downstream effects. A lot of autoimmune conditions, where the body is attacking itself, are dependent on the JAK-STAT pathway. Blocking this pathway is the latest strategy for treating a number of inflammatory conditions like rheumatoid arthritis, eczema and alopecia areata.

What is the evidence for their use in treating Alopecia?

A number of JAK inhibitors have been used in the treatment of alopecia areata. Most of the published evidence comes from case series of drugs that were licensed for other indications, such as Tofacitinib. These drugs when taken orally have caused significant regrowth in around 50% patients. This is higher than any treatment to date. Topical JAK inhibitors do not seem to be effective.

Baricitinib and Ritlecitinib have been shown in placebo controlled trials to be highly effective. Most patients including in the trial had very severe alopecia (more than 50% and averaging around 80% loss). The aim of the trials were to improve hair loss to less than 20% loss. This was achieved in more than 50% patients. It is likely they will be even more effective in patients with milder disease.

Are they licensed and funded by the NHS?

None of the JAK inhibitors are currently licensed for Alopecia and none are funded at the present time by the NHS. Clinical trials are continuing and it is likely these will be licensed in the next 12-36 months. It is not clear whether this will be routinely funded by the NHS and if they are, it is likely that there will be certain criteria for their use, eg more than 50% hair loss.

The costs of self funding the drugs already available is between £700 and £1400 per month, depending on drug choice and dose.

Do they require any tests before starting?

At the moment it is not clear what tests will be suggested once the drug is licensed but it is recommended that baseline tests are carried out to exclude any underlying infection that could be re-activated by suppressing the immune system. Baseline bloods should also look at the blood count, the liver function and lipids. JAK inhibitors can cause a rise in a muscle enzyme called creatine kinase. It is not known why this happens and there have been no known muscle issues.

Routine tests:

Full blood count, liver function, urea and electrolytes, lipids, CK

Hepatitis B, C, HIV serology.

Chest X-ray and or TB test eg quantiferon gold



Do they require tests on treatment?

The frequency of tests has yet to be determined. It is sensible to check the blood count and liver after a couple of weeks. Lipids and CK should be monitored every 3-6 months, with further testing of the blood count and liver.

How soon will I see hair regrowth?

The earliest that you are likely to see any regrowth is 3 months. It is not uncommon to get a delayed response, with hair starting to grow after 6 months. Hair growth is not uniform, so it common to get regrowth in some areas and for other areas to be slower to respond.

When will I know if this treatment is going to work for me?

You should know within 6-7 months if this treatment is going to work. If there are no signs of growth at 7 months, it is worth discussing the benefits of switching the class of JAK inhibitors. (There are 3 classes of JAK inhibitor and some patients seem to respond to one more than another).

Can I stop them if all my hair grows back?

Stopping the medication may cause further hair loss. However, it may be possible to reduce the dose or frequency (eg alternate day instead of daily) or to have a break from treatment. Future studies are planned to examine these questions. Alopecia is a condition that can spontaneously improve and not everyone will need to continue with medication.

Can I have vaccinations?

It is advisable to have all planned vaccinations before starting the treatment. Killed/Inactivated (eg flu) or RNA or Subunit (Covid, Hepatitis) vaccines are safe. Live vaccines (eg MMR, Chicken Pox, Yellow fever) should be avoided during treatment. If these are required, it is recommended to have a break in treatment and after a wash out period receive the vaccine. After a couple of weeks, the treatment can be re-started.

Do they have any side effects?

JAK inhibitors are very well tolerated. The commonest adverse event in clinical trials was upper respiratory tract infections (eg sore throat, cough) but these were not higher than patients on placebo. JAK inhibitors have been associated with reactivation of herpes simplex and the varicella virus, causing cold sores and shingles respectively. In older patients who are often more sedentary due to Rheumatoid arthritis, there has been an increase in clots in the leg or deep vein thrombosis. There has not been an increase in younger patients having treatment for alopecia, who are usually fit and active.

It is important to appreciate that this is a new class of medication and it may take a number of years of drug monitoring and surveillance before less common side effects are appreciated.

