

Biologic Drugs for the Treatment of Psoriasis

What are biologics?

Most medications are created by combining chemicals. In contrast 'biologic drugs' are made from living human or animal proteins. The medications made from these proteins are specifically designed to act in certain ways in the body to correct something going wrong that leads to disease.

Biologics are not new medications- they have been in use for more than 100 years. Vaccines and insulin are considered biologics because they are derived from living sources. It is only recently however that biologics that are specifically targeted toward psoriasis and psoriatic arthritis have begun to emerge as potentially promising new treatment options.

Why are they different?

Biologics are different from other medications for psoriasis and psoriatic arthritis because they are designed to block both diseases early in their development - in the immune system.

Psoriasis and psoriatic arthritis begin in the immune system when certain immune system cells are triggered and become overactive. These overactive cells set off a series of events in the body, eventually causing psoriasis to develop on the skin and arthritis symptoms to develop in the joints. Biologics work for psoriasis and psoriatic arthritis by blocking the action of certain immune cells that play a role in the diseases. In some cases biologics reduce the number of these cells in the skin and blood. In other cases they block the activation of the immune cells or block the psoriasis causing chemicals released by them.

Almost all treatments that work for psoriasis and psoriatic arthritis impact or target the immune system in some way. This is true for Ultra violet treatment and systemic medications such as methotrexate and cyclosporin. The difference is that their impact on the immune system and body is broad, including the risk of potentially serious side effects on other organs. Biologics are more targeted and should spare the body these broad side effects and they have the potential to be a safer option.

How do they work?

Biologics are designed to treat psoriasis and psoriatic arthritis by targeting overactive cells in the body. Some biologics target a type of immune cell called T cells while others target the chemical messengers released by activated T cells.

T cells normally recognise bacteria and viruses and coordinate the immune response to eliminate these foreign invaders.

In psoriasis certain T cells are mistakenly activated and migrate to the skin. Once in the skin they begin to act as if they are fighting an infection or healing a wound and this sets off a chain of events that leads to the rapid growth of skin cells. In psoriasis skin cells grow much faster than normal and this over production causes cells to pile up at the skins surface. Certain biologic

medications treat the psoriasis by preventing the activation and/or migration of T cells, by reducing the number of psoriasis involved T cells in the body, or both.

TNF -alpha (tumour necrosis factor alpha) also helps fight infections and it communicates messages between cells. In people with psoriasis and psoriatic arthritis TNF alpha is produced in excess amounts by activated T cells. The messages communicated by TNF alpha lead to the rapid growth of skin cells found in psoriasis or to the joint pain and stiffness associated with psoriatic arthritis.

Several biologic medications were developed to treat rheumatoid arthritis and other diseases by binding to TNF alpha and preventing it from communicating with cells. It has been found that these TNF alpha agents are also effective to different degrees in treating psoriatic arthritis and psoriasis.

Who can take biologics?

The biologic medications have been investigated by the National Institute for Health and Clinical Evidence (NICE) who have issued guidelines on when they can be prescribed. The biologic medications have been recommended for people with severe plaque psoriasis and psoriatic arthritis who have not responded to other systemic treatments such as PUVA, Methotrexate, Ciclosporin and Acitretin for psoriasis and at least two disease-modifying anti-rheumatic drugs (DMARDs), given on their own or together, for psoriatic arthritis. Or, these other treatments cause a reaction, which means that the person shouldn't carry on taking them, or the person has another condition or uses another medicine that means they should not take the other systemic treatments. With psoriatic arthritis, the person must have arthritis with three or more tender joints and three or more swollen joints.

In both cases (severe psoriasis and psoriatic arthritis) NICE recommends that Etanercept (Enbrel) be offered first. Should the psoriasis or psoriatic arthritis not show a measured response to Enbrel after 12 weeks, NICE recommends that the treatment be stopped.

Efalizumab (Raptiva) can then be offered for treatment of severe plaque psoriasis, or if the person has a condition or takes another medicine that means they should not take etanercept. Likewise, Infliximab (Remicade) can then be offered to people with psoriatic arthritis, or if the person has a condition or takes another medicine that means they should not take etanercept, also if the person has major difficulty injecting themselves. As with Enbrel, if the person's psoriasis or psoriatic arthritis has not shown a measured response at 12 weeks, their treatment with Raptiva or Remicade respectively should be stopped.

Key features of the biologic drugs

- Taken by injection (either in a surgery or at home depending on the specific medication)
- Treatment schedule and frequency vary
- Will improve psoriasis and psoriatic arthritis for some people but not all
- Short term side effects are generally minor although an allergic reaction to the injection can occur

- Long term safety is still being evaluated.
- They are expensive - between £8000 and £10,000 per annum.
- They must be taken continuously to maintain improvement.

