

## Patient information

**Anti -Vascular Endothelial Growth Factor  
(Anti-VEGF) Intravitreal Injections**

St Paul's Eye Department – Royal Liverpool Hospital

Your Consultant / Doctor has advised treatment with a medicine called an 'anti-VEGF agent'.

VEGF stands for Vascular Endothelial Growth Factor and is produced throughout the body including inside the eye. VEGF promotes the growth of new blood vessels. However in certain diseases abnormal new blood vessels may grow or develop in the eye. These may leak fluid or bleed. This is treated by blocking the action of VEGF, by giving injections of anti-VEGF agents into the eye.

**What are the anti-VEGF agents commonly used in the eye?**

These medicines include Ranibizumab (marketed as Lucentis), Bevacizumab (Avastin) and Aflibercept (Eylea) at present.

Lucentis and Eylea are licensed to be used in the eye. Avastin is not licensed for use in the eye however, it has been extensively used worldwide for eye conditions, including in clinical trials and is used when the other medicines are not available for a particular condition.

(See Patient Information on 'The use of unlicensed medicines and medicines for unlicensed indications', PIF 1130)

Together these are referred to as intravitreal injections when given into the back of the eye or the vitreous jelly.

## **What are the indications in the eye for anti-VEGF treatment?**

### **Age-related macular degeneration (AMD)**

AMD refers to age-related wear and tear changes at the back of the eye, mainly affecting the centre of the retina, an area called the macula. It can be dry or wet and anti-VEGF treatment is used only for wet AMD.

### **Diabetic maculopathy or macular oedema (DMO)**

This refers to leakage of fluid and thickening of the macula due to faulty blood vessels in people with diabetes and may affect the retina in people with both type 1 and type 2 diabetes.

### **Retinal vein occlusion (RVO)**

This refers to a blocked blood vessel on the retina. This can result in a build up of fluid in the macula, called macular oedema, or in the growth of new abnormal blood vessels on the retina and elsewhere in the eye.

As well as the above conditions, anti-VEGF drugs can be used in a number of other eye diseases which will be discussed with you by your doctor, if this type of treatment is being advised.

## **What are the benefits of having anti-VEGF treatment?**

These drugs slow down the growth of abnormal new blood vessels in the eye which can bleed, and also prevent leakage of fluid from faulty blood vessels. This should result in the shutting down of abnormal blood vessels and drying up of any fluid collecting in the macula, thereby stabilising vision and preventing further worsening. In many instances, they actually improve vision.

## **How often will I need the injections?**

This depends on the condition the injections are being advised for. It also depends on which particular anti-VEGF drug your doctor has advised for you.

In case of wet AMD, treatment is started by giving an injection every four weeks for the first three months. The treatment regime thereafter will be decided by your doctor.

However for most of the above conditions, repeated injections at intervals of a few weeks are needed, over a few months or years and this varies from person to person. Most patients started on anti-VEGF treatment will require monitoring at least for two years.

### **How are the injections given?**

The injections are given with due precautions to minimise the risk of an infection i.e. under sterile conditions. You will have anaesthetic and antibiotic drops before the injection. A drape and a speculum (small springy device which helps to keep the eye open) will be placed over the eye. Your eye will be numb from the local anaesthetic drops.

The drug will be injected into the eye by passing a fine needle through the white of the eye.

Antibiotic drops will be applied immediately after the injection and after checking your vision, the drape and the speculum will be removed. A small air bubble can sometimes occur during the injection which you may notice in your field of vision for 24 to 48 hours; it resolves spontaneously.

### **After-care**

You will be asked to use antibiotic drops four times per day for four days following the procedure and a review appointment will be arranged, usually in four to eight weeks. Usually within a day or so the eye is perfectly comfortable.

There are no restrictions on any of your daily normal activities. But be aware that your vision may be blurred for four to six hours after the injection due to the dilating eye drops.

## Further Appointments

You need to be prepared to attend appointments for the duration of the treatment, which may last from a few months to a few years, although the frequency at which you are seen will depend on a number of factors.

On some of these follow-up visits, you may need repeat injections. That will be decided after assessing your vision, performing a scan (OCT) of the back of the eye and examining your eyes.

## What are the risks of having the treatment?

- Bleeding on the white of the eye, this is painless and will resolve within a few days.
- Corneal abrasion –scratch on the front of the eye, which can be painful. This will heal within 24-48 hours but occasionally needs an eye ointment and the eye to be padded. This is a common risk, one in ten to one in twenty injections)
- Injury to the lens of the eye leading to cataract - rare.
- Bleeding into the vitreous jelly; this is painless, but will cause reduced vision for a few days or weeks - rare.
- Raised eye pressure; may sometimes need treatment with pressure-lowering eye drops or tablets/ injections - rare.
- Retinal tear/ detachment – rare.
- Infection in the eye ('endophthalmitis') – occurs in 1:1000 injections on average; a serious complication which may result in a significant loss of vision if it does not respond to treatment.
- People treated with anti-VEGF agents are often at risk of stroke or heart attack because of their age or diabetes. Treatment has a small increased risk of such events by one or two for every 100 people treated. Anti-VEGF agents are generally avoided for three months after a stroke or heart attack.

- In some instances vision may continue to deteriorate or worsen with/ in spite of treatment.

**If you are worried about any of these risks, please speak to your consultant or a member of their team before signing the consent form for the treatment or at any time during the course of your treatment.**

### **Are there any alternative treatments available?**

There may be options of laser treatment or just observing; please discuss this with your doctor if you are anxious about proceeding with anti-VEGF treatment.

### **What will happen if I decide not to have treatment?**

Your vision may deteriorate or other complications of the disease may develop. Again, please discuss this with your doctor so that you may make the best possible decision.

### **Are anti-VEGF agents safe in pregnancy?**

Although very tiny amounts get into the blood stream from the eye, anti-VEGF agents have the potential to disturb the development of the foetus.

There is very limited data available about the use of these drugs in pregnancy and therefore they should be avoided unless absolutely necessary and then used only in later pregnancy.

**If you think you might be pregnant please inform your doctor or one of the team looking after you.**

## **Important**

### **Things to look out for after an injection:**

If the eye is painful within the first two to seven days, and getting worse rather than better, then prompt attention from the eye department should be sought even if it is outside normal hospital working hours (see below). This may be an indication of infection.

- Blurring of vision worse than before the injection.
- Worsening redness.
- Sensitivity to light.
- Floaters and flashing lights with or without a shadow in the corner of your vision

## **Feedback**

Your feedback is important to us and helps us influence care in the future.

Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

## **Further information**

### **Any queries or concerns please contact:**

**St. Paul's Eye Primary Care Clinic**  
**(Up to 9 pm, weekdays and weekends included)**  
**Tel: 0151 706 3949**  
**Text phone number: 18001 0151 706 3949**

## **Clinical Eye Research Centre**

**Tel: 0151 706 3994**

**Text phone number: 18001 0151 706 3994**

## **Hospital Switchboard (out-of-hours)**

**Tel: 0151 706 2000**

**Bleep 724 (Outpatients Sister)**

**Text phone number: 18001 0151 706 2000**

## **External information**

**RNIB**

[www.rnib.org.uk](http://www.rnib.org.uk)

## **Macular Society**

<http://www.macularsociety.org>

## **The Royal College of Ophthalmologists**

[www.rcophth.ac.uk](http://www.rcophth.ac.uk)

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