

## Information for Patients

# Treatment of Diabetic Macular Oedema

Eye problems are common in diabetes and can in some cases seriously affect eye sight.

The two main types of sight threatening diabetic eye disease are

- Diabetic macular oedema
- Proliferative diabetic retinopathy

This leaflet is about macular oedema and its treatment.

### What is Diabetic Macular Oedema (DMO)?

The macula is the central part of the retina responsible for your central or 'sharp' vision.

Diabetes can damage blood vessels in the macula which then leak, causing the surrounding retina to become swollen or 'waterlogged'. This is known as oedema.

This results in eyesight worsening, so that there is difficulty undertaking some tasks. Examples of these are; reading, watching TV, recognising faces or reading bus numbers.

### How is DMO diagnosed?

A diagnosis of DMO is confirmed by the following tests:

- **Optical Coherence Tomography (OCT)**  
This is a non-invasive test that uses light and light waves to make a map of the retina at the back of your eye. This shows up any damaged areas, and is undertaken at every visit.
- **Fluorescein Angiography (FFA)**  
This is a diagnostic photographic test that uses a special dye called fluorescein, which will be injected into a vein in your arm or hand. This gives a detailed view of the back of your eye and is usually only done

once to confirm your diagnosis before starting treatment. It is only repeated later if required.

### **How is DMO treated and what treatment options are available?**

Diabetic macular oedema can be treated in different ways. The most common types of treatment involve laser to the macula or injections of medicine into or around the eye. These treatments are discussed below. Your doctor will explain which specific treatment has been advised for you.

At the Manchester Royal Eye Hospital you may also be offered new treatments as part of a clinical trial. These options will be explained to you by your eye doctor or nurse.

You do not have to receive treatment for your DMO; however, without treatment your vision may continue to get worse and may progress to a point where treatment will no longer help.

All of the treatment options outlined may not be as effective if your diabetes is not well controlled. Therefore it is important to control your blood glucose as effectively as possible and to check that your blood pressure and cholesterol levels are not raised. Smoking also increases the risk of diabetic eye disease. If you are a smoker, see your GP for advice on stopping smoking, or visit [www.nhs.uk/smokefree](http://www.nhs.uk/smokefree). Maintaining a healthy diet and taking regular exercise are also helpful.

### **Laser Treatment**

Laser treatment has been available for many years. Laser is applied to the retina in areas which show fluid buildup. Laser may be done to parts of the retina which are collecting fluid which has not yet reached the central parts of the macula. The aim is to prevent progression to the central area which can be sight-threatening. In some cases where the leakage in the retina is involving the central parts of the macula and affecting your vision, laser may still be required; your doctor will advise you on this.

Laser has been shown to have a stabilizing effect on the vision. It is less common for laser to improve vision and more recently new treatments which require injection into the eye have been used and are more likely to stabilize or improve vision.

### **Eye Injections**

#### **Intravitreal injections (injections into the vitreous jelly inside the eye)**

Currently the most effective treatments for DMO are injections administered into the eye. These may be anti-VEGF injections Aflibercept (Eylea) and Ranibizumab (Lucentis) or steroid injections of Fluocinolone (Iluvien), Triamcinolone Acetonide (Triesence) and Dexamethasone (Ozurdex). The doctor who sees you will discuss the pros and cons of the options suited to your circumstances. Each type of injection has slightly different benefits and differs in potential side effects. The treatment regime and frequency of appointments may also vary. You may also switch from one treatment to another if deemed necessary. Further information on each individual drug is given below.

Most patients' vision will stabilize after treatment and some patients may regain some vision lost. Drug injections may not restore vision that has already been lost, and will not always prevent further loss of vision caused by the disease.

### **What are Eylea and Lucentis?**

Eylea and Lucentis are drugs that are used to block the action of a chemical called vascular endothelial growth factor (VEGF). This is produced in excess in eyes suffering from diabetic macular oedema and plays a role in the development of leakage from retinal blood vessels. Eylea and Lucentis are given by injection into the eye. Both are similar in their effect but have slightly different treatment regimens and one or the other may be more appropriate depending on the status of your eyes.

### **Why is Eylea or Lucentis being recommended for DMO?**

Eylea or Lucentis is given to try and reduce the swelling of the macula. This can stop the eyesight getting worse and in some patients the eyesight can improve.

You are likely to need a number of injections at repeated intervals. Your eye doctor will tell you how often you will receive the injections and over what length of time. Most patients will need to attend for an eye examination every month for at least the first six months and may need injections at most of these visits. Further treatment will depend on individual response. On average patients require about seven or eight treatments in their first year and less in subsequent years

### **How is the treatment given?**

You will be awake for the procedure. The pupil (black part of your eye) is dilated using eye drops and anaesthetic drops will be put in to numb the surface of your eye. The skin around your eye and the surface of your eye is

washed with an antibacterial solution to reduce the risk of infection. Your face is then covered with a sterile drape. The drug is injected into the vitreous humour of your eye. You may feel slight pressure on your eye when this is done, but you should not experience pain.

After the injection you may have a gritty feeling in your eye, and there may be bleeding over the white of your eye. You should not worry about this, the gritty sensation will resolve within a few days and the bleeding over the white of your eye normally within 7-10 days. You might also see floaters (black spots); these will also become smaller and disappear over a couple of weeks.

### **What are the risks of treatment with Eylea and Lucentis?**

The risks of an injection procedure regardless of the drug are discussed later on. Not everyone who has the drug will experience side effects; however, as with any medicine side effects are possible.

In the case of anti-VEGF injections such as Eylea and Lucentis there has been a suggestion that there may be an increased risk of experiencing blood clots which may cause heart attack or stroke.

However, a low incidence of these events was seen in clinical trials and so far despite millions of injections being given around the world this risk has not been conclusively proven. Patients with a history of stroke may be at greater risk of having another stroke. If you have had a stroke, please discuss this with your eye doctor or nurse before treatment.

Whenever a medication is used in a large number of patients coincidental problems may also occur that could have no relationship to the treatment. For example, patients with high blood pressure or smokers are already at increased risk for heart attacks and strokes. If one of these patients is being treated with Eylea or Lucentis and suffers a heart attack or stroke, it may be caused by the high blood pressure and/or smoking and not due to Eylea or Lucentis treatment.

### **Fluocinolone Acetonide (Iluvien)**

#### **What is Iluvien?**

Iluvien is an anti-inflammatory drug used for the treatment of DMO. It is a type of steroid and is contained within a long-lasting implant that is injected directly inside the eye. It releases the drug over a period of up to three years. Iluvien may play an important role in addressing the inflammatory process associated with DMO.

#### **How is Iluvien given?**

Local anaesthetic will be instilled in the eye and the Iluvien implant is injected into the vitreous humour (jelly like substance inside the back of your eye) using a specially designed applicator.

## **Triamcinolone Acetonide (Triesence) Injection.**

### **What is Triesence?**

Triesence is a steroid medicine used to treat inflammation in DMO.

### **How is Triesence given?**

Triesence is given in the same way as Eylea and Lucentis, by being injected into the vitreous humour.

You may need more than one injection. This will depend on your eye condition and how it responds to treatment. Your eye doctor will tell you how many injections you will need based on the results of the follow-up examinations.

### **What is Ozurdex?**

Ozurdex is an anti-inflammatory drug. It is a type of steroid called dexamethasone. The medication is contained within a long-lasting implant that is injected directly inside the eye. As the implant slowly dissolves in the vitreous gel it releases dexamethasone for up to six months. Repeat injections may be given if necessary.

### **How is Ozurdex given?**

Local anaesthetic will be instilled in the eye and the Ozurdex implant is injected into the vitreous humour (jelly like substance inside the back of your eye) using a specially designed applicator.

## **What are the risks of treatment with Iluvien, Triesence and Ozurdex?**

The potential risks will be discussed with you by your eye doctor. Not everyone who takes the drug will experience side effects; however, as with any medicine side effects are possible with Iluvien, Triesence and Ozurdex. In addition to the risks associated with intravitreal injections outlined below, steroid injections such as Iluvien, Triesence and Ozurdex can specifically increase the risk of:

- Cataract formation (this is not a risk if you have already had cataract surgery).

- Glaucoma (raise in eye pressure leading to potential damage to the optic nerve in the eye).

## **Risks of Intravitreal eye injections common to all treatments**

Serious complications of the injection procedure include:

- Bleeding
- Severe infection (endophthalmitis)
- Cataract formation
- Retinal detachment

Any of these serious complications may lead to severe, permanent loss of vision or blindness. The overall risk over the long term course of treatment is estimated at about 1% (1 in 100) or less. The risks will be explained and discussed with you before you agree to treatment.

Any or all of the complications described above may cause decreased vision and/or have a possibility of causing blindness. Additional procedures may be needed to treat these complications. During follow-up visits or phone calls you will be checked for possible side effects and the results will be discussed with you.

### **More common side effects may include:**

- Eye pain.
- Conjunctival haemorrhage (bloodshot eye).
- Vitreous floaters.
- Irregularity or swelling of the cornea.
- Inflammation of the eye.
- Visual disturbances such as small specks in the vision.

### **Reducing the risk of infection**

If you have an eye infection on the day of your planned treatment, the injection may have to be delayed until the infection has resolved. Please inform your doctor or nurse if you have a red or sticky eye. Your injection may also not be possible if you have an infection in any other part of your body currently requiring treatment. The doctor who assesses you will advise if this is the case. If you have an infection but are still well enough to attend for your appointment it is better to keep the appointment.

In order to minimize the risk of infection staff in the injection room will be wearing face masks during your procedure. We also aim to keep conversation to a minimum and we therefore ask that during your injection,



conversation is kept to a minimum. You may also be prescribed eye drops to use at home after the procedure which need to be used for the duration advised.

### **What if I experience side effects?**

If you experience any of the following after your injection, please contact the hospital as soon as possible

- Pain.
- Blurred or reduced vision.
- Sensitivity to light.
- Redness of your eye (increasing compared to immediately after your injection).
- Sticky discharge from your eye.

You should avoid rubbing your eyes or swimming for three days following each injection to reduce the risk of infection.

Please keep all post injection appointments or scheduled telephone calls so that potential complications can be checked for. If you can't attend your appointment, please let us know as soon as possible so we can rebook. Although the likelihood of serious complications affecting other organs of your body is low, you should immediately contact your GP or attend your local Accident and Emergency Department if you experience:

- Abdominal pain
- Abnormal bleeding
- Chest pain
- Severe headache
- Slurred speech
- Sudden limb numbness or weakness

### **What if I change my mind?**

If you have any concerns, please discuss these with the doctor. You can change your mind about your treatment at any time.

If you require further advice or do not understand anything contained in this leaflet or are having problems following your injection please contact the Macular Treatment Centre on (0161) 276 3341/5572;  
Monday, Wednesday, Thursday 8.00 am – 8.30 pm.  
Tuesday, Friday 8.00 am - 6.00 pm.  
Saturday 8.00 am -2.30 pm.

You may also contact the Emergency Eye Department on 0161 276 5597 available every day from 8.00 am – 9.00 pm including public holidays. If your problem is urgent and the departments above are closed or you are unable to get an answer, please ring Ward 55 (open 24 hours) every day on 0161 276 5512.

### **What if my sight cannot be fully restored?**

Although we expect the majority of patients to benefit it is possible the treatment might not be effective for you. Your condition may not get better or may become worse despite these injections.

Much can be done to help you use your remaining vision. You should ask your eye specialist or optometrist about low vision aids.

If your vision is impaired, it is also worth asking your specialist to help you register as 'sight impaired', this will help you receive expert help and some financial concessions.

### **Further information and support**

If you would like further information on DMO there are many sources of advice available.

Brochures/posters from many relevant patient support groups are available in the clinics in Manchester Royal Eye Hospital; please ask at your appointment. Henshaws provide a support service. They are based in the Outpatient department, and can be reached on (0161) 276 5515.

The following websites may be useful:

[www.henshaws.org.uk](http://www.henshaws.org.uk)  
[www.diabeticretinopathy.org.uk](http://www.diabeticretinopathy.org.uk)  
[www.nscetinopathy.org.uk](http://www.nscetinopathy.org.uk)  
[www.diabetes.org.uk](http://www.diabetes.org.uk)  
[www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk)  
[www.rnib.org.uk](http://www.rnib.org.uk)

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