



British and Éire Association of Medical Retina Specialists

Corticosteroids are a class of drugs that are commonly used to treat inflammation and swelling in various parts of the body, including the eyes. In the context of retinal diseases, corticosteroids can be used to reduce inflammation and prevent further damage to the retina. They work by suppressing the immune response and reducing inflammation, which is particularly useful in conditions involving retinal swelling or inflammatory damage.

However, corticosteroids should be used carefully in retinal disease because long-term or inappropriate use can lead to side effects, including increased intraocular pressure (IOP), cataract formation, and potential worsening of certain conditions. Below is an overview of how corticosteroids are used in retinal diseases:

Indications for Corticosteroids in Retinal Disease

1. Macular Oedema (including Diabetic Macular Oedema and Retinal Vein Occlusion):

- Macular Oedema is a condition where fluid accumulates in the macula (the central part of the retina responsible for sharp vision), causing swelling and vision impairment.
- Corticosteroids can be used to treat macular Oedema when other treatments (like anti-VEGF injections) are not effective or appropriate. They help reduce inflammation and fluid accumulation in the retina.

2. Uveitis:

- Uveitis is inflammation of the uvea (the middle layer of the eye), which can affect the retina.
- Corticosteroids are often the first-line treatment for uveitis, as they reduce the inflammation that can cause damage to the retina and other parts of the eye.
- Corticosteroids can be administered orally, topically (as eye drops), or through injections around or into the eye (subconjunctival or intravitreal injections).

3. Diabetic Retinopathy:

- In diabetic retinopathy, the small blood vessels in the retina become damaged, and inflammation can contribute to vision problems, especially in diabetic macular Oedema.
- Corticosteroids may be used in combination with other therapies to reduce inflammation and swelling of the retina, particularly when other treatments like anti-VEGF injections are insufficient.

4. Age-Related Macular Degeneration (AMD):

- In some cases of wet AMD, corticosteroids may be used along with other treatments like anti-VEGF therapies to control inflammation. However, their use is more limited in this condition due to the risk of side effects, such as increased intraocular pressure.

5. Retinal Vasculitis:

- Retinal vasculitis is inflammation of the blood vessels in the retina, often associated with autoimmune diseases or infections. Corticosteroids are frequently used to control this inflammation and prevent further damage to the retinal blood vessels.

6. Other Inflammatory Retinal Conditions:

- Corticosteroids may also be used in other conditions involving retinal inflammation, such as sarcoidosis, Behçet's disease, and multiple sclerosis. In these cases, corticosteroids help reduce the inflammatory response and preserve retinal function.

Types of Corticosteroid Treatment in Retinal Disease

1. Intravitreal Corticosteroid Injections:

- Intravitreal injections are one of the most direct ways to deliver corticosteroids to the retina. This method allows the medication to be concentrated in the area where it is needed.

- Examples of intravitreal corticosteroid injections include:

- Triamcinolone acetonide: A commonly used corticosteroid for treating macular Oedema and other retinal conditions. It is injected directly into the vitreous (the gel-like substance inside the eye) to reduce inflammation.

- Dexamethasone implants (Ozurdex): A biodegradable implant that releases dexamethasone over a period of time. It is typically used to treat macular Oedema associated with retinal vein occlusion, uveitis, and diabetic retinopathy.

- Fluocinolone acetonide implants (Iluvien): A steroid implant that releases fluocinolone acetonide over an extended period (up to 3 years) for the treatment of diabetic macular Oedema.

2. Oral Corticosteroids:

- In cases of systemic inflammation affecting the retina (e.g., uveitis or retinal vasculitis), oral corticosteroids like prednisone may be used. These are typically prescribed for short-term use to control acute inflammation and may be tapered down gradually.

3. Topical Corticosteroids (Eye Drops):

- For conditions involving less severe inflammation or swelling, topical corticosteroids in the form of eye drops (such as prednisolone acetate) can be used. These are generally used for treating inflammation of the front part of the eye, such as in uveitis, but may be used cautiously for conditions involving the retina.

4. Subconjunctival or Sub-Tenon Injections:

- For localized retinal inflammation, corticosteroids can be injected into the tissue around the eye, either under the conjunctiva or beneath the tenon capsule (a layer of tissue surrounding the eye). This is often done for uveitis or cases of severe inflammation in the posterior segment of the eye.

Benefits of Corticosteroids in Retinal Disease

- Reduction of Inflammation: Corticosteroids effectively reduce inflammation in retinal conditions, preventing further damage to the retina and improving symptoms.

- Improvement in Visual Acuity: In conditions like macular Oedema, corticosteroids can reduce fluid buildup, leading to improved vision or stabilization of existing vision.

- Targeted Treatment: Intravitreal injections and implants allow corticosteroids to be delivered directly to the retina, providing more focused treatment and reducing systemic side effects.

Potential Risks and Side Effects of Corticosteroids in Retinal Disease

While corticosteroids can be effective in treating retinal diseases, they come with potential risks and side effects, especially with long-term use. These include:

1. Increased Intraocular Pressure (IOP):

- Corticosteroids can raise intraocular pressure, which increases the risk of developing glaucoma. Long-term use, particularly with intravitreal injections, can lead to significant increases in IOP, requiring close monitoring.

2. Cataract Formation:

- Chronic use of corticosteroids, particularly systemic steroids, can lead to the development of cataracts, which may require surgical removal.

3. Infection:

- There is a small risk of infection, such as endophthalmitis (infection inside the eye), particularly with intravitreal injections. To minimize this risk, procedures are done under sterile conditions, and patients are monitored after injection.

4. Delayed Wound Healing:

- Corticosteroids can suppress the immune response, which can delay wound healing and increase the risk of complications after eye surgery.

5. Retinal Damage:

- Long-term use of corticosteroids, especially in high doses, can lead to damage to the retinal blood vessels or worsen certain conditions, such as diabetic retinopathy.

6. Fluid Retention:

- Systemic corticosteroids may cause fluid retention, which can contribute to macular Oedema or worsen existing Oedema.

Conclusion

Corticosteroids can be a highly effective treatment for reducing inflammation and treating a variety of retinal diseases, including macular Oedema, uveitis, retinal vasculitis, and diabetic retinopathy. They can help control symptoms, preserve vision, and improve outcomes for patients with these conditions. However, due to the potential for significant side effects, especially with long-term use, corticosteroids should be used carefully and under the supervision of an ophthalmologist. Close monitoring of intraocular pressure, cataract formation, and other potential complications is essential to ensure that the benefits outweigh the risks.