Fingolimod-associated macular oedema

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DESCRIPTION

A 54-year-old female with history of relapsing remitting multiple sclerosis (MS) was switched from interferon beta-1A (Avonex, Biogen) to fingolimod (Gilenya, Novartis) therapy after having two clinical relapses within 2 years while on treatment. As part of her treatment protocol, she was referred to the local ophthalmology unit for a baseline screen and periodic review thereafter. Three months into her treatment, she complained of blurring of vision in her right eyeA visual acuity assessment showed a reduction in best-corrected visual acuity (BCVA) from 6/6 to 6/12. An optical coherence tomography (OCT) scan showed evidence of oedema and cystic changes within her right macula (figure 1). She was diagnosed with fingolimod-associated macular oedema (FAME) and was started on topical steroids (prednisolone acetate 1% four times a day) and non-steroidal treatment to her right eye. The patient showed an initial response to treatment in the first month and was closely monitored thereafter. Treatment was continued and a follow-up visit 1 month later showed no further improvement. Fingolimod was then stopped and a review after 2 months showed that her macula oedema had completely resolved (figure 2). The patient reported that her right eye vision had returned to normal and her BCVA was recorded as 6/7.5. She has shown no signs of recurrence since. She was commenced on dimethyl fumarate (Tecdifera, Biogen) for her MS 6 months after stopping Fingolimod.

Fingolimod was the first oral treatment approved by the US Food and Drug Administration in 2010 for the treatment of relapsing-remitting MS. It binds to the S1P receptor on the T-lymphocyte surface, resulting in receptor internalisation and degradation. The S1P receptor also acts on the cytoskeleton and intercellular junctions of endothelial cells to enhance barrier function and degradation of the receptor leads to increased vascular permeability.[1] FAME is dose dependent with incidence ranging from 0.40% to 1% occurring predominantly in the first 3–4 months of therapy.[2] The most sensitive technique for detecting FAME is the OCT scan.

Figure 1 Colour fundus and SPECTRALIS Spectral domain optical coherence tomography (OCT) across the right eye macula taken on presentation showing intraretinal cystic fluid spaces indicating macula oedema.

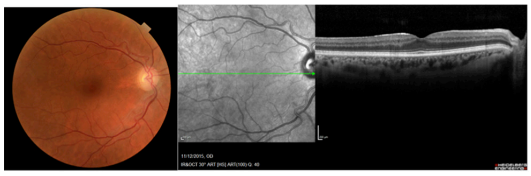

Figure 2 Colour fundus and SPECTRALIS Spectral domain optical coherence tomography (OCT) taken on the same axis 4 months later showing the macula oedema having resolved.

Resolution occurs spontaneously in most patients after cessation of treatment but in resistant cases, topical corticosteroids and non-steroidal anti-inflammatory drops are used with improvement seen over 4–6 weeks. Refractory FAME may require more invasive interventions such as subconjunctival or intravitreal administration of corticosteroids or antivascular endothelial growth factor.[3] Routine baseline ophthalmology assessment and one at 3–4 months after commencing fingolimod is recommended by the National Institute for Health and Care Excellence, UK. More frequent examinations are recommended for patients with diabetes or uveitis due to their increased risk of having cystoid macula oedema.

Learning points

- Patients on fingolimod should have a baseline and a 3–4 months of ophthalmic examination as part of their treatment protocol.
- Fingolimod-associated macular oedema (FAME) should be considered as a differential in patients on fingolimod complaining of blurred vision and an ophthalmology examination is needed to confirm it.
- Treatment options for FAME include cessation of therapy, topical, subconjunctival or intravitreal corticosteroids, antivascular endothelial growth factor and non-steroidal anti-inflammatory drugs.

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