NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Fluocinolone acetonide intravitreal implant for treating chronic diabetic macular oedema in phakic eyes after an inadequate response to previous therapy (review of TA613)

Final scope

Final remit/evaluation objective

To appraise the clinical and cost effectiveness of fluocinolone acetonide intravitreal implant within its marketing authorisation for treating chronic diabetic macular oedema in phakic eyes after an inadequate response to previous therapy.

Background

Diabetic macular oedema (DMO) is a common complication associated with diabetic retinopathy, and is the most common cause of visual impairment in diabetes mellitus. It occurs as a result of changes in retinal blood vessels in people with diabetes. Disruption of the blood–retinal barrier allows fluid to leak from blood vessels in the central part of the retina (the macula), leading to fluid accumulation and thickening of the macula. This can lead to severe visual impairment in the affected eye.

DMO can be classed as focal, diffuse or ischaemic (although no universal definition has been agreed). The majority of vision loss occurs when DMO involves the centre of the macula. This is known as clinically significant macular oedema (CSMO), and is regarded as the threshold for treatment. DMO can be categorised as either phakic or pseudophakic. These are terms used to describe the status of a person's lens. Phakic refers to an eye with an intact natural lens, while pseudophakic refers to eyes that have had the lens extracted and replaced with an artificial (intraocular) lens. DMO can also be classified as either centre involving or non-centre involving. If the centre of the macular, known as the fovea, is affected this is called centre involving DMO. If the fovea is not affected, it is known as non-centre-involving DMO.

More than 3.7 million people have been diagnosed with diabetes in England (2023),[1] and the condition is more common in people of African–Caribbean and South Asian family origin than in those of European family origin. Approximately 7% of people with diabetes may have DMO in England, of whom 39% have CSMO.[2] The prevalence of DMO is related to the duration and severity of diabetes, and to numerous risk factors including age, pregnancy, smoking, hypertension, nephropathy, obesity and high cholesterol.

Good management of diabetes and other risk factors may delay the onset and progression of DMO. This includes diet and lifestyle modification, blood pressure control and pharmacological treatments. For DMO specifically, NICE technology appraisals TA274, TA346, TA799 and TA820 recommend anti vascular endothelial growth factors (anti-VEGF) ranibizumab, aflibercept, faricimab and brolucizumab as options for treating visual impairment due to DMO if the eye has a central retinal thickness (CRT) of 400 micrometres or more at the start of treatment. For people with non-centre involving DMO and eyes with a CRT of less than 400 micrometres, laser photocoagulation may be a treatment option. In addition, bevacizumab is used outside its marketing authorisation in some NHS centres.

NICE technology appraisal TA824 recommends dexamethasone intravitreal implant as an option for DMO in adults, only if their condition has not responded well enough to, or if they cannot have non-corticosteroid therapy. NICE technology appraisal TA301 recommends fluocinolone acetonide intravitreal implants as an option for treating chronic DMO that is insufficiently responsive to available therapies if the implant is to be used in an eye with an intraocular (pseudophakic) lens. In cases where there is no suitable treatment available, a watch-and-wait strategy may be adopted until the point where treatment with anti-VEGFs becomes suitable, or surgical intervention is required. The NHS have referenced a consensus guideline about when to consider moving from an anti-VEGF to an intravitreal corticosteroid. The consensus guideline recommends that if anti-VEGFs are insufficient then intravitreal corticosteroids should be considered.[3,4]

NICE technology appraisal TA613, a part-review of TA301, did not recommend fluocinolone acetonide intravitreal implant for treating chronic diabetic macular oedema in phakic eyes. There is new evidence that indicates that a review of TA613 will resolve a significant unmet need and supports the clinical effectiveness of fluocinolone acetonide for the full population in the marketing authorisation, including people with phakic lenses. Therefore, the decision was taken to review TA613.

The technology

Fluocinolone acetonide intravitreal implant (Iluvien, Alimera Sciences) has a marketing authorisation in the UK for treating vision impairment associated with chronic diabetic macular oedema, considered insufficiently responsive to available therapies.

Intervention(s)	Fluocinolone acetonide intravitreal implant
Population(s)	People with chronic diabetic macular oedema that is insufficiently responsive to available therapies who have phakic lenses.
Comparators	Dexamethasone intravitreal implant
Outcomes	The outcome measures to be considered include: • best corrected visual acuity (the affected eye) • best corrected visual acuity (both eyes) • central foveal subfield thickness • central retinal thickness • contrast sensitivity • mortality • need for cataract surgery • injection frequency • adverse effects of treatment (including cataract formation and glaucoma) • health-related quality of life, including the effects of changes in visual acuity.

Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. If the technology is likely to provide similar or greater health benefits at similar or lower cost than technologies recommended in published NICE technology appraisal guidance for the same indication, a cost comparison may be carried out. The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared. Costs will be considered from an NHS and Personal Social Services perspective. The availability of any commercial arrangements for the intervention, comparator and subsequent treatment technologies will be taken into account. The cost effectiveness analysis should include consideration of the benefit in the best and worst seeing eye.
Other considerations	Guidance will only be issued in accordance with the marketing authorisation. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations	**Related technology appraisals:** Dexamethasone intravitreal implant for treating diabetic macular oedema (2022) NICE technology appraisal 824. Brolucizumab for treating diabetic macular oedema (2022) NICE technology appraisal 820. Faricimab for treating diabetic macular oedema (2022) NICE technology appraisal 799. Fluocinolone acetonide intravitreal implant for treating chronic diabetic macular oedema in phakic eyes after an inadequate response to previous therapy (2019) NICE technology appraisal 613. Aflibercept for treating diabetic macular oedema (2015) NICE technology appraisal 346. Fluocinolone acetonide intravitreal implant for treating chronic diabetic macular oedema after an inadequate response to prior therapy (2013) NICE technology appraisal 301. Ranibizumab for treating diabetic macular oedema (2013) NICE technology appraisal 274. **Related NICE guidelines:**

	Type 1 diabetes in adults: diagnosis and management (2015) NICE guideline NG17. Type 2 diabetes in adults: management (2015) NICE guideline NG28. **Related NICE guidelines in development:** Diabetic retinopathy. NICE guideline. Publication expected January 2024. **Related quality standards:** Diabetes in adults (2011) NICE quality standard 6.
Related National Policy	The NHS Long Term Plan (2019) NHS Long Term Plan NHS England (2018) NHS manual for prescribed specialist services (2018/2019) Chapter 12 Adult specialist ophthalmology services

References

1. National Diabetes Audit (NDA) 2022-23 quarterly report for England, Integrated Care Board (ICB), Primary Care Network (PCN) and GP practice. (2023) NHS Digital. Accessed July 2023.

2. Minassian DC, Owens DR, Reidy A. Prevalence of diabetic macular oedema and related health and social care resource use in England. British Journal of Ophthalmology 2012; 96:345-349. Accessed July 2023.

3. Operational note: updated commissioning recommendations for medical retinal vascular medicines following the national procurement for ranibizumab biosimilars. (2023) NHS. Accessed August 8, 2023.

4. Downey L, Acharya N, Devonport H, Gale R, Habib M, Manjunath V, Mukherjee R, Severn P. Treatment choices for diabetic macular oedema: a guideline for when to consider an intravitreal corticosteroid, including adaptations for the COVID-19 era. BMJ Open Ophthalmol. 2021; 27;6(1):e000696. Accessed August 2023.