NICE National Institute for Health and Care Excellence

NICE guidance

Repetitive short-pulse transscleral cyclophotocoagulation for glaucoma

HealthTech guidance
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www.nice.org.uk/guidance/htg576

Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guidance replaces IPG692.

1 Recommendations

1.1 Evidence on the safety of repetitive short-pulse transscleral cyclophotocoagulation for glaucoma shows no major safety concerns. Evidence on efficacy is inadequate in quality. Therefore, this procedure should only be used in the context of research. Find out what only in research means on the NICE website.

1.2 Further research should ideally be in the form of randomised controlled trials comparing the procedure with standard care. It should report details of patient selection, particularly whether the glaucoma is refractory or non-refractory. Outcomes should include duration of effect.

2 The condition, current treatments and procedure

The condition

2.1 Glaucoma is usually a chronic condition associated with raised intraocular pressure. The most common type of glaucoma in the UK is primary (or chronic) open-angle glaucoma. It leads to progressive damage to the optic nerve. Early stages are usually asymptomatic. But, as the condition progresses, it causes visual impairment and, if untreated, blindness.

Current treatments

2.2 NICE's guideline on glaucoma describes its diagnosis and management. Treatment is usually eye drops containing drugs that either reduce aqueous humor production or increase its drainage. Surgical procedures such as trabeculectomy, drainage tubes, deep sclerectomy, viscocanalostomy, laser trabeculoplasty and cyclodiode laser treatment may also be used.

The procedure

2.3 Repetitive short-pulse transscleral cyclophotocoagulation (commonly known as micropulse transscleral cytophotocoagulation) uses a laser to target the same tissue as conventional cyclodiode laser treatment but it is delivered in pulses lasting microseconds. This allows the tissue to cool between pulses, with the aim of reducing collateral damage.

2.4 The procedure is normally done under local or general anaesthesia and usually takes 10 to 20 minutes. A probe is applied to the surface of the eye with firm pressure and moved in a continuous sliding motion over the upper or lower limbus of the eye, or both. To prevent ciliary neurovascular injury, the 3 and 9 o'clock

positions are avoided. The device is set to deliver repetitive short-pulse (micropulse) laser energy with specified 'on' and 'off' times. Lower laser settings are used for patients with higher pigments to avoid overtreatment and inflammation. The laser treatment usually lasts between 100 seconds and 360 seconds per session. After the procedure, patients may need to wear an eye patch over the treated eye for about 24 hours and may be prescribed topical corticosteroids and antibiotics.

3 Committee considerations

The evidence

3.1 NICE did a rapid review of the published literature on the efficacy and safety of this procedure. This comprised a comprehensive literature search and detailed review of the evidence from 18 sources, which was discussed by the committee. The evidence included 1 randomised controlled study, 1 non-randomised comparative study, 1 retrospective cohort study, 11 case series and 4 case reports. It is presented in table 2 of the overview. Other relevant literature is in the appendix of the overview.

3.2 The professional experts and the committee considered the key efficacy outcomes to be reduced intraocular pressure and maintaining visual fields.

3.3 The professional experts and the committee considered the key safety outcomes to be pain, hypotony and anterior chamber inflammation.

3.4 Eight commentaries from patients who have had this procedure were discussed by the committee.

Committee comments

3.5 There is some evidence of efficacy in patients with refractory glaucoma.

3.6 The committee was informed that the procedure may need to be repeated in some patients.

3.7 The committee noted that glaucoma is a common condition. It considered that, in this context, there was a lack of controlled studies of sufficient statistical power. This underpinned their recommendation for further research.

Update information

Minor changes since publication

January 2026: Interventional procedures guidance 692 has been migrated to HealthTech guidance 576. The recommendations and accompanying content remain unchanged.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.