DERBYSHIRE JOINT AREA PRESCRIBING COMMITTEE (JAPC)

Guidelines for the medical treatment of chronic open angle glaucoma and ocular hypertension

Summary:

- Diagnosis and management of ocular hypertension (OHT) or chronic open angle glaucoma (COAG) should be by an ophthalmologist or trained optometrist.
- This document offers guidance on which pharmacological treatments should be chosen.
- The recommended treatment options in this guideline are for newly diagnosed/treated patients, there is no expectation that patients already being treated should have their treatment changed unless clinically indicated. These decisions should be made by consultant ophthalmologists.
- NICE NG81 was updated in 2022 to recommend 360° selective laser trabeculoplasty (SLT) first line over eye drops for people with newly diagnosed COAG, or newly diagnosed OHT with IOP ≥24 mmHg if they are at risk of visual impairment within their lifetime.
- Offer a generic prostaglandin analogue (latanoprost) to people with COAG or OHT with IOP ≥24 mmHg if they are at risk of visual impairment within their lifetime and:
    - they choose not to have or 360° SLT is not suitable (e.g. pigment dispersion syndrome) or
    - they are waiting for 360° SLT and need an interim treatment or
    - they have had 360° SLT but need additional treatment to reduce their IOP
- Demonstrate correct eye drop installation technique and observe the person using the correct technique when eye drops are first prescribed.
- Where a beta-blocker is recommended betaxolol is the preferred formulary choice.
- Preservative free formulations are usually considerably more expensive than multi-dose equivalents and reserved for use in patients with genuine cases of hypersensitivity or people with clinically significant and symptomatic ocular surface disease, but only if they are at high risk of conversion to COAG.
- Combination therapies are usually branded products which are more expensive and should only be used in cases where there is an issue with compliance with multiple drugs or as options where patients need further lowering of IOP than provided by monotherapy,
- Other classes of drugs should not be used except where patients have contraindications and/or side-effects from prostaglandin analogues and beta-blockers or have not achieved appropriate IOP lowering with those drugs and surgery is not appropriate.
- Check the person's adherence to their treatment and eye drop instillation technique in people with COAG whose IOP has not been reduced sufficiently
- When compliance is an issue with patient using more than one topical glaucoma medication, a combination product may be considered.

Document updates	Date updated
Ganfort removed. To prescribe bimatoprost+timolol generically.	Oct 2023

Abbreviations

BB	Beta blocker
CAI	Carbonic anhydrase inhibitor
COAG	Chronic open angle glaucoma
IOP	Intraocular pressure
OHT	Ocular hypertension
PF	Preservative free
PGA	Prostaglandin analogue
SLT	selective laser trabeculoplasty

References

Glaucoma Diagnosis and management NICE NG81 November 2017, updated January 2022
Drug Tariff accessed June 2022
Clinical Knowledge Services for Glaucoma accessed 2nd February 2022

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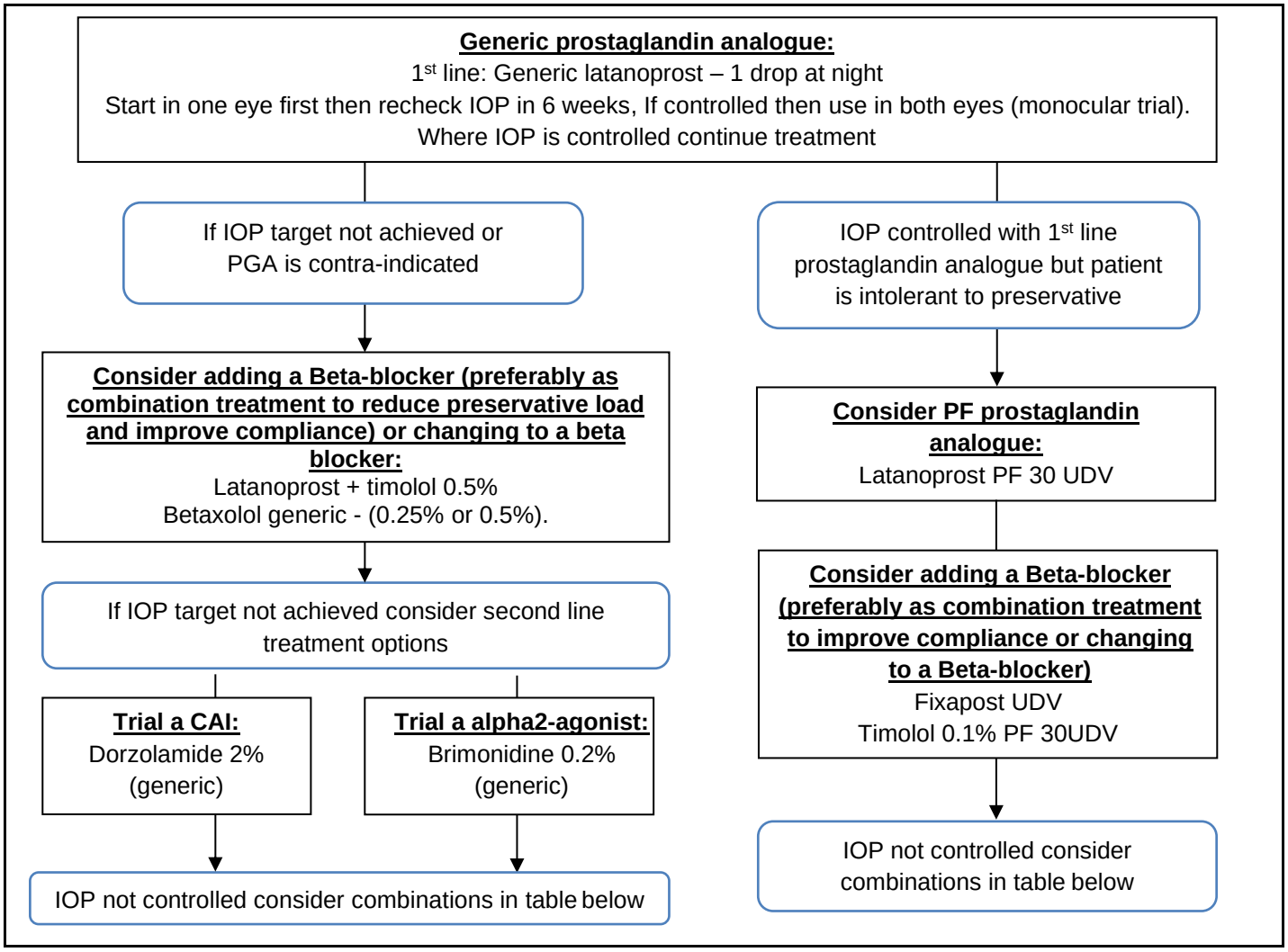
Prescribing eye drops for adults (18yrs and over) with Primary Open Angle Glaucoma

NICE now recommends 360° selective laser trabeculoplasty (SLT) first line. Eye drops are used when SLT is not suitable, or as interim/ add on treatment. Where target IOP is not achieved with eye drops, surgery or laser treatment should be considered.

People prescribed topical medications are encouraged to continue with the same treatment unless: IOP is not sufficiently reduced, the glaucoma has progressed, or they are intolerant to the drug. For people with insufficient IOP lowering, check adherence to treatment and drop instillation techniques.



Formulary eye drops (preservative containing)				
	Cost effective combinations	**Prescribe as**	**dose**	**Cost per pack**
PGA	Latanoprost 50mcg/ml	generic	OD	£1.60
BB	Betaxolol 0.25% and 0.5%	generic	OD	£2.66/£1.90
PGA+ BB	Latanoprost + timolol 0.5%	generic	OD	£2.74
CAI	Dorzolamide 2%	generic	BD	£1.70
Alpha2	Brimonidine 0.2%	generic	BD	£2.00
CAI+ BB	Dorzolamide 2%+ timolol 0.5%	Generic	BD	£1.73
CAI+alpha2	Brinzolamide 10mg/ml + brimonidine 2mg/ml	Simbrinza	BD	£9.23
Alpha2+BB	Brimonidine 2mg/ml + timolol 0.5%	Combigan	BD	£13.15
Formulary eye drops (preservative free formulations)				
	Cost effective combinations	**Prescribe as**	**dose**	**Cost per pack**
PGA	Latanoprost 50mcg/ml PF	Generic UDV	OD	£8.49
BB	Timolol 0.1% PF	Generic UDV	OD	£7.49
PGA+BB	Latanoprost + timolol PF	Fixapost UDV	OD	£13.49
CAI	Dorzolamide 2% PF	Generic PF 5ml bottle	BD	£7.09

DT prices June 2022

Background

In glaucoma visual field loss normally starts in the peripheral vision and is not noticed, so many people with glaucoma are unaware that they have the disease. The optic nerve destruction is normally slow; progression of the optic nerve destruction can be slowed or stopped using medications, surgery or laser therapy. Visual loss through glaucoma cannot be reversed; therefore treating glaucoma is aimed at maintaining a patient's quality of life through preserving remaining vision.

Ocular hypertension is a condition defined by consistently or recurrently elevated intraocular pressure (greater than 24 mmHg) and no signs of glaucoma.

Risk factors for chronic open angle glaucoma

- **Raised intraocular pressure (IOP)** -modifiable through medical management
- **Age**- The prevalence and incidence of chronic open angle glaucoma increase steeply with age
- **Family history**- The risk of chronic open angle glaucoma is increased when a first-degree relative (parent, sibling, child) has glaucoma
- **Ethnicity-** Chronic open angle glaucoma is more common in people of black African origin than in people of white ethnicity
- **Corticosteroids-** The use of oral, inhaled, or high-potency topical corticosteroids has been associated with increased risk of glaucoma
- **Myopia-** People who are short-sighted (myopic) are more likely to develop glaucoma and more likely to develop it at a younger age; the risk increases with severity of myopia
- **Diabetes mellitus-** A systematic review concluded that diabetes is a risk factor for chronic open angle glaucoma, but some prospective cohort studies provide inconsistent results

Treatment options

Any treatment offered should take into account any contraindications, side effects or intolerances in each patient, as well as any cognitive and physical impairment.

NICE NG81 was updated in 2022 to recommend 360° selective laser trabeculoplasty (SLT) first line over eye drops for people with newly diagnosed COAG, or newly diagnosed OHT with IOP ≥24 mmHg if they are at risk of visual impairment within their lifetime

NICE recommends to offer a generic prostaglandin analogue (latanoprost) to people with COAG or OHT with IOP ≥24 mmHg if they are at risk of visual impairment within their lifetime and:

- they choose not to have or 360° SLT is not suitable (e.g. pigment dispersion syndrome) or
- they are waiting for 360° SLT and need an interim treatment or
- they have had 360° SLT but need additional treatment to reduce their IOP

At present only beta-blockers and prostaglandin analogues are licensed for both first and second line treatment of glaucoma. Patients who are on treatments not recommended in these guidelines should not routinely have their medications changed unless there are clinical grounds. There are potential risks associated with switches to alternative preparations which require monitoring. Decisions to change treatments should be made by consultant ophthalmologists.

People with ocular hypertension (OHT)

Many people with ocular hypertension or suspected chronic open angle glaucoma require only monitoring. Offer a generic topical prostaglandin analogue to people with IOP of 24mmHg or more ONLY if they are at risk of visual impairment within their lifetime. If this is not tolerated, offer a topical beta-blocker.

If glaucoma progresses while the person is on drug treatment, or intraocular pressure cannot be reduced sufficiently, the recommended treatment options are:

- ✓ An alternative class of drug: topical beta-blocker, carbonic anhydrase inhibitor, or sympathomimetic (such as an alpha-2-adrenergic stimulant).
- ✓ A combination of drug classes.
- ✓ Selective Laser Trabeculoplasty
- ✓ Surgery with augmentation.

Fixed combination therapies and adjunctive treatment

Combination therapies are not recommended for first-line use.

Clinicians should assess efficacy of drops. If the patient does not have a satisfactory pressure reduction, then the drop should be swapped rather than another drop simply added in. If another drop is added when efficacy of the first is not established, then patients can be left on drops for the rest of their lives with no benefit.

Second-line treatment options

Other classes of drugs (carbonic anhydrase inhibitors and sympathomimetics) are not recommended in the NICE guidelines as first-line treatments and are only licensed for second-line treatment. Miotics have largely been superseded by newer drugs. The NICE guidelines suggest where there is progression of glaucomatous changes then surgery or laser therapy should be offered (NICE 2009). However not all patients in this situation will be appropriate candidates for surgery and there is therefore a need for second-line treatment options.

Carbonic anhydrase inhibitors are in regular use and have a place as second line treatment where further lowering of IOP is desirable and surgery is not considered appropriate. A systemic treatment of oral carbonic anhydrase inhibitors (acetazolamide) is only recommended for short term use as an adjunct to other treatments in people with raised IOP.

Sympathomimetics should similarly be used as third line treatment where further lowering of IOP is desirable and surgery is not considered appropriate. Where compliance is an issue with patients taking more than one topical glaucoma medication, combination drops could be considered.

Allergy to eye drops

1. Allergic reactions are usually due to the preservative in the eye drop but can also be due to the active drug.
2. Symptoms of an allergic reaction cause the treated eyes and eyelids to itch severely, eyes to become red and injected, and eyelids to become red and swollen. Symptoms and signs become worse after the drops are instilled, and they disappear when treatment is stopped.
3. If allergy to eye drops is suspected:
    a. Refer to an ophthalmologist, or obtain specialist advice.
        i. Decisions about withdrawing eye drops can require specialist expertise, particularly when disease is severe and more than one type of eye drop is being used.
        ii. For people with COAG, replacement with a preservative-free preparation is recommended when allergy is confirmed.
        iii. For people with ocular hypertension or suspected chronic open angle glaucoma, replacement with a preservative-free preparation is only recommended if they are at high risk of developing chronic open angle glaucoma. If they are not at high risk, treatment is not cost-effective and may be withdrawn.
        iv. If the allergic reaction continues despite using a preservative-free preparation, treatment may need to be changed, as the person may be allergic to the active drug

Further resources

NICE visual summary - management options for people with chronic open angle glaucoma

Advice on administering eye drops

Advise people using eye drops to:

- Wash their hands before and after using their eye drops.
- Remove soft contact lenses before applying eye drops and wait at least 15 minutes before reinserting them.
- Shake the bottle of eye drops before each use.
- Minimize systemic absorption and adverse effects by closing their eyes after administering eye drops, gently but firmly pressing the tear duct against the nose for at least 1 minute, and then removing excess solution with absorbent tissue.
- Note the date on which each eye preparation is opened, as it should be replaced after 4 weeks.
- Ensure that the eye preparations are stored according to the manufacturer's instructions.

Advise people who are using more than one type of eye drop to:

- Allow at least 5 minutes between using different eye preparations to avoid wash-out.

General driving advice for patients with glaucoma

- A driver must have good central visual acuity and adequate peripheral vision while using their glasses or contact lenses if prescribed.
- If there are visual field defects in both eyes, the person is legally required to inform the Driver and Vehicle Licensing Agency (DVLA) and to stop driving until a specific test has been performed under the guidance of the DVLA. Advice on informing the DVLA about medical conditions is available online at

For further information see https://www.gov.uk/glaucoma-and-driving

Appendix 1 Cost comparisons of commonly prescribed ocular treatments for COAG and OHT

Prostaglandin analogues (PGA)

	Drug	Traffic light classification	Prescribe as	Unit cost
First line	**Latanoprost 50mcg/ml**	**GREEN - after consultant/specialist initiation**	**Generic**	**£1.60 (2.5mls)**
Alternative	Travoprost 40mcg/ml	**GREY after consultant/specialist initiation: 2nd line PGA**	Generic	£1.71 (2.5mls)
	Bimatoprost 100mcg/ml	**GREY after consultant/specialist initiation: 3rd line PGA**	Generic	£2.92 (3mls)

Beta Blockers (BB)

	Drug	Traffic light classification	Prescribe as	Unit cost
First line	**Betaxolol 0.25% and 0.5%**	**GREEN - after consultant/specialist initiation**	**Generic**	**£2.66 (5ml) £1.90 (5mls)**
Alternative	Timolol 0.25% and 0.5%	**GREY after consultant/specialist initiation: 2nd line BB**	Generic	£3.09 / £2.64 (5mls)
	Timolol 0.25% and 0.5% gel forming eye drops (once daily)	**GREY after consultant/specialist initiation: 3nd line BB**	Timoptol-LA	£3.12/ £3.12 (2.5mls)

Carbonic anhydrase inhibitors (CAI)

	Drug	Traffic light classification	Prescribe as	Unit cost
First line	**Dorzolamide 2%**	**GREEN - after consultant/specialist initiation**	**Generic**	**£1.70 (5ml)**
Alternative	Brinzolamide 1%	**GREY after consultant/specialist initiation: 2nd line CAI**	Generic	£2.34 (5mls)

Alpha2 agonist

	Drug	Traffic light classification	Prescribe as	Unit dose cost
First line	**Brimonidine 0.2%**	**GREEN - after consultant/specialist initiation**	**Generic**	**£2.00 (5mls)**

Combination eye preparations

Drug type combination	Drug	Traffic light classification	Prescribe as	Unit dose cost
PGA+BB	**Latanoprost/timolol 0.5%**	**GREEN- after consultant/specialist initiation**	**Generic***	£2.74 (2.5mls)
PGA+BB	Bimatoprost 300mcg/ timolol 5mg per ml	**GREY after consultant/specialist initiation: 2nd line PGA+BB**	Generic*	£4.08 (3mls)
PGA+BB	Travoprost/timolol 5mg per ml	**GREY after consultant/specialist initiation: 2nd line PGA+BB**	Generic*	£6.04 (2.5mls)

CAI+BB	**Dorzolamide 2%/ timolol 0.5%**	**GREEN - after consultant/specialist initiation**	**Generic***	£1.73 (5mls)
CAI+BB	Brinzolamide 1%/ timolol 0.5%	**GREY after consultant/specialist initiation: 2nd line CAI+BB**	Generic*	£3.52 (5mls)
CAI+alpha2	**Brinzolamide 10mg/ brimonidine 2mg per ml**	**GREEN - after consultant/specialist initiation**	**Simbrinza**	£9.23 (5mls)
Alpha2+BB	**Brimonidine 2mg per ml/timolol 0.5%**	**GREEN - after consultant/specialist initiation**	**Combigan**	£13.15 (5mls)

*prescribe generically as cost effective

Appendix 2

Cost chart for **preservative free** eye drop formulations

Preservative free eye drops		Traffic light classification	Prescribe as	Unit cost
Prostaglandin analogues (Once daily in the evening)				
Latanoprost 50mcg/ml PF 0.2ml unit dose		**GREEN - after consultant/specialist initiation**	Generic (Monopost)	£8.49 (30 UDV)
Bimatoprost 300mcg/ml PF		**GREY after consultant/specialist initiation: 2nd line PGA (PF)**	Generic (Eyreida)	£11.71 (3ml)
Tafluprost 15micrograms/ml PF 0.3ml unit dose		**GREY after consultant/specialist initiation: 3rd line PGA (PF)**	Generic (Saflutan)	£12.20 (30 UDV)
Beta-blocker (use once daily)				
Timolol 0.1% PF eye drops 0.4g unit dose		**GREEN - after consultant/specialist initiation**	Generic (Tiopex)	£7.49 (30 UDV)
CAI (apply twice daily)				
Dorzolamide 2% PF		**GREEN - after consultant/specialist initiation**	Generic (Eydelto)	£7.09 (5ml bottle)
Combinations				
PGA +BB (once daily)	Latanoprost 50 micrograms/ml+ timolol 5mg/ml PF	**GREEN- after consultant/specialist initiation**	Fixapost	£13.49 (30 UDV)
	Bimatoprost 300mcg/ml+ timolol 5mg/ml PF	**GREY - after consultant/specialist initiation**	Eyzeetan	£14.16 (3ml bottle)
	Tafluprost 15micrograms/ml+ timolol 5mg/ml PF	**GREY - after consultant/specialist initiation**	Taptiqom	£14.50 (30 UDV)
CAI+ BB (twice daily)	Dorzolamide 2%+Timolol 0.5% eye drops PF	**GREY - after consultant/specialist initiation**	Eylamdo	£8.14 (5ml bottle)
	Dorzolamide 2%+Timolol 0.5% PF 0.2ml unit dose	**GREY – after consultant/specialist initiation: *2nd line PF CAI+BB eye drops**	Generic*	£26.44 (60 UDV)

Drug tariff June 2022 and MIMs online

*PF dorzolamide+timolol UDV is GREY 2nd line CAI+BB eye drops after consultant/specialist initiation, if hypersensitive to silver, or cannot use the alternative eye drop bottle (Eylamdo) with dropper aids/support.