



Using **Glycopyrronium** as an alternative antimuscarinic when unable to source **Hyoscine butylbromide** (Buscopan)

Antimuscarinics

Antimuscarinics are used most often in palliative care for secretions at the end of life (death rattle), and for symptom management in bowel obstruction for intestinal colic and as antisecretory agents. For indications where a parental antimuscarinic is required the preferred choice is **hyoscine butylbromide**; it is unlikely to cause CNS effects and is cheaper than **glycopyrronium**.

The antimuscarinic of choice in Barnsley district remains **hyoscine butylbromide** (Buscopan), but when there are supply issues **glycopyrronium** is a good alternative.

Hyoscine hydrobromide is not an antimuscarinic of choice in Barnsley as it is likely to cause CNS effects (e.g. drowsiness, confusion).

Cautions

Cardiac disease, eg myocardial infraction, ischaemia, arrhythmia, heart failure, hypertension; other conditions predisposing to tachycardia, eg thyrotoxicosis, β agonist use. Bladder outflow obstruction (prostatism). Likely to exacerbate acid reflux. Ulcerative colitis. Narrow-angle glaucoma may be precipitated in those at risk, particularly the elderly. Use in hot weather or pyrexia may lead to heatstroke. These are all **relative cautions** particularly when using antimuscarinics for symptom management in the last days of life.

Glycopyrronium

Dose and use

For CSCI, dilute with WFI, sodium chloride 0.9% or glucose 5%.

There are 2-drug compatibility data for combinations of **glycopyrronium** in WFI with **morphine, oxycodone, alfentanil, midazolam, clonazepam, haloperidol, levomepromazine, and metoclopramide**. It is likely to mix in 3-drug combinations in a similar way to **hyoscine butylbromide**. Syringe driver sites should be monitored.

† Antispasmodic and inoperable intestinal obstruction

- Start with 200 microgram SC stat
- Continue with 600-1,200microgram/24h CSCI and/or 200microgram SC 2hrly prn

† Death rattle (noisy rattling breathing due to respiratory tract secretions in last days of life)

- Start with 200microgram SC stat
- Continue with 600-1,200microgram/24h CSCI and/or 200microgram SC 2hrly prn
- CSCL doses can be increased to a maximum of 2,400microgram/24hr

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Use in renal or hepatic impairment

Lower doses may be effective in severe renal failure. No dose adjustments are required in hepatic impairment in the palliative care context.

Drug interactions

Because antimuscarinics competitively block the final common (cholinergic) pathway through which prokinetics act,²³ concurrent prescription with **metoclopramide** and **domperidone** should be avoided as far as possible.

The increased GI transit time produced by antimuscarinics may allow increased drug absorption from some formulations, eg **digoxin** and **nitrofurantoin** tablets and **potassium** m/r tablets, but reduced absorption from others eg **paracetamol** tablets. Dissolution and absorption of SL tablets (eg **glyceryl trinitrate**) may be reduced because of decreased saliva production.

Both antimuscarinics and opioids cause constipation (by different mechanisms) and, if used together, will result in an increased need for laxatives, and may even result in paralytic ileus. On the other hand, morphine and **hyoscine butyl bromide** or **glycopyrronium** are sometimes purposely combined in terminally ill patients with inoperable bowel obstruction in order to prevent colic and to reduce vomiting.

Undesirable effects

What is a desired effect becomes an undesirable effect in different circumstances. Thus, dry mouth is an almost universal *undesirable* effect of antimuscarinics except when a reduction of oropharyngeal secretions is intended, as in death rattle.

CNS effects (drowsiness, restlessness, delirium, confusion) that are less likely with hyoscine butylbromide and glycopyrronium

Peripheral antimuscarinic effects include:

- Blurred vision
- GI – dry mouth, heartburn, constipation
- Cardiovascular – tachycardia, arrhythmias
- Urinary hesitancy and retention

Supply

Glycopyrronium *bromide* (generic)

Injection 200microgram/ml, 1 ml or 3ml amp = £1.50

References:

PCF8 Palliative Care Formulary Eighth Edition *Wilcock, Howard, Charlesworth 2022*

Palliative_Care_Prescribing_Guidelines_Lancashire and South Cumbria EoLC Advisory Group 2014