HYDROCODONE

Class: Opioid analgesic and antitussive.

Indications: Moderate–severe pain not relieved by non-opioid analgesics, cough.

Pharmacology
Hydrocodone is a µ-opioid receptor agonist. It is several times more potent than codeine; postoperatively, 10mg is at least as effective as codeine 60mg and, as an antitussive, 10mg is at least as effective as codeine 30mg. Hydrocodone is more than half as potent as morphine. However, its use is restricted by the fact that it is available only in compound preparations. Thus, in practice, hydrocodone is generally used as an alternative to codeine.

Like codeine and oxycodone, hydrocodone is metabolized by cytochrome P450 to both active and inactive metabolites, including hydromorphone. Because hydrocodone is an active drug in its own right, conversion to hydromorphone via CYP2D6 is not essential. Thus, although fluoxetine and paroxetine reduce the conversion to hydromorphone, they do not reduce the analgesic effect of hydrocodone. There is considerable variation in the amount of drug and the metabolite excreted by man. Two clusters have been identified; extensive metabolizers who excrete only 6–9% of the administered dose as unchanged hydrocodone and slow metabolizers who excrete 18–20% unchanged. The former may experience a faster onset of pain relief than the latter but not a greater duration or extent of relief.

Bio-availability
Bio-availability 25% PO.

Onset of action
Onset of action 20–30min.

Plasma half-life
Plasma half-life 4h.

Duration of action
Duration of action 4–8h.

Cautions
Compound hydrocodone and homatropine preparations should also be used with caution in patients with glaucoma or raised intracranial pressure.

Undesirable effects
For full lists, see manufacturers’ PIs. In compound preparations the lists include the undesirable effects of both drugs.

Very common (>10%): lightheadedness, dizziness, sedation, drowsiness, weakness, tiredness, hypotension, constipation.

Common (<10%, >1%): hydrocodone + ibuprofen: seizures, respiratory depression, bronchospasm, nausea, vomiting, gastro-intestinal bleeding, diarrhea, flushing, pruritus, urticaria.

Compound hydrocodone and homatropine: increased intra-ocular pressure, confusion, vertigo, respiratory depression, bradycardia, tachycardia, nausea, urinary retention.

Dose and use

Pain relief
In the USA, hydrocodone is used only in combination with a non-opioid analgesic.
Compound hydrocodone and acetaminophen: the dose of hydrocodone is limited by the need to restrict the dose of acetaminophen to 4g/24h. Even so, given the available preparations, it is possible to prescribe hydrocodone 120mg/24h, equivalent to about morphine 80mg.

Compound hydrocodone and ibuprofen: only one combination is available.\textsuperscript{12,13} If a patient can tolerate ibuprofen 2400mg/24h,\textsuperscript{14} the corresponding dose of hydrocodone will be 90mg/24h, equivalent to about morphine 60mg.

**Cough**

Compound hydrocodone and homatropine:

- start with 5mg hydrocodone (1 tablet or 5ml oral solution) b.i.d.
- if necessary, increase to 10–15mg hydrocodone (2–3 tablets or 10–15ml syrup) q4h\textsuperscript{15}
- manufacturer’s recommended maximum dose 6 tablets or 30ml syrup daily (= 30mg hydrocodone).

A single dose of hydrocodone is generally limited to 15mg due to the fixed combination with homatropine.

**Supply**

Unless indicated otherwise, all preparations are Schedule III controlled substances.

Compound hydrocodone and acetaminophen preparations

Hydrocodone and acetaminophen 2.5/500

- **Tablets** hydrocodone 2.5mg + acetaminophen 500mg, 28 days @ 2 q.i.d. = $75 (AWP).

Hydrocodone and acetaminophen 5/500

- **Tablets** hydrocodone 5mg + acetaminophen 500mg, 28 days @ 2 q.i.d. = $114 (AWP).

Hydrocodone and acetaminophen 7.5/500

- **Tablets** hydrocodone 7.5mg + acetaminophen 500mg, 28 days @ 2 q.i.d. = $129 (AWP).
- **Oral solution** hydrocodone 7.5mg + acetaminophen 500mg/15ml, 28 days @ 30ml q.i.d. = $778.

Hydrocodone and acetaminophen 10/325

- **Tablets** hydrocodone 10mg + acetaminophen 325mg, 28 days @ 2 q4h = $120 (AWP).

Hydrocodone and acetaminophen 10/500

- **Tablets** hydrocodone 10mg + acetaminophen 500mg, 28 days @ 2 q.i.d. = $112.

Compound hydrocodone and ibuprofen preparations

Hydrocodone/ibuprofen 7.5/200 (generic)

- **Tablets** hydrocodone 7.5mg + ibuprofen 200mg, 28 days @ 1 q.i.d. = $104.

Vicoprofen® (Abbott)

- **Tablets** hydrocodone 7.5mg + ibuprofen 200mg, 28 days @ 1 q.i.d. = $131.
Compound hydrocodone and **homatropine** preparations

Hycodan® (Endo)

**Tablets** hydrocodone bitartrate 5mg + **homatropine methylbromide** 1.5mg, 28 days @ 1 q.i.d. = $117.

**Oral solution** hydrocodone bitartrate 5mg + **homatropine methylbromide** 1.5mg/5ml, 28 days @ 5ml q.i.d. = $132.

*This is not a complete list; see AHFS for more information.*

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