Buprenorphine

Introduction
Buprenorphine is a partial µ opioid agonist but a kappa and delta opioid receptor antagonist. It is metabolised to buprenorphine-3-glucuronide and norbuprenorphine. Buprenorphine clearance is considered to occur mainly by hepatic extraction and metabolism. Neither metabolite accumulates in renal impairment.
In humans, a ceiling effect has been shown for respiratory depression (200micrograms /70 kg IV) but not for analgesia. The maximum dose recommended by the manufacturers is 3.36mg/day (70microgram patches x2)
With typical clinical doses it is possible to use morphine for breakthrough pain without loss of analgesia. Despite concerns that antagonism could occur, this is likely only with a very large doses.
Oral bioavailability of buprenorphine is low (15%) but SL buprenorphine is rapidly absorbed. Vomiting is more common with SL than Transdermal buprenorphine

Indications
• Moderate to severe pain not responding to non-opioid analgesics
• Safe in renal impairment as it does not accumulate and is not removed by dialysis.
• Less effect on immunity
• Less effect on sexuality

Routes of administration

1. Sublingual
Initially 200-400micrograms tds PO q8h-q6h.
Use with a sip of water if mouth is dry
Typical dose 800micrograms -1.2mg/day

2. Transdermal
Available as two formulations Butrans and Transtec:

Butrans
Self adhesive patches
Apply to dry, non-irritated, non-hairy skin on upper torso.
Remove after 7 days and site replacement patch on a different area (avoid same area for about 3 weeks)

Dose adjustment: analgesic effect should not be evaluated until the patch has been worn for 72 hours.
If necessary the dose should be adjusted every 3 days.
‘5’ patch (releasing 5 micrograms/hour for 7 days)
‘10’ patch (releasing 10 micrograms/hr for 7 days)
‘20’ patch (releasing 20 micrograms / hour for 7 days)

Transtec
Self adhesive patches
Apply to dry, non-hairy, non-irritated skin on upper torso.
Remove patch after 96 hours and site replacement patch on a different area.
Patients who have not previously received strong opioid analgesia should commence ‘35’ patch.
Patients who have received strong opioid analgesia should be commenced on the appropriate dose calculated according to the relative opioid potency ratios Oral opioid potency ratios.doc
For breakthrough pain consider sublingual buprenorphine 200-400 micrograms.

N.B. It may take approximately 30 hours for plasma buprenorphine concentration to decrease by 50% after the patch is removed.

**Dose titration**

‘35’ patch (releasing 35 micrograms/hour for 96 hours)

‘52.5’ patch (releasing 52.5 micrograms/hour for 96 hours)

‘70’ patch (releasing 70 micrograms/hour for 96 hours)

Increase by 1/3 to ½

Maximum dose is 140 mcg/hour

**Side effects**

Drowsiness, nausea and vomiting.

Constipation may be less severe than morphine.

Can give rise to mild withdrawal symptoms in patients dependent on opioids e.g. hiccups and dyspnoea.

Patches: local reactions such as erythema and pruritus

Rare: delayed local allergic reactions with severe inflammation: discontinue treatment

**References**


5. BNF April 2008 Vol 55