Prescribing and Administration of Analgesia within Maternity

University Hospitals of Leicester NHS
NHS Trust

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INTRODUCTION AND WHO THE GUIDELINE APPLIES TO

This guideline applies to midwifery, medical, anaesthetic and pharmacy staff working within the Maternity Unit who prescribe or administer analgesic medication. It incorporates the Trust guidance on Paracetamol prescribing as well as what to prescribe and administer to women in the antenatal / postnatal period and to those who have had a caesarean section.

UHL PARACETAMOL PRESCRIBING GUIDELINE

Paracetamol can cause liver damage in patients who have certain identifiable risks factors and therefore therapeutic dosing may need to be reduced. Intravenous therapy is shown to have a higher peak plasma level than oral and patients with a low body weight <50kg will need a reduced dose regardless of whether risk factors are present or not. The aim of this guideline is to provide safe dosing for oral and intravenous Paracetamol in patients aged 16 years or more treated within the UHL Maternity Service. Separate guidance exists for children.

NB: When daily maximum dose of Paracetamol has been exceeded by a pregnant patient, whether accidentally or intentionally, treatment should be considered even when maternal Paracetamol levels do not reach treatment threshold. This is because the fetal liver is immature, and fetal hepatic toxicity can occur at lower levels than the mother's. Please discuss with Consultant Obstetrician in all cases where dose has been exceeded.

ORAL DOSING

Paracetamol has a narrow therapeutic index. Toxicity can occur when the patient has identifiable risk factors for liver toxicity (see section 5). There is no formal guidance for adjusting oral dosing and so, to minimise risk of liver damage for patients with risk factors, a maximum daily dose of 75mg/kg has been agreed. The doses have been rounded to the nearest 500mg dose to help with administration. Patients who require a dosage adjustment must be advised that this is lower than the maximum dose of paracetamol recommended in package inserts.

INTRAVENOUS DOSING

Intravenous administration of Paracetamol results in higher peak plasma levels than the same dose given orally. The product license specifies that the standard maximum daily dose of 4g daily must be decreased in patients with a body weight ≤50kg or in those with risk factors for toxicity. The dosing interval needs to be increased in patients with severe renal impairment. (4)

RISK FACTORS FOR HEPATOTOXICITY

The following are risk factors for hepatotoxicity:

- Malnourished patients, with nutritional deficiency and/or chronic debilitating illness and therefore likely to be glutathione deplete:
    - acute (patients not eating for a few days) or chronic starvation
    - eating disorders (anorexia or bulimia)
    - cystic fibrosis
    - AIDS
    - cachexia
    - alcoholism
    - Hepatitis C
- Hepatic enzyme induction or evidence of on-going liver injury e.g. long term treatment with liver enzyme-inducing drugs such as Carbamazepine, Phenobarbital, Phenytoin, Primidone, Rifampicin, Rifabutin, Efavirenz, Nevirapine, St John's Wort,
- Regular consumption of ethanol in excess of recommended amounts, particularly if nutritionally compromised.

DOSE ADJUSTMENT OF PARACETAMOL IN ADULTS

- Record booking weight on drug chart. Where dose reduction has occurred, consider re-weighing the woman once she is mobile after delivery. Paracetamol dose can then adjusted if necessary.
- Assess the patient for risk factors for toxicity.
- If risk factors are present REDUCE the total daily dose.
- Prescribe the oral dose in multiples of 500mg of Paracetamol.
- Do not exceed four doses of Paracetamol in 24 hours
- For IV dosing, see table below

CALCULATING DOSAGE OF PARACETAMOL

The following charts guide safe dosing levels for adults >16 years.

Dose of ORAL Paracetamol for ALL adults WITHOUT risk factors
500mg – 1g every 4-6 hours, maximum 4g daily

Dose of ORAL Paracetamol for adults WITH risk factors	
30-39kg	Dose reduction is required. Discuss with senior clinician / pharmacy
40-50kg	500mg every 4-6hours. Maximum 2g / 24 hours
>50.1kg	500mg – 1g every 4-6 hours. Maximum 4g / 24 hours

Dose of IV Paracetamol for adults	
≤33kg with or without risk factors	15mg / kg every 4-6 hours. Maximum 2g / 24 hours
33kg - ≤50kg	15mg / kg every 4-6hours. Maximum 3g / 24 hours
>50kg WITH risk factors	750mg every 4-6 hours. Maximum 3g / 24 hours
>50kg WITHOUT risk factors	1g every 4-6 hours. Maximum 4g / 24 hours
eGFR <30ml / min	Dose as above according to weight and risk factors BUT increase dosing interval to 6 hours.

POST OPERATIVE PRESCRIBING

IN THEATRE AT THE END OF PROCEDURE IF NO CONTRAINDICATIONS

All Adults 18 years and over: 100mg Diclofenac sodium PR

Children aged under 18 years (as per BNF): 1mg/kg per dose, maximum 50mg per dose of Diclofenac Sodium PR

REGULAR PRESCRIBING IN HOSPITAL

Paracetamol 1g orally 6hrly/QDS (maximum of 4g in 24 hours). Dose should be adjusted as above if required.

Diclofenac 50mg orally 8 hourly / TDS with the first dose following theatre prescribed for administration on the drug round AFTER a minimum of 16 hours from the PR dose in theatre. This will ensure a maximum intake of 150mg in 24 hours.

Children up to 18 years can be given 1mg/kg per dose of Diclofenac orally (in multiples of 25mg) up to a maximum of 50mg per dose (150mg per 24 hours). The first dose following theatre should be prescribed for administration on the drug round AFTER a minimum of 16 hours from the PR dose in theatre.

IF DICLOFENAC CONTRAINDICATED:

Tramadol 50mg orally 6 hrly/QDS may be prescribed regularly for patients who cannot have Diclofenac. See Appendix 1 for contraindications.

AS REQUIRED PRESCRIPTIONS IN HOSPITAL

IF DICLOFENAC PRESCRIBED:

Dihydrocodeine 30mg orally 4hrly

Oramorph (Morphine Sulfate solution) 20mg orally 2hrly

NB: 1st dose to be given minimum 4 hours after Diamorphine intrathecal/ epidural.

Cyclizine 50mg PO/IV/IM 8hrly

IV Paracetamol as single dose at the discretion of the Anaesthetist. This should be written on the front of the UHL maternity prescription chart and a note made on the regular prescription of Paracetamol to avoid overdosing.

For women <50kg, please note the dose is 15mg/kg with a maximum dosage of 3g / 24hours (see table on page 4 for further details).

IF DICLOFENAC CONTRAINDICATED:

Where women cannot take Diclofenac, in addition to regular Tramadol, Dihydrocodeine, Oramorph and Cyclizine can be prescribed in the PRN section of the drug chart.

IF DIHYDROCODEINE CONTRAINDICATED:

If Dihydrocodeine is not tolerated, prescribe tramadol 50mg orally / IV 6hrly / QDS.

DISCHARGE (TTO) ANALGESIA

Dihydrocodeine 30mg PO / 4hrly / PRN unless contraindicated

Diclofenac 50mg PO / TDS / PRN, unless contraindicated

Paracetamol 1g PO / QDS / PRN (maximum dose 4 g in 24 hours). For dose adjustments, see paracetamol specific section above. Please note Paracetamol is not usually provided as a TTO, the patient is advised to obtain over the counter at a chemist's/pharmacy outside hospital.

ALTERNATIVES

If both Diclofenac and Dihydrocodeine are contraindicated then the following may be prescribed as an alternative:

Tramadol 50mg QDS (up to 12 doses)

PATIENTS WEIGHING <39.9KG

It is recommended that patients are weighed prior to discharge to confirm that they are below this weight. Under these rare circumstances, an individualised care plan should be made in conjunction with a senior clinician and pharmacist, ideally antenatally.

MULTIPLE DRUG ALLERGIES OR COMPLEX PAIN

In patients with complex pain needs (usually related to pre-existing conditions), an individualised care plan should be made, ideally antenatally.

APPENDIX 1

CONTRA-INDICATIONS

FOR ALL OPIOIDS:

Acute respiratory depression; comatose patients; head injury (opioid analgesics interfere with pupillary responses vital for neurological assessment); raised intracranial pressure (opioid analgesics interfere with pupillary responses vital for neurological assessment); risk of paralytic ileus

FOR TRAMADOL HYDROCHLORIDE:

Acute intoxication with alcohol; acute intoxication with analgesics; acute intoxication with hypnotics; acute intoxication with opioids; not suitable for narcotic withdrawal treatment; uncontrolled epilepsy

CAUTIONS

FOR ALL OPIOIDS:

Adrenocortical insufficiency (reduced dose is recommended); asthma (avoid during an acute attack); convulsive disorders; debilitated patients (reduced dose is recommended) (in adults); diseases of the biliary tract; elderly (reduced dose is recommended) (in adults); hypotension; hypothyroidism (reduced dose is recommended); impaired respiratory function (avoid in chronic obstructive pulmonary disease); inflammatory bowel disorders; myasthenia gravis; obstructive bowel disorders; prostatic hypertrophy (in adults); shock; urethral stenosis (in adults)

DEPENDENCE

Repeated use of opioid analgesics is associated with the development of psychological and physical dependence; although this is rarely a problem with therapeutic use, caution is advised if prescribing for patients with a history of drug dependence.

FOR TRAMADOL HYDROCHLORIDE:

Excessive bronchial secretions; history of epilepsy—use tramadol only if compelling reasons; impaired consciousness; not suitable as a substitute in opioid-dependent patients; not suitable in some types of general anaesthesia; susceptibility to seizures—use tramadol only if compelling reasons

DRUG INTERACTIONS

Tramadol should not be combined with MAO inhibitors (see section 4.3).

In patients treated with MAO inhibitors in the 14 days prior to the use of the opioid pethidine, life threatening interactions on the central nervous system, respiratory and cardiovascular function have been observed. The same interactions with MAO inhibitors cannot be ruled out during treatment with Tramadol.

The combination with mixed agonist/antagonists (e.g. buprenorphine, nalbuphine, pentazocine) and tramadol is not advisable, because the analgesic effect of a pure agonist may be theoretically reduced in such circumstances.

Tramadol can induce convulsions and increase the potential for selective serotonin re-uptake inhibitors, (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), tricyclic anti-depressants, anti-psychotics and other seizure threshold lowering medicinal products (such as bupropion, mirtazapine, tetrahydrocannabinol) to cause convulsions.

Concomitant therapeutic use of tramadol and serotonergic drugs, such as selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), MAO inhibitors (see section 4.3), tricyclic antidepressants and mirtazapine may cause serotonin toxicity. Signs of serotonin syndrome may be for example confusion, agitation, fever, sweating, ataxia, hyperreflexia, myoclonus and diarrhoea.

Serotonin syndrome is likely when one of the following is observed:

• Spontaneous clonus

• Inducible or ocular clonus with agitation or diaphoresis

• Tremor and hyperreflexia

• Hypertonia and body temperature > 38 ^{o}C and inducible or ocular clonus.

Withdrawal of the serotoninergic medicinal products usually brings about a rapid improvement. Treatment depends on the nature and severity of the symptoms.

Caution should be exercised during concomitant treatment with tramadol and coumarin derivatives (e.g. warfarin) due to reports of increased INR with major bleeding and ecchymoses in some patients.

DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT		
Author / Lead Officer:	C Elton and J Qualie	**Job Title:** Consultant Anaesthetist and Pharmacist
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March 2014	V2	As above	Unified cross site. Divided as per booking weight > 50kg or < 50kg. Change to Tramadol dose
September 2016	V3		Clarification on Paracetamol dosage. Guidance added for use in all areas within Maternity
September 2018	V4	As above	Updated to come into line with UHL Paracetamol Policy and other types of medication updated. Format changed

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