

Dexamethasone - Palliative Care (Adults)

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1. Overview

Purpose

This protocol outlines the administration, prescribing and monitoring of dexamethasone at Waitemata District Health Board.

Scope

All medical and nursing staff

 This guideline is for use in Palliative Care ONLY.

Caution

Steroids are usually for short-term use (3– 10 days) in Palliative Care. Consider alternative options to manage chronic symptoms. Consider a reducing dose for patients who have been on dexamethasone for longer than 5 – 7 days.

2. Presentation

Dexamethasone 0.5mg and 4mg tablets
Dexamethasone phosphate (as sodium) 4mg in 1ml glass ampoules
Dexamethasone phosphate (as sodium) 8mg in 2ml glass ampoules
– Dexamethasone injection is a clear, colourless solution

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3. Indications

Licensed:

- Cerebral oedema (raised intracranial pressure)
- Therapy for specific diseases including auto-immune, endocrine, pulmonary and blood disorders
- Treatment of allergy
- Adjunct treatment for shock¹

Unlicensed:

- Nerve compression, spinal cord compression, superior vena cava obstruction, obstruction of hollow viscus (e.g. malignant obstruction of bowel or bronchus), bone pain, nausea and vomiting, prevention of inflammation at continuous subcutaneous infusion site, discharge from rectal tumour, paraneoplastic fever, dyspnoea, appetite stimulation, enhance sense of wellbeing, hypercalcaemia, liver capsule stretch pain, symptomatic radiation-induced oedema/inflammation, itch^{2,3,4}

Unlicensed route of administration:

- Subcutaneous

4. Dose

Doses can vary according to the individual patient and the indication.^{2,3,4}

Note: The oral bioavailability of dexamethasone is 80% therefore the conversion ratio from oral: subcut/IV is 1:1

0.5-1mg/day	2-4mg/day	4-8mg/day	8-16mg/day
<ul style="list-style-type: none"> - To reduce irritation at the infusion site 	<ul style="list-style-type: none"> - Increase appetite - Co-analgesic in some painful conditions - General anti-emetic 	<p>Co-analgesic in:</p> <ul style="list-style-type: none"> - nerve compression pain - hepatomegaly - other painful conditions - Symptomatic radiation-induced oedema/ inflammation - Malignant bowel obstruction 	<ul style="list-style-type: none"> - Raised intracranial pressure due to cerebral oedema (e.g. tumour induced) - Spinal cord compression (16 mg daily) - SVC obstruction - Tumour induced airway obstruction - Malignant bowel obstruction - Prevention of chemo-emesis

Note: Consider use of a proton pump inhibitor (e.g. omeprazole) while on dexamethasone^{4,5}



Doses higher than 16mg dexamethasone daily are occasionally prescribed on the advice of a relevant Specialist.

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5. Principles of Use

- The dose needs to be reviewed **at least** weekly and instructions documented clearly.
- Adjust dose according to individual response. A dose of 0.5mg daily may have the same effect for one patient as another taking 4mg daily.
- Consider giving dexamethasone before midday as it may disturb sleep.
- Doses over 4mg daily are likely to lead to side-effects and should be reduced as soon as possible.
- Doses less than 4mg daily are often tolerated in someone with a prognosis of months.⁴

Reducing dose^{2, 4}

- May stop dexamethasone abruptly if used:
 - at doses up to 4mg daily for less than 3 weeks
 - at doses up to 12mg daily for no longer than 5-7 days
- **If used for longer** or received repeated courses, reduce dose slowly to avoid adrenal insufficiency due to adrenal suppression.
- Reducing dose slowly also allows time at new level to assess response, especially whether there is any deterioration:
 - Dexamethasone dose above 4mg daily
 - reduce by 2mg every 5-7 days until reaching 2mg, then by 0.5mg every 5-7 days
 - check for symptoms before each dose reduction
 - Dexamethasone dose of 4mg or less
 - reduce by 0.5mg every 5-7 days
 - If rapid reduction required, may reduce dose every 3-4 days

6. Administration

6.1 Diluent

Subcutaneous bolus/IV

- For subcutaneous bolus /IV administration dexamethasone does not need to be diluted.
- It is long acting and can be given once daily as a bolus injection.²
- Avoid giving more than 2ml (8mg) as single stat subcutaneous dose.

Continuous subcutaneous infusion

- When added to a syringe driver the recommended diluent is water for injection. Sodium chloride 0.9% should be considered if there is potential for inflammation at the injection site.
- Dexamethasone should be **added last** to an already dilute combination of drugs in order to reduce the risk of precipitation. It is advisable to use a 30ml syringe for this purpose.²

6.2 Additional Equipment

- Subcutaneous Saf-T-Intima single lumen [ADM140] (*refer WDH B Policy Palliative Care- Subcutaneous Site Selection, Insertion and Monitoring of BD Saf-T-Intima Cannula*)
- Continuous subcutaneous infusion pump (Niki T34) if required

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6.3 Compatibility

Compatible with:

- Water for injection, 0.9% sodium chloride, morphine sulfate, morphine tartrate, tramadol, methadone, metoclopramide, clonazepam, fentanyl, oxycodone, hyoscine hydrobromide, hyoscine butylbromide^{2,3,4}

Concentration dependent compatibility with:

- Cyclizine, haloperidol, promethazine, levomepromazine, midazolam^{2,3,4}
 - Mixing with dexamethasone should be avoided if possible
 - If used, the solution must be carefully checked for precipitation at least once a shift

Note: If dexamethasone is to be mixed with other medications in a syringe driver, as much diluent as possible must be added before the addition of dexamethasone.³



Do not use if the solution is cloudy or a precipitate is present.

6.4 Administration Procedure

Note: Often administered as a single dose in the morning to reduce the risk of insomnia and adrenal suppression.⁴

Subcutaneous

- Should be injected through a Saf-T-Intima or directly via subcutaneous needle.
- The Saf-T-Intima should be flushed with 0.2 ml of water for injection after administration of medication.
- Can be administered via a continuous subcutaneous infusion pump (Niki T34).

Intravenous

- Inject undiluted slowly over 1-3 minutes⁶

7. Observation and Monitoring

- Patient may require monitoring of blood sugars depending on clinical scenario²
- Observe for any psychiatric disturbances²
- Monitor for oral candida
- Monitor for signs of proximal myopathy⁴
- Observe for headaches in susceptible patients when reducing the dose²
- Monitor for any signs of gastrointestinal symptoms/gastritis

8. Mechanism of Action

- Dexamethasone prevents the development of the inflammatory process by suppression of neutrophil migration, decreased production of inflammatory mediators and reversal of increased capillary permeability. **This decreases oedema and inflammation around tumour.**
- Dexamethasone's mechanism of action as an antiemetic is unknown.

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9. Contraindications and Precautions

Contraindications¹

- Known hypersensitivity to dexamethasone
- Systemic infections

Precautions^{1, 7}

- Psychotic illness
- Diabetes mellitus
- Tuberculosis
- CHF, recent MI
- Peptic ulcer and gastritis
- Hypertension
- Previous steroid myopathy
- Epilepsy and seizure disorders
- Myasthenia gravis
- Diverticulitis
- Liver failure
- Renal insufficiency
- Keratitis

10. Adverse Effects

- Fluid and electrolyte disturbances (e.g. hypokalaemia)
- Elevation of blood pressure
- Hyperglycaemia
- Oral candidiasis
- Oedema
- Glaucoma
- Increased susceptibility to infection
- Proximal myopathy
- Increased appetite
- Impaired wound healing
- Psychological disturbances – including insomnia, euphoria and depression
- Peptic ulcer with perforation
- Oesophageal ulceration
- Muscular atrophy and weakness
- Skin atrophy, bruising
- Avascular osteonecrosis
- Osteoporosis

11. Interactions

- Dexamethasone plasma levels are reduced by rifampicin, carbamazepine, phenobarbital and phenytoin. Higher doses will be necessary to treat patients receiving these antiepileptics.^{1, 2}
- Dexamethasone can increase or decrease the plasma levels of phenytoin. This is important when changing the dose of dexamethasone when a patient is at risk of seizures. Phenytoin levels should be monitored.²
- Ketoconazole, ciclosporin, ritonavir and itraconazole may increase the effects of dexamethasone^{1, 2}
- The action of anticoagulants may be reduced or less often enhanced by dexamethasone. Monitor INR closely in patients taking warfarin.^{1, 7}

12. References

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