JPP August 2021 Copy

7 days of dexamethasone

Day 1; After large-scale production of cortisone was enabled in the 1950s, more cortisol derivatives were discovered, such as [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) in 1957. Long acting & more potent, [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) has primarily glucocorticoid effects, an advantage for a minimal effect on fluid retention.

Day 2;Indications for [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) in adults & children include suppression of inflammatory & allergic conditions, cerebral oedema, croup, palliative care (anorexia, dysphagia, N&V, pain), malignant bowel obstruction, soft tissue injections. Recently found to lower COVID deaths in ventilated patients

Day 2 (cont). [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) dose range oral adult 0.5 – 10mg, usually starting high, then tapering down, although higher doses needed for some palliative care conditions. Children variable mg/kg

Day 3: [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) kinetics. Well absorbed via all routes with a high volume of distribution & moderate protein binding. Liver & renal metabolism via CYP3A4. Mainly urinary excretion. Biological half-life 35-54 hrs

Day 4: mechanism of action: increases anti-inflammatory compounds & in higher doses, lowers production of pro-inflammatory/immune agents e.g cytokines, which causes immunosuppression. Changes via glucocorticoid receptor/altered genes can take hours-days, but some non-genomic effects can be faster e.g reduced vaso-dilation & capillary permeability

Action of [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) in specific conditions is poorly understood; may reduce tumour-induced fluid by lowering permeability of tumour capillaries. Used alone, or in combination, the anti-emetic action may activate brain NTS pathways (rich in glucocorticoid receptors) &/or antagonise 5HT3A receptors

Day 5: Adverse drug events [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) (can be dose dependent): Common include insomnia, mood changes, fatigue, hypertension, nausea, skin reactions, ↑risk infection, osteoporosis, GI bleeding Uncommon incl; psychosis (lower risk compared to other CCS), eye disorders, VTE (not exhaustive)

Day 5 [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) (cont); ADEs can be more serious in elderly. See resources e.g CKS for how to minimise ADEs [cks.nice.org.uk/topics/cortico…](https://t.co/MqJnakDLA6). Careful withdrawal if more than 1mg/day for more than 3 weeks (also for other scenarios e.g taking doses in evening)

Day 6: Drug-drug-interactions [#dexamethasone](https://twitter.com/search?q=%23dexamethasone). CYP3A4 enzyme inducers e.g rifampicin reduce effects, while inhibitors e.g clarithromycin increase effects. All drugs which can cause hypokalaemia elevate arrhythmia risk. NSAIDs increase GI bleed risk; [#dexamethasone](https://twitter.com/search?q=%23dexamethasone) can also increase warfarin effects (not exhaustive)

Day 7: The mechanism for COVID-19 effects is unclear, while corticosteroid harm in severe infection remains a threat; possibly helps because the differential between covid-induced impaired immunity (less impact from CCS ↓ immunity) & benefit from anti-inflammatory actions &. help with lung regeneration is exploited by [#dexamethasone](https://twitter.com/search?q=%23dexamethasone)

CPD: in addition to the tweets, read the BNF sections on using corticosteroids, as well as the monograph on dexamethasone. There are several SPCs for dexamethasone; select which is most appropriate for your use. The example below is for 2mg tablets

<https://bnf.nice.org.uk/treatment-summary/corticosteroids-general-use.html>

https://bnf.nice.org.uk/treatment-summary/corticosteroids-inflammatory-disorders.html

<https://bnf.nice.org.uk/drug/dexamethasone.html>

<https://www.medicines.org.uk/emc/product/5411/smpc#gref>

1. Dexamethasone is a derivative of epinephrine

TRUE or FALSE

1. Dexamethasone is a medium potency corticosteroid

TRUE or FALSE

1. Which of the following does NOT benefit from dexamethasone in end-of-life care?
2. Nausea and vomiting
3. Constipation
4. Reduced appetite
5. Pain
6. Which of the following is TRUE?
7. All the actions of dexamethasone take days to begin
8. Dexamethasone has a short half-life
9. Dexamethasone is broken down in the kidney by phase 2 metabolism
10. High doses may be needed for some palliative care conditions
11. Many of the side-effects of dexamethasone are dose-related

TRUE or FALSE

1. Which of the following is NOT thought to be an anti-emetic action for dexamethasone?
2. Preventing dopamine from docking into the chemoreceptor trigger zone
3. An anti-inflammatory effect in the central nervous system
4. Opposing the emetic effect of serotonin (5HT)
5. Acting on the nucleus tractus solitarius (NTS) to interfere with vomiting pathway
6. Tendon rupture is a common side-effect for dexamethasone?

TRUE or FALSE

1. The drug-drug interaction between dexamethasone and phenytoin is because phenytoin is an inducer of liver enzymes and this will reduce the efficacy of dexamethasone

TRUE or FALSE

1. Taking dexamethasone will always mean a programme of careful withdrawal

TRUE or FALSE

1. Dexamethasone can reduce mortality in severe COVID-19 cases?

TRUE or FALSE