7 days of carbamazepine

[#carbamazepine](https://twitter.com/search?q=%23carbamazepine); was discovered mid 1950s as a tricyclic compound related to imipramine & was found to be effective for trigeminal neuralgia. Animal studies showed an anti-epileptic effect, which led to licensing in the 1960s as an anti-convulsant. Enteral formulations only.

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Day 2: [#carbamazepine](https://twitter.com/search?q=%23carbamazepine) adult indications include trigeminal neuralgia, focal primary & secondary tonic/clonic seizures (children too) & bipolar prophylaxis. Many off-label uses including acute alcohol withdrawal, diabetic neuropathy, restless legs

(cont) Elements of a narrow therapeutic index drug, requiring early plasma concentration testing & individualised response. Dose range depends on condition, e.g trigeminal neuralgia 200-400mg 3-4 times daily, but anticonvulsant dose can be higher. Gradual titration important up and down

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Day 3:Kinetics. #carbamazepine has high oral bioavailability, moderate protein binding & Vd . It crosses the placenta, warranting pregnancy test before initiation. Liver metabolism by CYP3A4 yields an active metabolite. Mean t½ 35 hrs, but this reduces over time because of auto-induction of liver enzymes, increasing breakdown. Renal excretion of inactivated drug

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Day 3 [#carbamazepine](https://twitter.com/search?q=%23carbamazepine) (cont); Tolerance to drug effects is reported for all indications. May involve kinetic, genetic, or pharmacodynamic mechanisms

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Day 4; MOA: neural modulation of ion channels & neurotransmitters confers analgesic and anti-epileptic actions. Blockade of voltage gated sodium channels is thought to hold channels in ‘inactivated’ state. Also increases GABA transmission, thus enhances neural suppression

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Day 5; Common adverse drug reactions include blood disorders, oedema, headache, blurred vision, weight increase, dizziness, vomiting. Rare/serious; agranulocytosis, aplastic anaemia, DRESS, hallucinations, dyskinesia, tinnitus. Care for elderly and anti-cholinergic effects e.g delirium, constipation (not exhaustive)

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Day 5 [#carbamazepine](https://twitter.com/search?q=%23carbamazepine)(cont); Screen for HLAB1502 as genetic susceptibility to Steven Johnson Syndrome and/or toxic epidermal necrolysis re Han Chinese, Thai, other Asian ancestry. Genetic marker HLA 3101 has risk for serious dermatological ADRs for Japanese, some European)

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Day 6:[#carbamazepine](https://twitter.com/search?q=%23carbamazepine) is enzyme-inducing leading to reduced exposure to multiple drugs including combined CP, anti-coagulants e.g warfarin,dabigatran, ritonavir (also has opposing effect on carbamazepine),methadone. Drugs which inhibit CYP3A4 can increase carbamazepine levels e.g macrolides & inducers can reduce levels e.g St John’s Wort (not exhaustive)

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Day 7: all enzyme-inducing anti-epileptic drugs are linked to low folic acid & related anaemias & neural tube defects; specialist advice is needed for conception/pregnancy re drug selection/dose adjustment. Folic acid supplementation pre-conception & during the 1st trimester of pregnancy



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Day 7 (cont);[#carbamazepine](https://twitter.com/search?q=%23carbamazepine) - some reports of abuse and combination with alcohol as can provide euphoria and a sense of detachment & reduce drug cravings

CPD

in addition to the tweets, read the BNF section 4.2 on Epilepsy and other seizure disorders, as well as section 6.2 ‘Neuropathic pain’ and the monograph on carbamazepine. Another useful source is the Summary of Product Characteristics for carbamazepine (Tegretol) – see links below

https://bnf.nice.org.uk/treatment-summary/epilepsy.html

https://bnf.nice.org.uk/drug/carbamazepine.html

https://www.medicines.org.uk/emc/product/1040/smpc#gref

CPD questions (most but not all answers will be in the tweets). There is only one correct answer per question

1. Chemically, carbamazepine is related to tricyclic antidepressants

TRUE or FALSE

1. Carbamazepine is not licensed for use in children for epilepsy

TRUE or FALSE

1. For most uses, carbamazepine is started low and titrated up carefully

TRUE or FALSE T

1. Which of the following is TRUE?
2. Most of the carbamazepine drug is excreted whole, meaning it is vital that regular renal function tests are conducted
3. Some therapeutic drug monitoring is needed initially
4. There is poor bioavailability from the oral route
5. The main indication for use is bipolar prophylaxis
6. Carbamazepine is thought to act by blockade of sodium ion channels

TRUE or FALSE

1. Folic acid supplementation is recommended pre-conception and during the first trimester of pregnancy

TRUE or FALSE

1. Which of the following is FALSE?
2. All enzyme inducing anti-epileptic drugs are linked to low folic acid levels
3. The majority of carbamazepine metabolism is via CYP3A4
4. Carbamazepine has a very active metabolite
5. Carbamazepine has a short half life
6. Which of the following is TRUE?
7. Carbamazepine has anti-cholinergic effects
8. Psychiatric disorders are common with carbamazepine use
9. Trigeminal neuralgia is an unlicensed indication in adults
10. Abrupt cessation of carbamazepine for all uses is safe
11. Genetic testing pre-treatment initiation is to determine if someone is likely to experience severe mental health issues with carbamazepine

TRUE or FALSE

1. As a potent enzyme-inducer, the most typical effect of carbamazepine will be to increase the plasma concentration of other drugs taken concomitantly

TRUE or FALSE