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Part one

Q1 (a), (b), and (f). Enzyme inducing anti-epileptic drugs such as carbamazepine, phenytoin and topiramate increase the activity of hepatic cytochrome enzyme P450, which increases the metabolism of oestrogen and progesterone. This reduces the hormone blood levels and can cause contraceptive failure when the woman is using oral contraception and progesterone implants. If you don't want to change her medication when she starts hormonal contraception then you can improve the success rate by increasing the oestrogen dose (to 50 or 70 micrograms), by advising her to 'tri-cycle' her pills (making the pill taking into a three months cycle without a break), or to shorten the monthly break to four days.

Part two

Q2 (c), (e). Non-enzyme inducers are the drug of choice as they do not affect blood levels of oestrogen or progesterone. They include clobazam, levetiracetam, lamotrigine and sodium valproate. Even so, (e) is a wise choice too. Enzyme inducers will also reduce the efficacy of depot hormone injections and hormone-releasing intrauterine devices, so they may also fail if used with an enzyme-inducing oral anti-epileptic drug.

Part three

Q3 (c). There is a mass of information on foetal malformation risk from anti-epilepsy drugs used in pregnancy from registries in North America, the UK, Norway and Sweden, which have shown that sodium valproate carries a foetal malformation rate of between 4.7% and 10%, with topiramate (4.2% to 7.7%), phenobarbital (5.5% to 7.4%), and phenytoin (2.9% to 6.7%) not far behind. Women taking valproate should be advised to change to a less threatening drug before wishing to conceive, preferably under the watchful eye of a neurologist.

Part four

Q4 (a), (b), (c), (e), and (f). Apart from (d) (see answer to Q3), all the other answers are options. Any change in her anti-epilepsy medication should be undertaken with great care and supervised by a neurologist, as any return of her convulsions will set her back years in her drug management and in her ability to operate machinery or drive a car. That matters greatly for a nurse. Lamotrigine (2.0% to 3.4%) and levetiracetam (0% to 2.4%) and oxcarbazepine (1.8% to 3.3%) were the drugs least reported as causing foetal malformations when prescribed during pregnancy.

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