from the
DRUG DESK
A Drug Information Update from the B.C. Drug and Poison Information Centre

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Phenytoin shortage August 2011 – alternate therapy for epilepsy

It has been more than 2 months since the shortage of phenytoin extended-release capsules was announced. The shortage continues, and now the supply of phenytoin chewable tablets and suspension that patients have used instead is becoming depleted. If phenytoin becomes unavailable, what drug therapy could be used instead?

SWITCHING FROM PHENYTOIN EXTENDED-RELEASE CAPSULES TO CHEWABLE TABLETS OR SUSPENSION [1]

Key issues are: (1) the chewable tablets and suspension provide slightly more phenytoin on a milligram per milligram basis since they are phenytoin free acid, while the extended-release capsules are phenytoin sodium (92% free acid); (2) due to the saturable elimination kinetics of phenytoin, small increases in dose may result in large increases in serum concentration with potential for toxicity; and (3) the chewable tablets and suspension may not be suitable for once-daily administration in all patients.

When switching patients from the capsules to the chewable tablets or suspension, the Metro Toronto Hospitals Drug Information Service (MetroDIS) recommends adjusting the phenytoin dose based on steady-state serum levels or clinical signs of toxicity, rather than empirically adjusting the dose based on the 8% difference in phenytoin free acid content between dosage forms.[1] Serum drug level monitoring and dosage adjustments may also be needed when switching back to the capsules once the shortage is resolved.

ALTERNATE THERAPY - GENERAL PRINCIPLES[2,3]

Antiepileptic drug selection is mainly based on the type of epilepsy the patient has. Other considerations include side effects, drug interactions, ease of use (dosing and monitoring), prescriber's familiarity, and costs or drug benefit coverage.

Phenytoin is primarily used for partial or focal epilepsy (P), with or without secondary generalization, and for generalized tonic-clonic epilepsy (TC). There are alternative agents for these forms of epilepsy, e.g. carbamazepine (P, TC), lamotrigine (P, TC), levetiracetam (P), oxcarbazepine (P in children, TC in adults), phenobarbital (TC), topiramate (TC), and valproic acid (TC; P second-line). The Canadian Pharmacists Association's *e-Therapeutics* and *Therapeutic Choices* have a good section on seizures and epilepsy to get you started, and the International League Against Epilepsy (ILAE) has detailed recommendations available on their website (http://www.ilae-epilepsy.org/Visitors/Centre/AEDGuidelines.cfm) – check out the PowerPoint slides for the summary.

PATIENT-SPECIFICS

If phenytoin is discontinued and a new agent is started, how and when to cross-taper, dosage adjustment, and therapeutic drug monitoring must be decided on a case-by-case basis.

References available upon request