Standardising the prescribing, dispensing and labelling of etoposide phosphate to avoid dosing errors

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Background

Our pharmacy service dispenses and orders cancer treatment prescriptions for client hospital pharmacies. A challenge has been the interpretation of intended etoposide phosphate doses due to non-standardised prescribing and ordering practices.

Etoposide phosphate (Etopophos™) is the water-soluble salt form of etoposide. Both drug formulations are commercially available and may be used in the treatment of lung cancer, ovarian cancer, sarcoma, bladder cancer, testicular cancer, leukaemia, Hodgkin's and non-Hodgkin's lymphoma. Etoposide phosphate 1.136mg is equivalent to 1mg of the etoposide base. While both etoposide phosphate and etoposide (base) are used in the oncology setting, there are advantages in using the phosphate salt.

Advantages of etoposide phosphate:

- Can be supplied in a much lower volume than etoposide
- Can be administered via a faster infusion time (depending on protocol)
- Has less risk of drug precipitation following compounding
- Has a reduced risk of hypersensitivity reactions

Since 2010 it has been recommended that the etoposide phosphate formulation is prescribed and labelled as the equivalent etoposide base to minimise risk of dosage errors, that is, as: etoposide (as phosphate) x mg. Where x is the number of milligrams of etoposide base.

This recommendation is included in the Clinical Oncology Society of Australia's Cancer Guidelines Wiki.

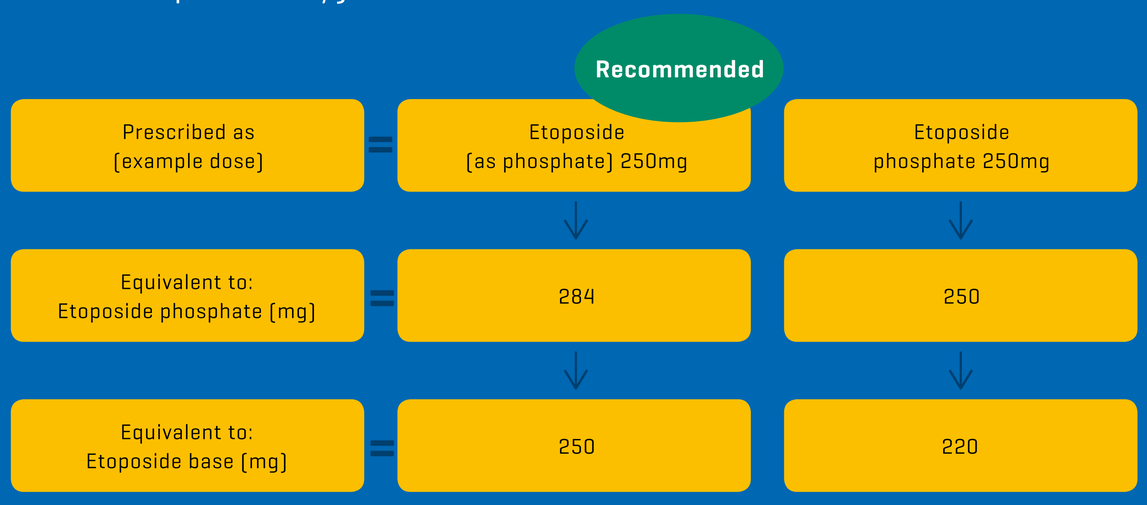
Aim

Promote an understanding of etoposide phosphate calculations in order to ensure the prescriber's intended dose is provided to the patient.

Promote Australian consensus-based recommendations for the safe prescribing and labelling of etoposide phosphate preparations.

Method

A flow chart was developed highlighting the difference in the actual associated etoposide doses that would be compounded based on how prescribed (Figure 1). This flow chart was then used in small group informal training sessions with oncology pharmacists from 36 oncology clinics across NSW and ACT. Current practices at these sites were then compared with consensus based recommendations and the site practices (when prescribed by the doctor and ordered by the client pharmacy).



Results

Of the 36 clinics that were visited

- 14% decided not to use the phosphate formulation to avoid confusion
- 56% were already ordering the phosphate as the base dose as per recommendations
- 17% (one entire local health district) considered changing their practices to move from ordering as the phosphate to the base but the resulting clinic confusion led to a reversal of this decision
- 13% remain ordering as 'etoposide phosphate'

The training sessions highlighted pharmacist confusion over the different etoposide formulations when prescribing, ordering and dispensing. After visiting one clinic, an error was detected in an order placed for the following day, due to clinic using non-recommended nomenclature.

Conclusion

There are still inconsistencies in the prescribing and ordering of the etoposide phosphate formulation by some NSW and ACT clinics. With directed training, these practices were improved. This demonstrates that ongoing education is still required to ensure a standardised and safe approach to etoposide prescribing, dispensing and labelling.

Carrington C. Study to support the standardization of the prescribing, dispensing and labelling of etoposide formulations in Australia. Asia Pac J Clin Oncol 2010; 6 (3): 173–86.

Ganessan Kichenadasse, Gail Rowan, Cancer Therapy Medication Safety Working Group. Which cancer medications are more prone to errors? [https://wiki.cancer.org.au/australiawiki/index.php?oldid=167162, cited 2018 Oct 30]. Available from: Cancer Therapy Medication Safety Working Group. COSA guidelines for the safe prescribing, dispensing and administration of systemic cancer therapy. Sydney: Cancer Council Australia. Available from: https://wiki.cancer.org.au/australia/COSA:Cancer_chemotherapy_medication_safety_guidelines.