Background The lack of quality control of cytotoxic preparations can reduce the security of the chemotherapy circuit. In fact, an overdose may result in serious side effects at the expense of treatment efficiency. On the other hand, a sub-dosage can compromise treatment efficiency and potential recovery, especially in children.

Purpose The aim of this pilot trial is to develop and to validate an analytical method to control the concentrations of etoposide preparations in hospital.

Material and methods It is a fast, simple qualitative and quantitative analysis, using UV spectroscopy.

Appropriate aliquot portions of etoposide solution (20 mg/ml) were diluted in NaCl 0.9% to obtain a calibration range covering all paediatric therapeutic concentrations. Solutions were scanned in UV-visible for identification.

Absorances of solutions were measured at 283 nm and a calibration curve was constructed.

For samples, we prepared 10 etoposide preparations. One mL was withdrawn from each bag and diluted with NaCl 0.9%.

Absorances of samples were measured in 283 nm and amounts of etoposide were determined by referring to the calibration curve. The validation of the method was carried out according to guideline ICH Q2.

Results Etoposide was identified qualitatively by comparing absorption spectra of the samples to reference spectra. The same spectra were observed with a wavelength of maximum absorption (283 nm).

For quantitative analysis, the proposed method has successfully estimated the amount of etoposide. Linear regression of absorbance gave equation y=0.0085x-0.0022 with R²=0.9992. Relative standard deviation was 0.56, indicating that the method was precise. Results also showed good accuracy.

Our method is easier and more accurate than any other methods published in the literature, such as gravimetric and balance control.

Conclusion This trial is the first in our hospital centre and in our country. The method was validated and the concentrations of all samples were exact, and it can be used for routine quality control analysis of etoposide. This trial allows us, in the future, to implement analytical control for all cytotoxic measured by UV-visible.

REFERENCE AND/OR ACKNOWLEDGEMENTS

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No conflict of interest.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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