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Dried blood spot sampling in combination with LC-MS/MS for clinical pharmacokinetic study and therapeutic drug monitoring

Plasma has been the mainstay matrix for measurement of systemic concentration of compounds used in the assessment and evaluation of pharmacokinetics and therapeutic drug monitoring. As an alternative, dried blood spot (DBS) is an innovative bio-sampling method in which a blood sample is collected on wet filter paper and then was dried 2-3 hours at room temperature or under the flow of nitrogen gas with controlled humidity. Biosampling techniques using dried blood spot samples method have advantages such as; minimum invasive because of using a sterile lancet needles in the fingers, toes or heel, only requires small sample volume, cost-effective of storage and distribution, the analytes are stable thus reduces the risk of infection. Dried blood sample method can help the application of pharmacokinetics and toxicokinetics test, drug monitoring, disease screening, and doping test. It has been applied in the pharmaceutical industry, hospitals and research centers, especially for samples with small volume and difficulty in collecting, storage, process and transportation. On the other hand the use of whole blood as a sample taken from the periphery with small volume can cause very low level of analyte to be analyzed and the hematocrit would greatly interfere the quantitative analysis of the drug molecule. The use of liquid chromatography with tandem mass spectrometry (LC-MS / MS) combined with optimum extraction procedures can be a competitive solution to sensitively analyzing small drug molecule from dried blood samples method for pharmacokinetics study and therapeutic drug monitoring.

Biography

Yahdiana Harahap has completed her PhD from Department of Pharmacy, Institute Technology Bandung, Indonesia. Currently, she is the Head of Bioavailability and Bioequivalence laboratory Faculty of Pharmacy, Universitas Indonesia. Prior to this position, she was the Dean of Faculty of Pharmacy, Universitas Indonesia. She has published 50 papers published in both international and national journals. She has been invited to be the speakers in many international conference, especially in the field of BA/BE and Bioanalytical technique. She currently serves as an expert at Indonesia National Agency of Drug and Food Control, specifically in BA/BE evaluation.

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