

## **Management of therapy in a pediatric setting: from clinical to basic pharmacology**

Knowledge of drugs safety collected during the pre-marketing phase is inevitably limited because the randomized clinical trials are rarely designed to evaluate the safety profile of drugs (Hammad et al, 2011). The small and selective groups of enrolled individuals and the limited duration of trials may hamper the ability to characterise fully the safety profiles of drugs. Additionally, information about rare adverse drug reactions (ADRs) in special groups or drug-drug interactions (DDIs) is often incomplete or not available for the most part of drugs commonly used in the daily clinical practice (Pitrou et al, 2009). Hence, post-marketing pharmacoepidemiological studies are required, in which cohorts of patients exposed to the treatment in question are monitored sufficiently long to determine the precise risk-benefit ratio.

Spontaneous reporting systems for ADRs have been the basis of the assessment of the safety profile of drugs in real-world practice for the last four decades. In recent years, however, there has been a call for improved drug safety surveillance as a result of several high-impact safety issues (Bouvy et al., 2015).

The aim of this contribution is to discuss a model of a multidisciplinary approach to strengthen post-marketing drug safety in paediatric patients. The strategies include the basic pharmacovigilance activities, the analysis of ADRs reports from the international pharmacovigilance databases to explore the signal (focusing on disproportional analysis and clinical-pharmacological assessment of unexpected ADR and DDIs), the data mining of administrative databases to strengthen post-marketing drug safety, the performing of systematic review/meta-analysis and the performing of retrospective/prospective studies for signal exploration in clinical practice.

Hammad et al. (2011). Clin Trials. 8,559-70.

Pitrou et al. (2009). Arch Intern Med.169, 1756–61.

Bouvy et al. (2015). Drug Saf. 38,437–453.