

A SIX-YEARS ACTIVE PHARMACOVIGILANCE STUDY OF ADVERSE DRUG REACTIONS CAUSING CHILDREN ADMISSION TO THE EMERGENCY DEPARTMENT IN SOUTHERN ITALY

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Introduction: Post-marketing surveillance in children is a useful source to monitor the safety of pediatric drugs. The pediatric population is one of the most vulnerable groups to adverse drug reactions. We reported adverse drug reactions (ADRs) that led children to the Pediatric Emergency Department (ED) of "Azienda Ospedaliera Universitaria G. Martino" of Messina, for six years. This report represents a part of a multicentre study on drug safety in children coordinated by the National Institute of Health in Italy.

Materials and methods: In this retrospective observational study, we selected and then analysed all the suspected adverse reactions to drugs and vaccines collected from 2012 to 2018. We included in the study only adverse drug reactions (ADRs) with a probable or possible causality assessment, according to the Naranjo Algorithm and the World Health Organization criteria and a preventability assessment using Schumock and Thornton criteria. The Medical Dictionary for Regulatory Activities (MedDRA) was used to group ADRs.

Results: Over the study period, there were 75,935 admissions to the Paediatric ED, and 9,020 resulted in hospitalization. Among the total accesses, 120 were due to suspected ADRs and of them 91 required hospitalization. The rate of hospital admission due to ADRs 75.8% (91/120) was significantly greater than the ratio of patients without ADRs 11.9% (9,020/75,815) $p < 0.001$. Among pediatric patients with ADRs the median (Q1-Q3) age was 29.5(12-73.25) months. The majority of ADRs was observed in infants and children (43.3% and 41.7%, respectively) and no gender predominance was observed. Most adverse reactions were serious 75.8% (n=91), however, the majority of them (92.5%) resulted without sequelae. Most of the reactions had a probable (54.2%) or possible (45.8%) causality score. Vaccines (n=63), antibacterials (n=31) and anti-inflammatory (n=14) were the most frequently drugs involved. According to MedDRA, the most frequently reported ADRs were: cutaneous disorders (65cases), general disorders and administration site conditions (49cases), neurological disorders (37cases) and gastrointestinal disorders (25cases).

Discussion and conclusions: The active pharmacovigilance has an essential role in supporting the development of strategies aimed at intervention to reduce admissions due to ADRs. Moreover the systemic collection of information concerning drugs most frequently associated with the onset of ADR is of paramount importance in children that are the minority of the entire population included in clinical studies. Our data suggest that ADRs represent the first cause of hospitalization to the Pediatric Emergency Department. Furthermore, according to the literature, vaccines and antibiotics represent, the most frequent cause of adverse drug reactions in children. Our reports may be underestimated due to the difficult to achieve patients charts and to the lack of information of these data.