IATROGENIC INTRAVENOUS ADMINISTRATION ERRORS REPORTED TO THE PIC ERFURT

Deters M, Prasa D, Hentschel H
Poisons Information Centre Erfurt, Nordhäuser Straße 74, D-99089 Erfurt, Germany

We investigated the incidence of iatrogenic intravenous administration errors of drugs reported to the Poisons Information Centre Erfurt to get further information for effective prevention.

Medication Errors

Intravenous administration errors from 1997 to 2006

128 cases of intravenous administration errors of drugs were advised by the PIC. Intravenous administration errors increased from 7 in 1997 to 18 in 2005. In 2006 27 inquiries were received until the end of October (Fig. 1).

Patients

Patients affected were 31% children (75% of them babies and toddlers) and 69% adults. Among adults 32% were in the mean age group (18 to 65 years old); 19% were seniors, but in 49% the age remained unknown (Fig. 2).

Drugs involved in medication errors

Most frequent drug classes (ATC classification) involved were antipsychotics (10%), antihistamines for systemic use (7.8%), antimetabolites, direct acting antivirals as well as other systemic drugs for obstructive airway diseases (5.4% for each class), other analgesics and antipyretics (4.7%), antisepsics and disinfectants and local anaesthetics (both 3.8%), macrolides, lincosamides and streptogramines, antithrombotic agents, antiepileptics, and adrenergics for systemic use (3% for each class).

Type of medication error

The main types of errors were overdosage (53.1%) and wrong route of application (29.7%). Other medication errors were mixing up the medication of patients (7.2%), preparation errors (6.3%), and paravenous injection (3.9%) (Fig. 3).

Estimated risk of toxicity

Estimated risk: 14.1% no risk, 71.8% risk of toxicity (12.5% severe), 14.1% unpredictable risk. Medical treatment was recommended in 82%. Courses: asymptomatic (5.4%), symptomatic (10.9%) with minor (9 cases), moderate (1 case), and severe features (4 cases) but complete recovery. (Fig. 4). In one case sudden cardiac arrest was reported followed by hypoxia-induced brain damage despite of resuscitation. In another patient the erroneous intravenous application resulted in sudden cardiac arrest and death despite of immediate resuscitation. Unfortunately, the follow-up was impossible in most cases (82%) (Fig. 4).

Conclusion

One per mill of all calls received concerned iatrogenic intravenous administration errors of drugs. At least 4% of these administration errors resulted in severe symptoms. Overdosage and wrong route of application as the most frequent errors may be avoidable by training of the medical staff and clear distinguishable packing of preparations with different potencies or different application forms.