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Summary

Identification of markers involved in drug disposition is crucial for drugs with a narrow therapeutic index. Individual genomic differences can affect the pharmacology of some drugs and participate to inter-individual variability in drug response. Pharmacogenetics is a useful tool in clinical practice for dosage adjustment and to limit drug toxicities. In pediatrics, physiological changes can also influence the disposition of drugs in infants, children and adolescents. The importance of ontogeny translates into different responses to the same drug in children and adults. Thus, interactions between the maturation of metabolism enzymes or transporters and genetics have a major impact on drug exposure leading to age-specific dosage requirements. This review aims to describe implementation of pharmacogenetics in personalized medicine and specifies pediatric characteristics with ethical considerations.

KEYWORDS
Genetics; Pediatrics; Pharmacology

Abbreviations
6-MP: 6-mercaptopurine
6-MMPN: 6- methylmercaptopurine nucleotides
6-TGN: 6-thioguanine
CPIC®: Clinical pharmacogenetics implementation consortium
CYP2D6: CYP450 family 2 subfamily D type 6