CYTOCHROME P450 2C19 (CYP2C19*2)

PATHOGENESIS	
	During the first phase (phase I) of drug metabolism, cytochromes P-450 increase the hydrophilic characteristics of the drugs. The phase I process can lead, depending on the type of drug, to both a pharmacologically active (e.g. phenytoin) and an inactive (e.g. omeprazol) metabolite. Cytochrome 2C19, one of the members of the P-450 family of cytochromes, may have polymorphisms that make it less active against drugs, giving rise to inter-individual differences in response to their action. In the case of so-called "poor metabolizer" (PM) individuals, the hydroxylation reaction occurs more slowly than in normal individuals, leading to a toxic accumulation of the drug, or slowing down the beneficial effects of those drugs that need to be activated to act. Cytochrome 2C19 metabolizes several types of drugs, the most important of which are some benzodiazepines, omeprazol (anti-acidity) and phenytoin (anti-epileptic). There are several polymorphisms that decrease the activity of this cytochrome making the individual PM, but the most important is 2C19 * 2 (represented by 4.25% of the general population). The knowledge of these polymorphisms is useful in the choice of the drug or in the dosage of the same, to obtain the best therapeutic effect avoiding unpleasant side effects.
EPIDEMIOLOGY	
	In Caucasian populations 5% of the population is PM; in particular, 85% of PMs are homozygous for the CYP2C19 * 2 polymorphism, the remaining 15% is divided between the other different mutations present on the CYP2C19 gene (from 3 to 8).
ACTIVE PRINCIPLE	
	The major metabolite of clobazam (active ingredient of Urbanyl®) is metabolised by CYP2C19. Some studies have shown that the presence of only one mutated allele increases the ratio between N-desmethylclobazam (main metabolite of the drug) and clobazam in plasma (N-CLB / CLB) by 10 to 27 times compared to an individual who does not have the polymorphism. on neither alleles. The consequence of the accumulation of metabolite / active ingredient in the blood is an increase in side effects and toxicity.
TEST	
	Gene amplification by PCR and restriction analysis.
SAMPLE TAKING	
	Blood/EDTA, 5 ml.
EXECUTION	
	Daily.

Laboratorio di diagnostica molecolare

Further information or bibliographic references can be asked to the laboratory.