### **OPTIMIZATION OF DOSAGE REGIMEN**

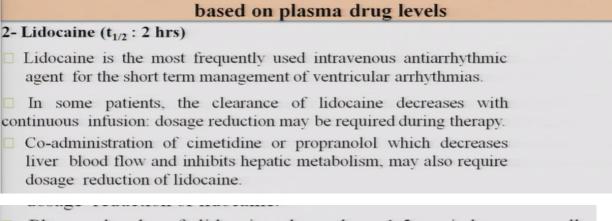
- Incorporating the patient's characteristics in the process of initiating a drug dosage regimen is an important step toward optimization of drug therapy, but it does not guarantee the success of the therapy.
- We still need to evaluate the outcome of the treatment and we still find in some cases that the therapeutic objective has not been achieved.
- Traditionally, the management of drug therapy has been accomplished by monitoring the incidence and intensity of both desired therapeutic effects and undesired adverse effects.

## Clinical experience with individualization and optimization based on plasma drug levels

#### A: ANTIARRHYTHMIC DRUGS

- 1- Quinidine  $(t_{1/2} \text{ 6-8 hrs})$ : It is useful for treatment of atrial and ventricular arrhythmia. It is usually administered orally but may be given by IM or IV.
- When usual dosages of quinidine are given to patients on enzymeinducing drugs, such as phenobarbital, phenytoin, or rifampin, low subtherapeutic blood levels of quinidine are likely to result.
- Quinidine concentrations of about 3 to 8 μg/ml are considered therapeutic when nonspecific assay methods are used.
- The frequency of gastrointestinal disturbances increases with quelevels above 5 μg/ml; cardiovascular disturbances are a conconcentrations exceeding 8 μg/ml.

### Clinical experience with individualization and optimization based on plasma drug levels



Plasma levels of lidocaine less than 1.5 μg/ml are usually ineffective. The usual therapeutic lidocaine concentration range Librario 1.5 to 4.0 μg/ml, but levels up to 8 μg/ml may be needed in Statement 1.5 to 4.0 μg/ml, but levels up to 8 μg/ml may be needed in Statement 1.5 to 4.0 μg/ml, but levels up to 8 μg/ml may be needed in Statement 1.5 to 4.0 μg/ml, but levels up to 8 μg/ml may be needed in Statement 1.5 to 4.0 μg/ml, but levels up to 8 μg/ml may be needed in Statement 1.5 to 4.0 μg/ml may be needed in Statement 1.5 μg/ml are usually 1.5 to 4.0 μg/ml μg/ml, but levels up to 8 μg/ml may be needed in Statement 1.5 μg/ml are usually 1.5 to 4.0 μg/ml may be needed in Statement 1.5 μg/ml may be needed 1.5 μg/

# Clinical experience with individualization and optimization based on plasma drug levels

### **B.ANTIBIOTICS**

### 1- Aminoglycoside Antibiotics

- The aminoglycoside antibiotics are effective in treating pneumonia, urinary tract, soft tissue, burn wound, and other systemic infections caused by gram-negative organisms.
- All aminoglycosides are ototoxic and nephrotoxic and have a relatively low therapeutic index.
- The major elimination route for the aminoglycosides is renal excretion, largely by way of glomerular filtration.
- The half-lives of gentamicin and tobramycin in patients with renal function are variable but avg about 2.5hr.