

## **THERAPEUTIC DRUG MONITORING OF GENTAMICIN IN NEWBORNS: OUR EXPERIENCE**

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Gentamicin is an aminoglycoside antibiotic with a narrow therapeutic index, frequently used in combination with  $\beta$ -lactamic in newborns with suspected diagnosis of sepsis.

In this study we have investigated if Therapeutic Drug Monitoring (TDM) may be considered a useful tool to obtain a tailored therapy with minimal risk of toxicity.

Gentamicin was administered i.m. to 68 newborns, 24 females and 44 males. The mean of gestational age (GA) was  $32 \pm 6$  weeks and birth weight (BW) was  $1800 \pm 1078$  grams. A first group of 21 subjects received 2.5 mg/kg/12h of the drug for a BW > 1000 grams and 2.5 mg/kg/24h for BW < 1000 grams. Drug concentrations were measured on two blood samples: the first was withdrawn immediately before the administration of the third dose (trough), the second was collected 60 minutes after the same dose (peak).

The first TDM showed plasma levels were in range for 36/68 subjects and out of range for 30/68, troughs being out of range more frequently than peaks; when out of range troughs were observed the interval between doses was extended, whereas in case of out of range peaks the dose was reduced.

Our data suggest that in case of such unstable patients, with a reduced renal function and extremely variable pharmacokinetic parameters, TDM is always necessary for an optimized therapy with minimal risk of oto- and nephro-toxicity.