

ORIGINAL ARTICLES

Once daily gentamicin dosing in full term neonates

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ABSTRACT

Objectives: There is no uniformity in the current recommendations of dosing regimen of gentamicin for neonates. We conducted this study to compare once-daily dosing regimen to the twice-daily dosing regimen for neonates with birth weight of ≥ 2500 g during the first 7 days of life.

Methods: Fifty full term infants with birth weight of ≥ 2500 gm admitted to the neonatal intensive care unit of King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia between November 1999 to October 2000 and received gentamicin at a dose of 2.5 mg/kg every 12 hours (control group) were compared with 50 term infants who received gentamicin at dose of 4 mg/kg every 24 hours during the period of November 2000 until October 2002 (protocol group). Trough and peak serum gentamicin levels (SDL) were measured on all infants.

Results: Peak SDL was 8.4 \pm 1.8 mg/ml in the protocol group, compared to 6.7 \pm 2 mg/ml in the control group ($p=0.001$). Ninety-eight percent ($n=49$) of the protocol group, compared to 86% ($n=43$) of the control group, had peak SDL in therapeutic range. Fifty-eight percent ($n=29$) of infants in the protocol group, compared to 24% ($n=12$) of infants in the control group, had peak SDL in higher therapeutic range of 8-12 mg/ml. Six percent ($n=3$) of the protocol infants, compared to 26% ($n=13$) of the control infants, had trough SDL >2 mg/ml. Six infants (12%) in the protocol group, versus 20 infants (40%) of the control group, required a dosing adjustment.

Conclusions: Gentamicin dose of 4 mg/kg given at 24-hour interval achieved significantly higher peak and safe trough serum concentrations in term infants, compared to the twice-daily regimen of 2.5 mg/kg. We suggest that measurement of gentamicin concentration may be not required when once-daily regimen is prescribed for 72 hours to term infants with suspected sepsis.

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