to first-line anticonvulsants. For term neonates a dosing regimen has been developed (Malingré *et al.*, 2006), but it has not been evaluated for preterm neonates. The objective of this study was to develop an optimal dosing strategy for lidocaine in preterm and term neonates on basis of a newly developed population PK model.

Methods: Simulations were performed using NONMEM 6.2. Several requirements were defined:

- 1) The dosing strategy should be safe to be implemented on a NICU;
- 2) Seizure control requires rapid adequate plasma concentrations;
- 3) Only a short duration of dosing is required, however, doses should be reduced slowly to decrease the risk of neurological withdrawal symptoms;
- 4) a target plasma concentration of 6 to 7 mg/L is preferred by the clinicians;
- 5) plasma concentrations >9 mg/L are associated with cardiac arrhythmias and should be avoided.

Results: A body weight-based infusion strategy was developed using simulations. First, a bolus injection was chosen for all weight categories for rapid achievement rapid seizure control. This was followed by a 4-hour loading infusion. Then dosing was reduced in two steps during 6 and 12 hours, respectively. (regimen not shown)

With this regimen, the median concentration achieved at the end of the 4-hour infusion was 6.3 mg/L, (IQR 1.8 mg/L). Only 3.6% of the simulated individuals had concentrations >9.0 mg/L.

This new strategy should be a safe and effective regimen for neonatal seizure control. Prospective validation is in progress.

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ACTIVITY OF CYP3A IN MOTHERS AND THEIR NEWBORNS USING 4B-HYDROXYCHOLESTEROL AS A MARKER

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Background: Pregnancy increases the activity of cytochrome P4503A (CYP3A). These enzymes

metabolize several endogenous substances, e.g. cholesterol, which is converted into 4b-hydroxycholesterol (4b-OHchol). We have suggested that 4b-OHchol can be used as a marker for CYP3A activity.

Aim: To study the activity in CYP3A in pregnant women and their infants by using 4b-OHchol as a marker.

Methods: 21 women and their 22 newborn infants (one pair of twins) were recruited at the delivery ward at Karolinska University Hospital, Huddinge. Levels of 4b-OHchol were determined in mothers and children from delivery to 72 h postpartum. 14 infants were born vaginally and 8 by elective caesarean section (CS). Follow-up after 3 months was performed in 10 mother-child pairs.

Results: Median levels of 4b-OHchol were increased in pregnant women compared to healthy adults. 3 months after delivery 4b-OHchol was still elevated in women giving birth vaginally. In contrast, women giving birth by CS had normal levels. Children born vaginally had significantly higher levels of 4b-OHchol compared to children born with elective CS, but both groups had lower levels than healthy adults. There was a significant increase in 4b-OHchol levels in both groups after 3 months.

Conclusion: Pregnancy activates the CYP3A enzymes. In newborns 4b-OHchol levels are low, but already after three months the children have CYP3A-activities comparable to that of healthy adults. Children born vaginally have higher levels of 4b-OHchol at birth, than children born with CS.

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CAN A GENTAMICIN SPECIFIC CHART REDUCE NEONATAL MEDICATION ERRORS?

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Background and aims: Since the onset of incident reporting, medication errors have been noted to be one of the most common reasons for reporting a clinical incident and antibiotics have been shown to be one of the most common drugs associated with medication error in children. This trend was also noted in the neonatology department in Craigavon Area Hospital, a busy district general