In response to “Prenatal screening of sialic acid storage disease and confirmation in cultured fibroblasts by LC-MS/MS” by van den Bosch et al.

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With great interest we have read the recent paper by Van den Bosch et al. (2011) who reported reference values of free sialic acid (FSA) in amniotic fluid supernatant (AFS). Reference values in AFS were lower (0–8.2 $\mu\text{mol/L}$) at 15–25 weeks of gestation compared to 26–38 weeks of gestation (3.2–12.0 $\mu\text{mol/L}$), indicating that FSA in AFS tends to increase with advancing gestation.

Recently, we developed a method for quantification of sialic acid (SA) in cerebrospinal fluid (CSF) (van der Ham et al. 2010) since brain specific disorders of SA metabolism are recognized nowadays. When establishing reference values, we did not take into account the impact of gestational age (GA). The study of Van den Bosch et al. (2011) suggested SA metabolism to be dependent on GA. We therefore performed a study to evaluate CSF SA values in newborn infants (both preterm and full term born infants). This knowledge is essential for the interpretation of SA concentrations in CSF in these populations.

The study included 27 CSF samples from preterm and 42 CSF samples from full term newborn infants. CSF was obtained for different clinical reasons. Prematurity was defined as a post menstrual age of less than 37 weeks at the time of CSF withdrawal. Post menstrual ages of preterm and full term

infants were between 28 and 37 weeks and between 37 and 54 weeks, respectively. SA in CSF was quantified by HPLC-MS/MS (van der Ham et al. 2010).

FSA concentrations were 72.2 ± 21.3 $\mu\text{mol/L}$ and 49.3 ± 20.6 $\mu\text{mol/L}$ in preterm and full term newborn infants, respectively ($p < 0.0005$). There was a significant negative correlation between FSA and post menstrual age ($r = -0.664$) with a 3.0 $\mu\text{mol/L}$ decrease in FSA for each week of advancing post menstrual age ($p < 0.0005$). No difference was observed between conjugated sialic acid from preterm and full term newborn infants (80.0 ± 19.1 $\mu\text{mol/L}$ versus 73.6 ± 28.0 $\mu\text{mol/L}$ ($p = 0.303$)).

In conclusion, with increasing gestational age, there was a considerable decrease in the amount of FSA in CSF. These results demonstrate that proper interpretation of metabolic investigations in preterm newborns depends on group-specific reference ranges, as concentrations of metabolites may differ significantly between full term and preterm born infants.

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