

## Letter to the Editor

Dear editor,

### Interpreting Neonatal Serum Triglyceride Levels Against Reference Intervals

The case of hypertriglyceridaemia associated with neonatal subcutaneous fat necrosis after hypothermia therapy for asphyxia was interesting.<sup>1</sup> However, it would be clearer to the reader if the authors had quoted the reference range of serum triglyceride of their laboratory, the test method and the condition of blood sampling. Then one would know how far above normal the levels were.

It is complex to interpret serum triglyceride levels, which rise above baseline postprandially. Similarly, they would be higher when lipid is infused continuously. European nutrition authorities accepted serum triglyceride level up to 2.83 mmol/L (250 mg/dL) in neonates on continuous intravenous lipid infusion.<sup>2</sup> Fasting triglyceride reference values were obtained from adults for meaningful comparison with fasting levels in patients to avoid the variations due to recent meals. This is obviously not feasible in neonates, who have to be fed every few hours. Hence pre-prandial sampling may be more practical for monitoring of neonates and following the trend. An excellent set of reference data on 'spot' triglyceride levels in infants is the CALIPER database of Toronto, which was derived mainly from well multi-ethnic (including Chinese) neonates to be discharged from maternity wards and from selected outpatients with low chance of having metabolic disorders. Values were obtained on the Abbott ARCHITECT c8000 system. For neonates 0-14 days, the normal reference interval was 0.93-2.93 mmol/L (82-259 mg/dL); for babies aged 15 days-<1 year, it was 0.60-2.92 mmol/L

(53-258 mg/dL). These intervals bracketed the middle 95% of 'normal' babies.<sup>3</sup>

It is probable that this infant was fed after one to two weeks of fasting. Comparison with the upper limits of these reference intervals may be relevant if the reported levels were mostly spot levels. The 95% confidence interval for the upper limit was 2.83-3.06 mmol/L (250-271 mg/dL) for babies 15 days - <1 year. Therefore, any spot level above ~3 mmol/L would be likely to be truly elevated.

### References

1. Cheng JYW, Lee RSY. Hypertriglyceridaemia in subcutaneous fat necrosis of the newborn. *HK J Paediatr (New Series)* 2017; 22:120-1.
2. Koletzko B, Goulet O, Hunt J, et al; Parenteral Nutrition Guidelines Working Group. Guidelines on paediatric parenteral nutrition of the European Society of Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) and the European Society for Clinical Nutrition and Metabolism (ESPEN), supported by the European Society of Paediatric Research (ESPR). *J Pediatr Gastroenterol Nutr* 2005 (Suppl 2);41:S1-S87. (Monitoring:S20-S21)[[http://espen.info/documents/A174-04PaedPNGuidel\\_Lipids.pdf](http://espen.info/documents/A174-04PaedPNGuidel_Lipids.pdf), accessed June 2017]
3. Colantonio DA, Kyriakopoulou L, Chan MK, et al. Closing the gaps in pediatric laboratory reference intervals: a CALIPER database of 40 biochemical markers in a healthy and multiethnic population of children. *Clin Chem* 2012;58:854-68.

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## Reply

Dear editor,

I would like to show our appreciation to Dr Poon's letter. His letter about normal range of triglyceride in neonates/infants is indeed educational. According to a reference provided by Dr Poon, the 95% confidence interval for the upper limit from 15 days of life to age of 1 year was 2.83-3.06 mmol/L (250-271 mg/dL). Dr Poon further pointed out that any spot level above ~3 mmol/L would be likely to be truly elevated. In our case the triglyceride level was mostly between 3.35-3.80 mmol/L with peak level of 4.20 mmol/L on day 23. This was in agreement with Dr Poon's reference concerning the definition of hypertriglyceridaemia.

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