Letter to the Editor

Dear Editor,

We were intrigued by the results of the 2013 paper by Mutlu et al which demonstrated a significant correlation between hyperbilirubinaemia and vitamin D deficiency in full-term neonates.[1] Vitamin D deficiency is a significant problem worldwide, with an estimated 12-40% of United Kingdom children found to be deficient.[2] The St Mary's Hospital, London paediatric department runs a neonatal prolonged jaundice clinic to screen for sinister causes of hyperbilirubinaemia. Whilst majority of neonates had benign unconjugated hyperbilirubinaemia, a coincidental finding of low vitamin D levels was often reported in the full blood workup. In light of this, we collected patients' data from December 2012 to December 2014 to ascertain if a trend between hyperbilirubinaemia and vitamin D deficiency was found in our London population, similar to that found by Mutlu.

A retrospective analysis of 229 neonates showed no correlation between vitamin D and bilirubin levels (Figure 1, correlation coefficient -0.083). The babies presented between 14-30 days post-partum with total bilirubin levels ranging from 9 to 333 μmol/l (average=164.38± 64.01 μmol/l) whilst serum 25-OH vitamin D levels ranged from <10 ng/ml to 88.7 ng/ml (average = 20.28± 15.61 ng/ml). In addition, we split the data into those with normal or high bilirubin levels (above 200 μmol/l), and found a non-significant difference in their mean vitamin D levels (normal group = 20.89±15.59 ng/ml; high bilirubin group = 18.70±15.67 ng/ml, p=0.341) (Figure 2).

Our results seem to contradict the findings of Mutlu et al's paper; however we propose several reasons for the differences in our results. Firstly, the post-natal age of the study population differed. In our study, we collected blood results from full-term neonates (>14 days) who had prolonged jaundice, however the former study took measurements from newborns between day 3 and day 10 post-partum. Secondly, as vitamin D is largely derived from the sun, seasonal variations may act as a potential confounder. Whilst Mutlu's prospective study spanned over 4 months through the winter to spring period, our study looked at data from 2 years covering all seasons. Finally, it is worth noting that the ethnically diverse multicultural population of London may contribute to the differing results.

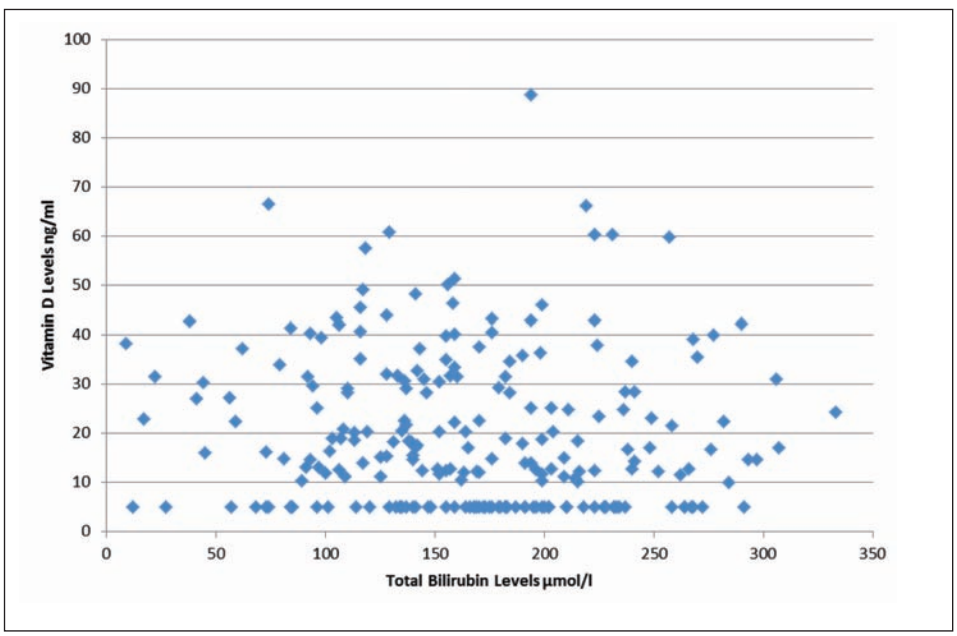

Figure 1 Scatter-plot graph of vitamin D against total bilirubin levels.

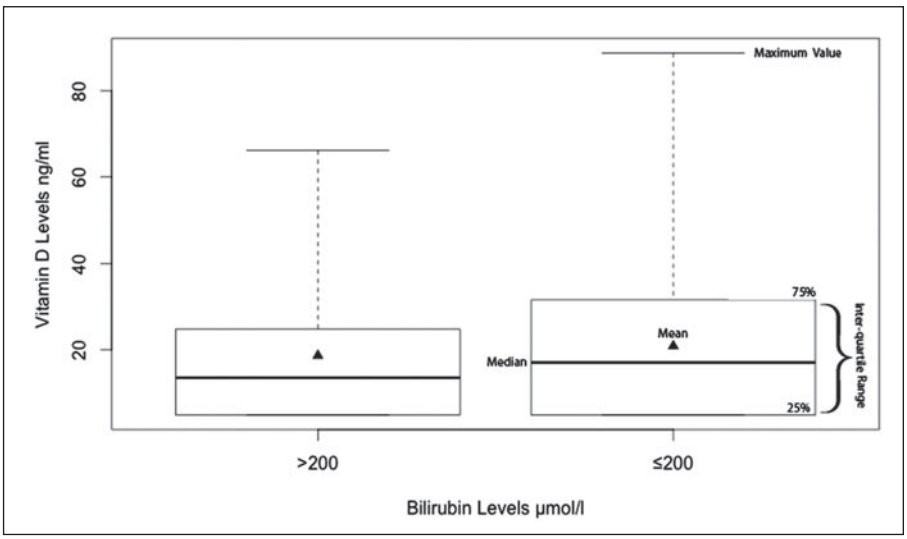

Figure 2 Vitamin D levels grouped by normobilirubinaemia vs. hyperbilirubinaemia.

Vitamin D is a prohormone that regulates blood calcium levels to promote skeletal bone growth. Low levels of vitamin D can result in hypocalcaemia and its related symptoms of non-specific muscle pain, whilst severe vitamin D deficiency could result in seizures, cardiomyopathy and the softening of bones associated with nutritional rickets.[2] In addition, a recent paper reported an increased susceptibility to early onset sepsis in neonates with lower vitamin D levels.[3] However we have shown that even in a relatively healthy group of neonates, vitamin D levels were suboptimal and this might be associated with breastfed infants who are more likely to present with prolonged hyperbilirubinaemia. Whilst serum 25-OH vitamin D is not a routine test for neonates, we hope that in light of our study and ongoing research in this field, there will be greater awareness and readiness of paediatricians to prescribe vitamin D supplements to their patients.

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No conflicts of interest declared.

References

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3. Cetinkaya M, Cekmez F, Buyukkale G, et al. Lower vitamin D levels are associated with increased risk of early-onset neonatal sepsis in term infants. J Perinatol 2015;35:39-45.

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