Vitamin K Deficiency Beyond Neonatal Period: Correspondence

Mandal A[1], Sahi PK[2]

To the Editor,

We read with much interest the article by Adhikari et al., published in the recent issue of your journal[1] but at the same time would like to make the following comments, clarification to which would benefit the general readers of JNPS.

First: The authors mention that "Infants had received 5 mg daily doses of vitamin K for minimum of 5 days or till INR was normalized". There are few evidence-based studies of how best to treat infants with Vitamin K deficiency bleeding (VKDB). The BNF (British National Formulary) for Children recommends a single intravenous dose of 250-300 µg/kg body weight[2]. The dose range of 1 to 2 mg is found to be more than sufficient to fully correct vitamin K deficiency in infants aged up to 6 months. Higher doses offer no advantage in efficacy or speed of reversal of even a severe coagulopathy due to a nutritional vitamin K deficiency[3].

Second: Three (18.7%) infants with VKDB related ICH (Intracranial hemorrhage) had received vitamin K injection at birth. This is very surprising as a recent systematic review [4] has demonstrated a 98% reduction (95% CI 90 to 100%) in the incidence of late VKDB following IM vitamin K prophylaxis. Though it is mentioned that "other" causes of ICH including liver disease were excluded in the studied children, this raises the suspicion whether secondary causes of vitamin K deficiency such as cystic fibrosis, α1-antitrypsin deficiency, etc were missed.

Reply from the authors: We thank Dr. Anirban Mandal and Dr. Puneet Kaur Sahi for giving us opportunity to give more incites regarding our paper[1].

Firstly: Earlier studies and case reports[5] have mentioned the use of higher dose of parenteral vitamin K (5 mg/day). Higher doses 5-10 mg is used in older children and adults without dose related adverse events. Most infants had responded with 1 or 2 doses of vitamin K as described in the case series. Multiple doses were only used in the children with secondary Vitamin K deficiency. We agree that recent guideline recommend single dose intravenous dose of 250-300 µg/kg body weight or 1-2 mg in infants to correct vitamin K deficiency[3].

Second: Possibility of secondary causes of vitamin K deficiency with chronic diarrhea such as cystic fibrosis, α1-antitrypsin deficiency, etc couldn't be rule out. Besides the use of antibiotic use in preceding week and maternal vitamin K status was also not known. Retrospective

[1]Dr. Anirban Mandal Department of Paediatrics, Sitaram Bhartia Institute of Science and Research, New Delhi, India. [2]Dr. Puneet Kaur Sahi, Department of Paediatrics, Kalawati Saran Children's Hospital, New Delhi, India.

Address for correspondence
Dr. Anirban Mandal
E-mail: anirban.nrs@gmail.com

How to cite
Mandal A, Sahi PK. Vitamin K Deficiency Beyond Neonatal Period: Correspondence. J Nepal Paediatr Soc 2017;37(3):300-301.

doi: http://dx.doi.org/10.3126/jnps.v37i3.18340

study with small sample size could have contributed for the higher (18.7%) report of VKDB related ICH in the case series. There are studies indicating reports of ICH in infants who have received vitamin K[6]. Large multicenter randomized controlled trial about vitamin K status in infants and VKDB is necessary in future.

References

1. Adhikari S, Gauchan E, Malla T, Sathian B, Rao KS. Intracranial Hemorrhage Caused by Vitamin K Deficiency Beyond Neonatal Period. *J Nepal Paediatr Soc* 2017;37(1):104-107. DOI: http://dx.doi.org/10.3126/jnps.v37i1.16301
2. Paediatric Formulary Committee. BNF for Children 2007. London: BMJ Publishing Group, RPS Publishing and RCPCH Publications; 2007.
3. Shearer MJ. Vitamin K deficiency bleeding (VKDB) in early infancy. *Blood Rev* 2009;23(2):49-59. DOI: 10.1016/j.blre.2008.06.001
4. Sankar MJ, Chandrasekaran A, Kumar P, Thukral A, Agarwal R, Paul VK. Vitamin K prophylaxis for prevention of vitamin K deficiency bleeding: a systematic review. *J Perinatol* 2016;36 Suppl 1:S29-35. DOI: 10.1038/jp.2016.30.
5. Grillo E, Silva RJ, Filho JH. vitamin K, intracranial hemorrhage, hemorrhagic disease of the newborn, vitamin K deficiency.*J Pediatr (Rio J)* 2000; 76(3): 233-6.
6. Unal, E., Ozsoylu, S., Bayram, A. Ozdemir MA, Yilmaz E, Canpolat M et al. Intracranial hemorrhage in infants as a serious, and preventable consequence of late form of vitamin K deficiency: a selfie picture of Turkey, strategies for tomorrow. *Childs Nerv Syst* 2014;30: 1375. DOI: doi.org/10.1007/s00381-014-2419-2.