

Vitamin K in the Newborn Period - How Important is it?

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In a recently released study in *Pediatrics*, Jaspreet Loyal and colleagues ([10.1542/peds.2017-3743](https://doi.org/10.1542/peds.2017-3743)) examine factors associated with refusal of intramuscular vitamin K by parents of normal newborns admitted to newborn nurseries in the BORN (Better Outcomes through Research for Newborns) network. About 330,000 infants are cared for annually at BORN network nurseries across 34 states which increases generalizability of the results. The authors first determined the absolute refusal rate by site, and then performed a nested case-control study to more closely examine factors associated with refusal of vitamin K. The methodology is clear and the results are well explained. Although the absolute refusal rate of 0.6% may sound low, this means that 638 infants in this cohort did not receive a potentially lifesaving treatment. There are at least two big reasons for pediatricians to consider the findings in this study.

First, failure to receive vitamin K after birth significantly increases the risk of vitamin K dependent bleeding (VKDB). VKDB has been classified as early (<24 hours of age), classical (days 1-7) and late (> 1 week and < 6 months of age). Late VKDB is usually characterized by intracranial bleeding and carries a high risk of negative neurodevelopmental impact. The risk for late VKDB is 81 times greater among infants not receiving vitamin K intramuscularly compared to those receiving this treatment.¹ Over an 8 month period in 2013, there were four confirmed cases of late VKDB (one infant with gastrointestinal hemorrhage and 3 with intracranial bleeding) identified at a children's hospital in Nashville, Tennessee.¹ Public health officials in collaboration with the CDC (Center for Disease Control) followed up and asked parents of these 4 surviving infants why they had declined vitamin K: responses included fear of leukemia and a desire to minimize exposure to perceived toxins. All of the families had "incomplete or absent knowledge" about the possibility of late VKDB at the time of their refusal. My conclusion from this information is that as pediatricians we have a unique responsibility to calmly and carefully inform parents about both the benefits of intramuscular vitamin K in the newborn period and the real risks of vitamin K refusal. This opportunity sets the stage for meaningful ongoing shared decision making that is informed by medical facts rather than internet fallacies.

Second, as Jaspreet Loyal and colleagues affirmed, there is an association between vitamin K refusal and Hepatitis B vaccination refusal, as well as a previously recognized association between vitamin K refusal and subsequent refusal of other immunizations.^{2,3} This means that vitamin K refusal can serve as a meaningful signal to the primary pediatrician that a family may be at risk for refusal of future vaccinations, i.e. for vaccine hesitancy. This gives the pediatrician an opportunity for proactive management, whether it is through written, electronic or personal communication. The AAP statement, "Countering Vaccine Hesitancy" is comprehensive and includes an extensive list of Vaccine Resources in Table 5 of that statement which are very helpful.⁴ While we cannot convince every parent to follow all medical recommendations, we definitely can shoulder the

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responsibility to try, and vitamin K administration in the newborn period is a great place to begin.

References

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