In newborn babies, what are the risks of developing Vitamin K deficiency bleeding disorders if not provided IM Vitamin K injection at birth?

Chelsea Daines-Raasch, Morgan Powell, and Kali Welling; Lori Anderson
Physician Assistant Program, Northwestern College

Abstract

For decades, it has been a standard for neonates to receive an IM Vitamin K injection at birth. This is aimed to prevent the prevalence of Vitamin K Deficiency Bleeding Disorders (VKBD), as neonates are naturally lacking in Vitamin K. In recent years, the prevalence of VKBD is continuing to grow as statistics for refusal are increasing. This study is aimed to uncover reasons for and statistics of injection refusals, alternative methods to injections, and the importance of parent education. The studies analyzed demonstrate higher rates of refusal in birth centers and home births compared to hospital births. Alternative methods studied, such as breast feeding and mother supplementation, have not been shown to be an equivalent to the IM injection; however, there is promising research regarding an oral method of Vitamin K administration.

Introduction

Vitamin K, produced in the large intestines of adults, is naturally lacking in neonates. This intrinsically puts infants at an increased risk of Vitamin K Deficiency Bleeding Disorders (VKBD) until 4-6 months of age. Vitamin K is a crucial part in the clotting cascade for activating clotting factors II, VII, IX, and X. Since 1961, it has been a standard in Western Medicine to give a Vitamin K IM injection to neonates at birth. In recent years, statistics of refusal have continued to grow, creating an increased incidence in VKDB. According to the CDC, infants who do not receive the Vitamin K injection at birth are 81% more likely to develop one of the three types of VKBD. The three types are Early (within 2-4 hours of birth), Classic (within 2-7 days), and Late (within 2 weeks to 6 months.)

Results

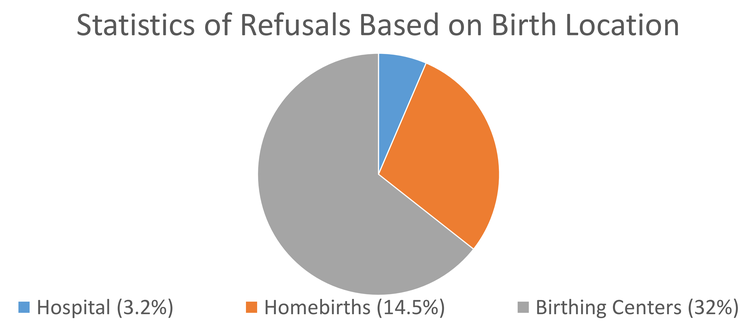
Reasons for Refusals:

1. Trauma to baby/wanting oral options
2. Injection contains unnatural preservatives
   i. 37% toxic ingredients
   ii. 28% excessive dosage
   iii. 24% adverse effects
3. Mistrust of medicine in injection
4. Lack of patient education prior to birth

83% of these parents understood the risks involved with declining the Vitamin K injection at birth.

Statistics of Refusals: Statistics of refusals of injections can be studied based on race, age, education, and birthplace location. It was found that, of the patients refusing injections, 78% were Caucasian, 57% were older than 30 years old, and 65% were college graduates.

The graph below shows where majority of injection refusals occur:



Concerns: Research shows parents who refuse the Vitamin K injection at birth are 14x more likely to refuse future vaccinations for their child. Surveys were collected in a variety of healthcare settings that demonstrated 90% refused the Hepatitis B vaccine and 77% refused Erythromycin Eye Ointment in addition to the Vitamin K Injection. If this continues, we will start to see incidences of currently rare diseases begin to increase.

Alternative Methods

One of the main reasons for injection refusals is the desire for alternative options. A 2019 study performed in the Netherlands investigated a new oral option with 150 micrograms of Vitamin K administered to the posterior oropharynx. It was found with this dose, intracranial VKBD decreased from 3.1 to 1.2/100,000 infants. However, this same dose was measured in infants with malabsorptive disorders and was found to be significantly less effective compared to the IM injection.

Another alternative method used by some is formula feeding. Formula may contain 53-66 mcg/L of Vitamin K compared to 1-9 mcg/L found in breast milk, as the main bacteria in breast milk (lactobacillus) does not synthesize Vitamin K.

Future Directions

With the increasing prevalence of Vitamin K injection refusals, it is imperative to encourage proper patient education. The CDC recommends having discussions regarding the injection and decision-making in early pregnancy. To prevent the increase in VKBD, it is crucial that providers ensure their patients know the injection exists, recommended time of administration, risks of the injection, and risk of refusing the injection.

Sources

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