

Administration of Vitamin K to Newborns

From <<http://www.gentlebirth.org/archives/vitktop.html>>

The Vitamin K Controversy

The purpose of vitamin K is to increase the clotting factors for a newborn. But is that always a good idea?

Some very recent studies in The Lancet have associated increased clotting with twice the likelihood of death from bacterial meningitis. These higher clotting factors may increase the risk from all bacterial infections. Since the purpose of administration of vitamin K is to increase clotting factors, is it possible that this is also inadvertently increasing a newborn's susceptibility to infection?

LONDON (AP) _ Children with a genetic predisposition to produce high concentrations of a blood-clotting enzyme linked to meningitis are twice as likely to die from the severe form of that disease as other children, new research says.

The findings do not indicate that genetics influence the chances of contracting meningococcal disease, but rather that those who get it are more likely to progress to deadly septic shock.

4G/5G promoter polymorphism in the plasminogen-activator-inhibitor-1 gene and outcome of meningococcal disease. Meningococcal Research Group. Hermans PW, Hibberd ML, Booy R, Daramola O, Hazelzet JA, de Groot R, Levin M Lancet 1999 Aug 14;354(9178):556-60

Variation in plasminogen-activator-inhibitor-1 gene and risk of meningococcal septic shock. Westendorp RG, Hottenga JJ, Slagboom PE Lancet 1999 Aug 14;354(9178):561-3

How do Parents Decide about Vitamin K?

If there were absolutely no risks or costs associated with vitamin K administration or the shot, nobody would argue against it.

However, an injection creates an avenue of infection for a newborn with an immature immune system in an environment that contains the most dangerous germs. In addition, the possible trauma from the injection can jeopardize the establishment of breastfeeding, which does much more to protect the baby's health than vitamin K injections have ever been alleged to do. At the very least, the injection should be delayed until after the baby has learned to nurse.

I've sometimes wondered whether there's a connection between vitamin K administration and SIDS. Some studies have shown a lower incidence of SIDS among breastfed babies, and we know that breastmilk is lower in vitamin K. Who knows? Nobody, really. Why are we messing with delicate systems we don't understand?

There is likely a very complex relationship between baby's blood volume (which is reduced by as much as 40% with immediate cutting of the umbilical cord), and the baby's vitamin K and iron levels. It may be that when a baby is allowed to receive all its blood from the placenta, the coagulation factors are more than adequate to prevent hemorrhage.

Given the study that claims that vitamin K levels are not associated with clotting factors, it might be that the best thing parents can do to prevent hemorrhage in newborns is to insist that their babies be allowed to get all their blood back from the placenta after birth. Those would seem to be the clotting factors of greatest use to the baby.

Maybe the association between traumatic birth and newborn hemorrhagic disease is really an association between traumatic birth and early cutting of the cord, which is more likely with a traumatic birth where the baby is rushed across the room for resuscitation. Maybe someday hospitals will develop the sophistication to be able to perform any needed resuscitation without cutting off the baby's oxygen and blood supply.

Until we have the definitive answers to these questions, parents have to choose between a system that's been in place for less than a hundred years and one that's been in place for thousands of years.

Further to our ongoing discussions about routine vitamin K administration to newborns - the latest Midwifery Today E-News is a special on Factor V Leiden (FVL) - a genetic condition which increases the chances of blood clots developing. Depending on the area, between 3% and 10% of Caucasian people carry the FVL gene; no stats are given for people from other ethnic groups, and it is implied that it is a Caucasian anomaly. The baby of someone carrying FVL has a 50% chance of carrying it too, and the author speculates that routine vitamin K administration could be dangerous for these babies. Interesting thought - and how many areas routinely test women for the condition? If they don't, routine vitamin K administration could be putting their babies at risk.

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Factor V Leiden
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All the following information on Factor V Leiden has been prepared by Jennifer Rosenberg, CD (DONA).

4) Pregnancy, Clotting, and Factor V Leiden: An Overview

The past 10 years have brought new understanding of and explanations why some women clot on birth control pills and during pregnancy. Research into genetic origins of disease has uncovered many coagulopathies, some of them surprisingly common. The most common is Factor V Leiden, also known as Activated Protein C Resistance, which carries a 3-10 times greater risk of clot when someone has one copy of the gene and 30-140 times greater risk of clotting for someone with two copies.

Between 3% and 10% of Caucasian people are heterozygous for Factor V Leiden, and a much smaller percentage are homozygous. In Sweden the rate of heterozygous mutation may be as high as 15% in some areas, while in other parts of the world and among other races only a fraction of a percent of the population may have it. It is thought that the original mutation occurred as much as 20,000-30,000 years ago in a single individual.(1)

Women with Factor V Leiden (FVL) have a substantially increased risk of clotting in pregnancy (and on estrogen containing birth control pills or hormone replacement) in the form of DVT (deep vein thrombosis, sometimes known as "milk leg") and pulmonary embolism. They also have an increased risk of preeclampsia, as well as miscarriage and stillbirth due to clotting in the placenta, umbilical cord, or the fetus (fetal clotting may depend on whether the baby has inherited the gene). Note that many, many of these women go through one or more pregnancies with no difficulties, while others may miscarry over and over again, and still others may develop clots within weeks of becoming pregnant.

... Remember that approximately one in twenty of the women you serve will have FVL. Approximately one in a hundred of women with FVL (estimates vary radically from a 1%

thrombosis rate (4) to a 25% thrombosis rate (my hemotologist) will have a serious DVT during pregnancy.

FVL, Vitamin K, the Fetus, the Newborn, and Children

FVL is inherited. This means that for every pregnant woman who has FVL, the child she carries has at least a 50% chance of inheriting the disease (more if the father also has it). ..

Vitamin K encourages clotting, and thus there is some concern among parents with FVL about giving their newborns the prophylactic vitamin K bolus. At the very least such treatment should NOT occur immediately after birth, when hormone levels are still up, in my opinion as a parent. And it may be advisable (though research has not been done!) to do the quick screening test for FVL (not the genetic test; this test simply checks to see how resistant clots are to activated protein C) prior to giving the infant vitamin K later. Perhaps testing cord blood for APC resistance immediately after birth and only giving negative babies vitamin K would be reasonable. Another approach would be to delay the vitamin K shot for 6-12 hours if not longer, to allow hormone levels to drop. I am aware of one family that feels their baby's death was caused by the vitamin K shot. Although the story is completely anecdotal, it echoes fears I had with my own daughter.