What is Vitamin K Deficiency Bleeding (VKDB)?

In a very small percentage of babies, the low levels of Vitamin K in the blood can result in a bleeding disorder formerly called Haemorrhagic Disease of the Newborn (HDB), but now known as Vitamin K Deficiency Bleeding (VKDB).

There are three categories of VKDB:
- Early VKDB is rare, and occurs during the first 48 hours after birth. It is caused by medications taken by mothers during pregnancy that interfere with Vitamin K metabolism. These include anticonvulsants (drugs which prevent fits or seizures), barbiturates, antitubercular drugs, etc. (1) (4) (5)
- Classic VKDB is the most common form and occurs in the first week of life in 0 to 0.44% in healthy infants. It is associated with inadequate intake of Vitamin K as a result of a delay in breastfeeding or an inadequate volume of breast milk. (1) (5)
- Late VKDB is very rare and occurs in infants between 2 and 12 weeks of age in 1:4 to 1:12 per 100,000 babies. Thirty to fifty percent of these babies will suffer permanent brain damage or death. Most of these babies have cholesterol liver disease or cystic fibrosis. (5) (6) (7)

What about Vitamin K in infant milk formula?

Infant milk formula has a high level of Vitamin K added to it, so babies who are fed infant milk formula will have higher levels of Vitamin K in their blood than breastfed babies and therefore have a smaller risk of VKDB. However, even formula-fed babies have very low levels of Vitamin K for several days following birth.

Given the many long-term health benefits of breastfeeding for both baby and mother, breastfeeding is by far the best way to feed your baby.

Why give extra Vitamin K to babies?

Because newborn babies have naturally lower levels of Vitamin K in their blood compared with adults, extra Vitamin K can be given to help prevent VKDB. If extra Vitamin K is given to newborn babies, very few will develop VKDB.

How is Vitamin K given?

The Vitamin K product available in New Zealand is called Konakion MM and can be given as drops into the baby's mouth (orally) or by injection into the baby's thigh muscle.

The effectiveness of oral administration of Vitamin K has now been established with some precision. (12)
Eating foods rich in Vitamin K or taking Vitamin K tablets can increase the levels of Vitamin K in breastmilk. (10) (11) See box. Although this may increase the amount of Vitamin K the baby receives, there is no evidence this will prevent VKDB because there are no randomised-controlled trials that adequately address the effectiveness of prophylaxis in preventing VKDB.

**FOODS RICH IN VITAMIN K**
- Green leafy vegetables – lettuce, broccoli, spinach, parsley, watercress
- Alfalfa
- Whole grain cereals
- Olive oil and fish liver oils
- Dairy products – milk, cheese
- Kelp

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If you choose to give your baby the Vitamin K orally, the Ministry of Health recommends three separate doses:
- First dose soon after birth
- Second dose between 5 and 7 days of age
- Third dose when the baby is between 4 and 6 weeks of age

The oral dose should be repeated if the baby vomits within one hour of having a dose. Your LMC can give the drops or you can give them yourself.

If you choose to give your baby Vitamin K by injection, s/he will be given a single dose soon after birth.

**Is Vitamin K safe?**

Two large studies conducted in Britain in 1990 and 1992 suggested an increase in the incidence of leukaemia and other childhood cancers in children who had received an injection of Vitamin K at birth. These studies found no increased risk of cancer in children who received oral Vitamin K. (13) (14)

Further studies that were carried out in Europe found no increase in the incidence of childhood cancers in children who had received a Vitamin K injection at birth. (15) (16) In 1998 a pooled analysis of data from six studies commissioned by the UK Department of Health also found no association between childhood cancer and children given a Vitamin K injection at birth.

Some researchers and medical specialists believe that the possibility of a link between injected Vitamin K and an increased risk of childhood leukaemia cannot be excluded. (8) (17)

As with all injections, there are also relatively rare risks associated with the injection which include infection, irritation of the injection site or nerve and muscle damage due to the fact that the Vitamin K injection must be given deeply into the muscle. (7)

**What about natural alternatives?**

Because concerns about giving Vitamin K, some parents use herbal or homeopathic treatments instead. Parents considering using alternatives are advised to consult a registered homeopath or naturopath. At present there is no evidence that any alternative health care practices are effective in preventing VKDB.

**KEY POINTS**
- A small number of babies are at risk of VKDB.
- Giving babies Vitamin K can prevent most cases of VKDB.
- There may be a slightly increased risk of childhood leukaemia with the Vitamin K injection.
- It is your choice whether or not to give Vitamin K in either form to your baby.

**Possible signs of VKDB**

If your baby has any of these signs –
- Bleeding from the umbilicus
- Blood oozing from the nose
- Unusual bruising on the skin
- Blood in the baby’s bowel motions (poos) or urine

Or any other signs of bleeding or bruising, your baby may have VKDB. The baby should be seen straight away by your lead maternity carer (LMC), family doctor or a doctor at an accident and emergency clinic. It is important to tell them whether or not your baby has had Vitamin K, and if it was given by mouth or injection.

**WHAT NZ HEALTH PROFESSIONALS RECOMMEND**

In August 2000 the Royal NZ College of General Practitioners, the Royal Australian and NZ College of Obstetricians and Gynaecologists, the NZ College of Midwives, the NZ Nurses Organisation, and the Fetus and Newborn Committee of the Paediatric Society of NZ reached an agreement that supported the use of Vitamin K for all babies to prevent VKDB.

The full statement can be found at www.medsafe.govt.nz/Pros/Particles/vtk.htm

You can get more information about Vitamin K from your lead maternity carer (LMC), your doctor or a Health or Pacific Child Service.
Vitamin K administration is a health service so the Code of Health and Disability Services Consumers' Rights applies to those providing it for your baby. Ask for a copy of the Code or contact the Office of the Health and Disability Commissioner on 0800 11 22 33; email: hdc@hdc.org.nz or visit the HDC website at www.hdc.org.nz.

References

9. “Vitamin K in Colostrum and Breast milk” Midwifery Today 1999 October;14(1)

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