

Vitamin K Deficient Bleeding (VKDB)

Self Learning Module

Southern Health – Santé Sud
L Cassan Regional Obstetrical Education Facilitator RN BN

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Vitamin K deficiency bleeding (previously known as the hemorrhagic disease of the newborn) is a serious disorder that is associated with unexpected cutaneous, gastrointestinal and intracranial bleeding of the newborn.

Vitamin K is key in the coagulation pathways that allow us to clot our blood. It is also important in the development of bones. Vitamin K cannot be synthesized by humans and therefore needs to be ingested. A newborn's immature liver also means that it cannot utilize efficiently small amounts of Vitamin K that may be available to it. A mother's milk does not carry sufficient supplies of vitamin K to compensate for the immature liver. Poor placental transfer of vitamin K from maternal to fetal in utero also contributes to low levels of stored vitamin K at birth.

Usually, within a month of birth, the newborn's liver matures and can start using the vitamin K factors in a mother's milk.

Classifications:

- 1) Early onset – is often severe and is usually within 24 hours; (often presents as a cephalohematoma, intracranial and intra-abdominal hemorrhage)
- 2) Classic – presents within the first week of life – usually as a gastrointestinal hemorrhage (early and classic have an incidence rate of disabling or fatal in 2.2/100,000 births)
- 3) Late – presents between 7 days and three months of life, usually in exclusively breastfed infants who did not receive Vitamin K at birth, or received inadequate amounts of oral Vitamin K. Often presents as a sudden CNS hemorrhage. Occurs in 4.4 – 10.5/100,000 births.

It is recommended that vitamin K be given by injection as the oral method is not as effective. Injected vitamin K prevents early and late onset VKDB. Oral vitamin K only prevents early onset VKDB.

Late onset VKDB occurs almost exclusively in breastfed infants. For this reason, exclusively breastfed infants should have Vitamin K given by injection. If unable to do so, multiple doses of oral Vitamin K are required (birth, 2-4 weeks then 6-8 weeks of age), although studies show the injected Vitamin K is still more effective. (Canadian Paediatric Society, 2013). If the parents refuse the injection, oral should be suggested as it affords some protection.

After the introduction of Vitamin K injection to neonates to prevent VKDB (1961), concern was raised re a link to childhood cancer and the Vitamin K injection. This co-relation had been proven to be false, although some parents may still believe it to be true.

Dosage:

The typical dosage is 0.5 – 1 mg IM within 1 - 6 hour(s) of birth

(Usually 0.5 mg if the birth weight is \leq 1500 gm/ 1 mg for birth weight over 1500 gm)

Signs and Symptoms of VKDB:

Bleeding/oozing from the umbilical cord

Blood in newborn's bowel movements and/ or urine (gastrointestinal bleeding)

Bleeding/oozing from a needle stick site

Bleeding from mucus membranes (nose/mouth)

Bruising (extensive)

Intracranial hemorrhage

Outcomes of VDBD can be life threatening and can result in permanent brain damage. Newborns may have to undergo brain surgery to relieve the pressure from an intracranial bleed.

Diagnosis:

Presence of unexpected bleeding/oozing

Coagulation tests

Risk Factors:

Newborn who did not receive Vitamin K injection at birth

Exclusively breastfed infants

Mother on anti-coagulation therapy

Mothers taking certain medications (some antibiotics – i.e. cephalosporins, and some anticonvulsants)

Infants with liver disease, celiac disease or cystic fibrosis

Trauma during birth (vacuum/forceps etc...)

Treatment:

Vitamin K injection

Blood transfusion

Surgery (rare) to relieve intracranial pressure from intracranial bleeding

It is imperative we educate our clients about the importance of the neonate receiving Vitamin K. Since the introduction of Vitamin K injections to the neonate, incidences of VKDB have decreased dramatically.

REFERENCES

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