

## **Neonatal varicella**

By definition, neonatal varicella develops during the first month of life and it is strictly linked to the onset of maternal chickenpox during the last 3 weeks of pregnancy or during the first week after giving birth. The infection may be acquired in utero, during birth (by exposure to VZV in the birth canal) and postnatally. In utero transmission normally takes place transplacentally (during maternal viraemia) or via the ascending route. Post-natal transmission occurs via respiratory droplets and contact routes. The incubation period for neonatal infection acquired in utero is normally 10-12 days from the onset of maternal disease, but may be shorter. Neonatal varicella also develops if the newborn baby is exposed to non-maternal chickenpox or shingles during the first week of life. The incubation period of neonatal varicella acquired postnatally (from maternal and non-maternal source) is 14 days (range 10-21 days). The incubation periods may be delayed when the infants receive post-exposure prophylaxis with VZIG.

- ① **Infants are exposed in utero** when maternal varicella develops between day 21 before giving birth and day 2 after giving birth.
  - a. Infants, born to mothers who develop varicella between day 21 and day 7 before giving birth, are not at risk, unless born at a gestational age < 28 weeks. They may develop varicella (50% acquire the infection, 25% of whom develop the disease), but this is usually a mild form of the disease, normally occurring during the first 4 days of life. Varicella is mild in these cases as infants acquire transplacentally protective levels (> 150 mIU/ml) of maternal antibodies. **PEP with VZIG is not needed**
  - b. Infants, whose mothers develop chickenpox between day 7 prior to day 2 after giving birth, are at high risk of complicated neonatal varicella. About 60% of the exposed infants acquire the infection, 50% of whom develop chickenpox. The highest risk period for complicated neonatal varicella (multiorgan involvement with DIC) is when onset of maternal varicella occurs between day 5 before and day 2 after giving birth. These infants normally develop varicella between day 5 and 12 of life. The mortality rate is 30% in the absence of treatment (birth occurs before transplacental transmission of maternal antibodies can take place). **PEP with VZIG should be promptly administered to these infants.**
- ② **Infants exposed postnatally during the 1<sup>st</sup> week of life:**
  - a. Onset of maternal varicella occurring between 3 to 7 days after giving birth. Infants' disease develops between day 13 and day 28 of life; **the administration of VZIG at birth reduces the risk of complicated varicella.**
  - b. Infants are exposed to non-maternal varicella or shingles when their mothers are VZV seronegative. Neonatal chickenpox in this group may develop between day 10 and 28 of life. **PEP with VZIG at birth is recommended.**

## **Maternal varicella**

Delivery during the viraemic period may complicate varicella in the pregnant woman (risks of bleeding, thrombocytopenia, DIC and hepatitis). IV Acyclovir treatment is warranted. Where possible, delivery should be delayed until 5 days after the onset of maternal varicella. This will also allow some transplacental transfer of maternal antibodies to the fetus. Delivery may be required to facilitate assisted ventilation in cases complicated by varicella pneumonia and respiratory failure.

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