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Zika virus congenital infection: Interim guidance for neonatologists and paediatricians

This guidance is intended for neonatologists and paediatricians in England. It has been produced by PHE and a Zika virus neonatal working group.

Introduction

Since early 2015 when Zika virus infection was first reported in Brazil, the virus has rapidly spread over most countries in South and Central America, the Caribbean and countries outside this region. An unusually high number of babies born with microcephaly was reported in Brazil six months after the rapid increase in cases of Zika virus infection, and concentrated particularly in those areas with high rates of the disease. This event was declared a Public Health Emergency of International Concern by the WHO in February 2016. Even though not yet scientifically proven, a causal relationship between Zika virus infection in pregnancy and microcephaly is strongly suspected and virological evidence is accumulating.

Two babies with microcephaly and confirmed Zika virus infection of mothers resident in countries without active transmission, but who had travelled to Brazil during their pregnancy have been reported to date.

Almost all cases of Zika virus infection are acquired via mosquito bites. A small number of cases of sexual transmission of Zika virus have been reported, so far all from men who had symptoms of Zika virus infection. In a limited number of cases, the virus has been shown to be present in semen, although it is not yet known how long this can persist. The risk of sexual transmission of Zika virus is thought to be low, but the number of reports is increasing. Therefore, if available, the travel history of the partner should also be considered in the evaluation of a case.

There is evidence that mother-to-child transmission can occur, most probably transplacentally or during delivery in a viraemic mother. Zika virus has been found in breast milk of nursing mothers but there is as yet no evidence of transmission through breastfeeding. Therefore, breastfeeding is encouraged as the benefits of breastfeeding appear to outweigh the risks of Zika virus infection.

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Paediatricians should work closely with obstetric colleagues to identify confirmed and potentially infected infants born to parents who had travelled to areas with active Zika virus transmission. Evidence of fetal infection should be sought as detailed below.

Recommendations for neonates whose mother has travelled to an area with active Zika transmission during pregnancy or within 4 weeks before conception

Confirm that there has been active Zika virus transmission in the country visited using this link http://ecdc.europa.eu/en/healthtopics/zika_virus_infection/zika-outbreak/Pages/Zika-countries-with-transmission.aspx

Establish if the mother developed a febrile illness and/or a rash during pregnancy and confirm if Zika virus testing and/or an antenatal USS have been done.

In cases where abnormalities were diagnosed prenatally, please follow the prenatally agreed plan.

Perform a clinical assessment including:

- physical examination: check for lymphadenopathy, hepatosplenomegaly, dysmorphic features, rash or other skin abnormalities, perform a complete neurological examination
- measure: head circumference, length, weight, assessment of gestational age
- if septic, follow local sepsis guidelines & consider testing for Zika virus
- ensure screening for hearing has been done before discharge

Following live birth of:

A. a normal baby, but maternal samples and/or amniotic fluid tested positive for Zika virus by PCR or maternal seroconversion was reported

Or

B. a baby with abnormalities (regardless of maternal Zika virus test results or presence or absence of maternal symptoms consistent with Zika virus infection)

In the UK, any samples for testing for Zika virus should be sent to Public Health England (PHE) Rare and Imported Pathogens Laboratory (RIPL) (https://www.gov.uk/government/collections/rare-and-imported-pathogenslaboratory-ripl). RIPL is a specialist centre for advice and diagnosis for a wide range of unusual viral and bacterial infections including Zika virus.

Investigations at birth:

- histopathological examination of the placenta and umbilical cord
- obtain placental tissue and umbilical cord blood for Zika Virus PCR

Investigations at birth or within 48 hours of birth

1. check if maternal blood and urine samples have been collected and stored previously; collect if not done (clotted (plain tube) or serum separator tube blood, and a small volume of urine without preservative)
2. collect additional maternal blood sample for comparison of IgG titres if agreed pre-delivery (clotted (plain tube) or serum separator tube blood)
3. collect neonatal blood and urine for Zika virus testing (clotted (plain tube) or serum separator tube blood, EDTA blood, and a small volume of urine without preservative)
4. collect neonatal cerebrospinal fluid for Zika virus PCR if LP done for other indications or if agreed pre-delivery
5. collect neonatal serum and store locally for testing when serological tests for Zika virus become available (clotted (plain tube) or serum separator tube blood; for up-to date information on serological testing please follow this link https://www.gov.uk/guidance/zika-virus-sample-testing-advice.)
6. in a baby with abnormalities, collect samples for testing for syphilis, toxoplasma, rubella, cytomegalovirus and herpes simplex virus infections
7. collect samples for full blood count, clotting, urea & electrolytes, liver function tests, C- reactive protein
8. perform cranial ultrasound; if microcephaly or intracranial abnormalities are present perform an MRI of the brain
9. perform ophthalmologic evaluation, including examination of the retina. If abnormal, repeat (as per ophthalmological decision)
10. refer for more targeted hearing screening as outpatient if indicated
11. consider other evaluations specific to the infant's clinical presentation
12. consider investigations for differential diagnosis of microcephaly (e.g. chromosomal, genetic, metabolic, environmental exposure to toxins, radiation)
13. consider consultation with paediatric geneticist, infectious disease specialist, neurologist, endocrinologist according to test results
14. If abnormalities are present, please complete the BPSU reporting card

Follow up of babies with abnormalities regardless of Zika test results OR normal babies who tested positive for Zika virus:

- perform hearing test at 3-6 months if initially normal, refer to audiologist for further evaluation if abnormal

- perform ophthalmology review at 6 months if initially normal, liaise with ophthalmologist about further follow-up if abnormal
- follow up at 3 months, then 3 monthly up to 12 months if clinically stable, more frequently if symptomatic (e.g. seizures)
- discuss with local neurologists on best imaging and frequency of intracranial imaging
- consider performing an EEG if clinically indicated
- arrange early referral to community paediatric team for neuro-developmental assessment and long-term support
- follow up should be continued into childhood for signs of adverse sequelae

Follow up of normal babies where neonatal samples tested negative for Zika or the mother was asymptomatic whilst travelling and for 2 weeks after return

- record and inform primary care provider of maternal history
- provide routine care
- if concerns during routine investigation (e.g. hearing test), follow up accordingly

Follow up of normal babies whose mother had a fever or rash whilst travelling or within 2 weeks of return

- review at 3 months
- if any issues become apparent, tailor follow up accordingly
- if the baby remains well, refer to primary care/health visitor with advice to refer back to secondary care early if any concerns arise
- review at 12 months by a neonatologist or paediatrician
- Further guidance will follow as more evidence becomes available

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