Clinical and neuroradiological spectrum in Neonatal Chikungunya: A tertiary centre experience

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Abstract

Background: Chikungunya viral infection has emerged as a significant arboviral disease with significant neonatal mortality and morbidity. Most of the cases in neonates are treated as sepsis like syndrome and meningitis with unnecessary antibiotic exposure and prolonged hospital stay. Some of these cases are also investigated like inborn error of metabolism, resulting in exorbitant investigation costs and improper prognostication. There is lack of sufficient literature about these cases from Karnataka state, which accounts for more than 50% of all the cases from India.

Setting: Tertiary care NICU of South India

Methods: This is a prospective observational study carried out from July 2017 to December 2017 over a period of 6 months. The diagnosis of chikungunya was confirmed by serologic testing for CHIK-IgM and detection of the viral genome by reverse transcriptase polymerase chain reaction (RT-PCR). Neonatal details including demographic and base line characteristics, clinical features, laboratory and radiological features were recorded. Results were analysed by standard statistical methods.

Results: A total of 11 neonates were included. There was no major difference in baseline and demographic factors. Most common presenting clinical feature was encephalopathy (82%) followed by classical hyperpigmentation (72%), specially over perioral area, fever (57%) and seizures (57%). Hyperpigmentation more commonly affected male babies. In nearly half of the cases the diagnosis was retrospective after appearance of classical hyperpigmentation. Maternal fever was present in nearly half of the cases. Thrombocytopenia (66%) and anemia (54%) were the most common laboratory manifestation. Diffusion restriction in subcortical area and periventricular white matter was the most common neuroradiological abnormality, noted specially in the first few weeks of illness.

Conclusion: Neonatal chikungunya is a serious infection with high incidence of neurological sequelae. A high index of suspicion of should be kept in any neonate presenting with fever, encephalopathy and delayed hyperpigmentation.

Objective

To study the clinical, neuroradiological spectrum and complications in neonatal chikungunya

Methods

This is was a prospective observational study of 11 neonates admitted to the neonatal intensive care unit between July-December 2017 with confirmed chikungunya infection.

The diagnosis was confirmed by Serologic testing for CHIK-IgM by enzyme linked immunosorbent assay (ELISA) and detection of the viral genome by reverse transcriptase polymerase chain reaction (RT-PCR).

Neonatal details that were recorded included gestational age, birth weight, mode of delivery and other base line clinical characteristics. The clinical condition of the mother prior to delivery and immediately postpartum was studied.

Laboratory tests including hemogram, liver function tests, electrolytes and any other test as clinical condition demanded were performed. The data was tabulated and analyzed by standard statistical methods.

Fig1: Facial hyperpigmentation, the pathognomonic “brownie nose” – CHIK sign

Fig 2: MRI showing diffusion restriction involving multiple subcortical areas.

Results	
Characteristic	Values
Gestational age (weeks)*	38 (37-39)
NVD@	8 (66)
Males@	7 (64)
Birth weight (grams)#	2.5 (0.55)
1500-2500@	5 (45)
2500–2999@	4 (36)
≥3000@	2 (18)
Maternal fever @	6 (54)
Maternal CHIK IGM positivity@	9 (82)
Mean (SD) #, Median (IQR) *, N(%) @	

Clinical feature	N (%)
Encephalopathy	9 (82)
Rash	8 (72)
Fever	5 (45)
Convulsions	5 (45)
Ascites	2 (18)
Knee arthritis	2 (18)
Laboratory feature	
Thrombocytopenia	7(63)
Positive CRP	5 (45)
Anemia	4 (36)
Hyperbilirubinemia	1 (9)
Raised transaminases	1 (9)
Hypoalbuminemia	1 (9)

Fig 3: MRI showing communicating hydrocephalus and bleed (sequelae)

Conclusion

Neonatal chikungunya is a serious infection with high incidence of neurological sequelae. A high index of suspicion of should be kept in any neonate presenting with fever, encephalopathy and delayed hyperpigmentation.