

P0629: Infection Control Measures and Clinical Aspects of a Large Enterovirus Outbreak in a Neonatal Intensive Care Unit

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INTRODUCTION AND PURPOSE

Hospital-acquired infections caused by viruses are of considerable morbidity and sometimes mortality in critically ill neonates. During peak community virus transmission, visitors and healthcare workers may have a role in the introduction and transmission of the viruses in the neonatal intensive care unit (NICU). There are few relates in literature about the best management regarding infection control measures and clinical outcomes facing an enterovirus NICU outbreak. Here we describe our experience, in a 27-bed NICU of a private hospital in Porto Alegre, Brazil.

METHODS

On December 6th 2014, NICU staff identified a simultaneous worsening in clinical pattern of 4 newborns. With a suspicion of a outbreak the medical supervisor of the NICU with the support of the Infection Control Service promptly called for closing NICU for new hospitalizations. Following measures:

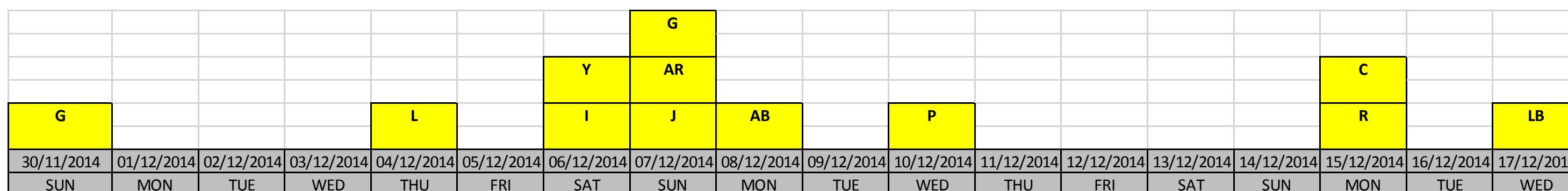
- maximum barrier precaution measures, staff cohorting, hand hygiene promotion, circulation restriction, escalation of cleaning and disinfection environment procedures and Polymerase Chain Reaction (PCR) assay for 4 different types of viruses.

After the identification of an Enterovirus, all NICU patients were (25 newborns) were tested (feces samples). All sequential symptomatic patients were also tested in blood and cerebrospinal fluid samples. Clinical follow up was made monthly after discharge for all patients (cases and free-of disease newborns) for one year.

RESULTS

The index case was a newborn admitted in NICU coming from home with fever as the main symptom in November 30th. One of his householders also had symptomatology of a viral disease. Sixteen newborns Acquired enterovirus, 12 became ill (attack rate of 60%) with one fatality in a patient with concomitant coagulase negative *Staphylococcus* blood stream infection.

Outbreak Timeline



Frequency of clinical manifestations in newborns infected with Enterovirus

Symptoms	%
Fever	100%
Apnea	50%
Saturation fall	50%
Hypoactivity	50%
Abdominal distention	50%
Tachypnea	50%
Disease	N
Myocarditis	3
Encephalitis	4
Enterovirus RNA	N
Plasma	16
Cerebrospinal fluid	8

	Minimun	Maximum	Median
Gestational age	25 weeks	38 weeks	31 weeks
Birth weight	530 grams	3790 grams	1128,5 grams
Incubation period	4 days	17 days	7 days
Length of stay	19 days	170 days	62,5 days

Intravenous immunoglobulin was indicated for all 12 symptomatic cases. Only one case had neurologic sequelae (psychomotor retardation) after one year follow up. After 22 days with no new cases, we considered total control of the outbreak and NICU was reopened for new admissions in January 8th, 2015. The unit remained with individualized care for patients who had identified enterovirus up to the last discharge date in April 10th, 2015. Finally, we were able to identify the subtype of enterovirus: Coxsackievirus type B1

CONCLUSION

Our findings shows that enteroviruses are capable to cause serious illness in newborns and stress the importance of recognizing community peak viruses as a cause of hospital-acquired infections. Moreover, this outbreak description underline the importance of coordinate actions of NICU and infection control team to interrupt a widespread viral transmission.