

Virgen Gomez, MD¹, Rachel Bernard, MD², Ann Tran, MD², Hugo Bueno, MD³, Daniel Crespo, MD³, Shaveta Khosla, MPH^{2,4}, Alfredo Mena Lora, MD², Stockton Mayer, MD², Jesus Feris Iglesias, MD¹ and Maximo O. Brito, MD, MPH²

(1) Section of Infectious Diseases, Hospital Robert Reid Cabral, Dominican Republic; (2) Department of Medicine, University of Illinois at Chicago (UIC); (3) INTEC University, Dominican Republic; (4) School of Public Health, UIC

Introduction

- Chikungunya (CHIK) is an arboviral disease transmitted by the *Aedes* mosquito and characterized by fever, rash, and joint pain.¹
- The Ministry of Health of the Dominican Republic estimated more than half million cases of the disease during an outbreak in 2014.²
- There is little information on CHIK infection in healthcare facilities.
- The objective of this study was to characterize a CHIK outbreak among hospital employees at a large teaching hospital.

Methods

- This was a cross-sectional, outbreak investigation of CHIK cases among employees at Robert Reid Cabral hospital (RRCH) between March and September, 2014.
- We used WHO criteria to define probable cases of CHIK³:
 - Clinical criteria: acute onset of fever >38.5 and severe arthritis/arthralgia not explained by other medical conditions
 - Epidemiological criteria: residing in or having visited epidemic areas, having reported transmission within 15 days prior to onset of symptoms
- We extracted demographic data from epidemiological forms and hospital personnel documents, and generated descriptive statistics and bivariate analysis.

Results

- A total of 108 employees were diagnosed with probable CHIK at RRCH during March-September 2014. Median age of the cohort was 40 years (IQR 31 – 50 years). The majority of patients were female (84.3%).
- The most frequent clinical manifestations were fever (100%), arthritis/arthralgias (100%), headaches (66%), and rash (65%).

Results

Table 1. Demographic characteristics of hospital employees diagnosed with CHIK

Variables	
Age ^a (Median, IQR)	39.6 (31.1-49.8)
Gender N (%)	
Male	17 (15.7%)
Female	91 (84.3%)
Origin N (%)	
Dominican	68 (98.6%)
Other	1 (1.4%)
Missing	39
Residence N (%)	
Urban	102 (94.4%)
Rural	6 (5.6%)
Setting of Care N (%)	
Ambulatory	96 (99.0%)
Inpatient/ER	1 (1.0%)
Missing	11

^a age on the day of presentation at the hospital. For those who were missing DOB or date of presentation at the hospital, reported age was used instead.

Table 2. Presenting symptoms among infected hospital employees

First symptom*	N (%)
Fever only	16 (25%)
Any Arthritis or Arthralgia only	30 (46.9%)
Myalgias only	2 (3.1%)
Back pain only	2 (3.1%)
Headache only	7 (10.9%)
Nausea only	1 (1.6%)
Asthenia only	1 (1.6%)
>3 symptoms with fever as one of the first symptom	3 (4.7%)
>3 symptoms with arthritis (not fever) as one of the first symptoms	2 (3.1%)

*Other first symptoms reported infrequently were pruritus, weakness, chest pain and Inguinal LAD.

Results/Discussion

- The attack rates were higher for physicians in training (12.1%) and hospital cleaning personnel (9.6%) compared to nurses (3.7%), ancillary medical staff (4.5%) and administrative personnel (7.5%). Physicians in training were more likely to be infected when compared to all other hospital staff (OR=2.5, 95% CI 1.4-4.5) and the general population (OR=2.6, 95% CI 1.5-4.3).
- The main strength of this study is that it represents one of the largest outbreaks of CHIK in hospital employees.
- The main limitation of the study was the lack of serologic confirmation of clinical cases. However, during epidemics, the classic clinical presentation of this disease may be sufficient to make the diagnosis.

Conclusions

- Employees with CHIK during this outbreak were most commonly females who lived in an urban setting.
- Fever, arthralgia/arthritis, rash, and headaches were common symptoms in this outbreak.
- Arthritis or arthralgia was the most common presenting symptom, with the next most common presenting symptom being fever.
- Employees with direct patient contact, especially physicians in training, were more likely to be infected.

References

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Contact

Rachel Bernard, MD and Ann Tran, MD
University of Illinois at Chicago
rbernar2@uic.edu, antran1@uic.edu