

Correspondence

Electrocardiographic alterations in patients with chikungunya fever from Sucre, Colombia: A 42-case series



KEYWORDS

Chikungunya;
Clinical;
Cardiovascular;
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Latin America

Dear Editor

Chikungunya virus fever (CHIKV) have significantly affected countries in the Americas since 2014 [1]. In 2016 is still associated with a persistent morbidity in the region (e.g. over 17,000 cases in Colombia during January–June, 2016) [2]. In this context, not only rheumatological compromise is important [3]. Recently, some authors have suggested that cardiovascular disorders such as arrhythmias, myocarditis, pericarditis, myocardial infarction have occurred in previously healthy cases [4]. Although that, there is a lack of publications assessing it. Herein, we report a series of 42 cases of patients with CHIKV infection with suspicion of cardiovascular and electrocardiographical alterations (myocarditis) from an endemic area, Sucre, Colombia. We have previously reported main epidemiological and clinical features of uncomplicated cases of CHIKV in this area [5].

We assessed CHIKV infection (serological/virologically), clinical features and ECG findings in patients attended in Sincelejo, Sucre department, health institutions, Colombia, during September 2014–July 2015.

Of the patients included in this report (all with CHIKV and no dengue), 22 were female (52%), with a median age of 60 y-old (IQR 33.5–70.8, only 17 of them were >65 y-old, 16 were <40 y-old). All the patients presented with fever/polyarthralgia with serological (IgM ELISA) and/or

molecular confirmation (RT-PCR) of CHIKV infection (no dengue, ruled-out by RT-PCR and serology). All patients presented chest pain, palpitations and fainting. Myocarditis was suspected in all of them. ECG alterations were observed in 71.4% of them (Fig. 1), being the repolarization disturbances the most frequent (21.4%) (Table 1). Other alterations seen were: Left ventricular hypertrophy 20%, U waves 13.3% and poor R wave progression at precordial leads 10%. All of them have more than one ECG alteration (ranging from 0 to 6) (33% one, 25% two, 16.7% three and 25% four or more) (Table 1). All the patients were healthy prior to CHIKV infection (with no apparent previous chronic cardiac disease).

During September 2014–July 2015, a total of 4904 patients with CHIKV were diagnosed at Sincelejo, which means an estimation of prevalence of suspected myocarditis of 0.86%, nevertheless this is a case series. As in other series, ECG alterations were seen in patients previously healthy and young. Current series is among the first retrospective series of cases which show significant cardiovascular manifestations and would lead to a prospective systematic ECG assessment in patients with CHIKV [4]. Cardiovascular system involvement in CHIKV has the potential to cause significant morbidity and even sometimes mortality [4]. Although its limitations, as not echocardiographic assessment was done, this series, the first in the Caribbean region, adds evidence of ECG alterations in patients with confirmed CHIKV infection. Further studies would analyze echocardiographic alterations as well the persistent cardiovascular manifestations, in a prospectively way, as also other clinical signs, such as hypotensive disorders are suspected [6], especially in patients with long-standing high blood pressure when infected by CHIKV. Cardiovascular compromise has been even associated with fatal evolution in CHIKV infected patients in Colombia [6]. In a small fatal case series of CHIKV, hypotension and tachycardia was reported associated [6]. As other limitations of this preliminary report not previous ECG of the patients were available, as well long-term follow-up ECG (which will be perform in this cohort). In addition, not serum cardiac enzyme and markers were done. Nevertheless, a significant proportion of patients were young people, without apparent cardiovascular risk factors.

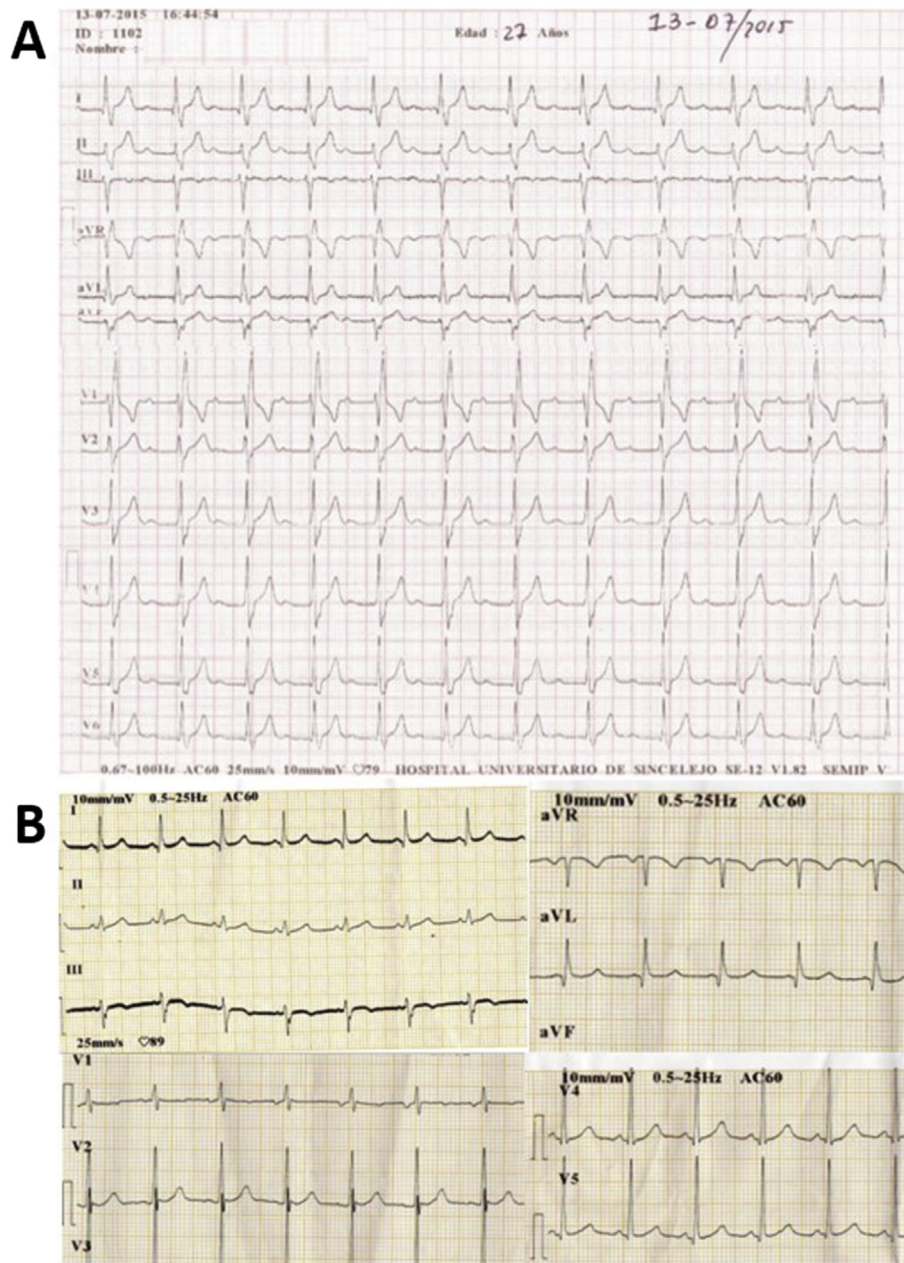


Fig. 1 ECG alterations in CHIKV infection. A. First degree AV block, with left fascicular hemiblock and right bundle branch block (27-y-old man). B. High lateral necrosis, with short PR interval and right ventricular hypertrophy (22-y-old man).

We truly believe that CHIKV would be present at myocardium, as was suggested over more than 40 years ago [7], but not yet demonstrated in tissues, which would require molecular assessment of the virus by endomyocardial biopsies in patients with ECG, echocardiographical and clinical cardiovascular alterations, which would be the goal to evidence the role of CHIKV in myocarditis and other heart alterations, finally leading to better understanding

and management of cardiovascular manifestations. Finally, cardiovascular assessments in Zika virus infection should be also considered [8], as there is no clear understanding of the whole clinical spectrum of this emerging arboviral disease, present since September 2015 in Colombia. Then, in any patient during acute phase of CHIKV infection, ECG should be performed, as would be found altered and is easy, cheap and quick.

Table 1 Main ECG alterations in CHIKV infected patients from Sucre, Colombia.

ECG alterations	n	%
Repolarization disturbances	9	21.4
1° grade AV block	8	19.0
Left anterior hemiblock	4	9.5
Left ventricular hypertrophy	4	9.5
U waves	4	9.5
Bradyarrhythmia	3	7.1
Shift in the QRS axis leftward	3	7.1
Shift in the QRS axis rightward	3	7.1
Poor R wave progression at precordial leads	3	7.1
Tachyarrhythmias	2	4.8
Posterior hemiblock	2	4.8
ST segment depression at inferior wall (ischemia)	2	4.8
Rhythm disturbances	1	2.4
Ventricular ectopic beats	1	2.4
Atrial fibrillation	1	2.4
Ectopic atrial tachycardia	1	2.4
Inferior wall acute myocardial infarction	1	2.4
Sinus tachycardia	1	2.4
Early repolarization of inferior wall	1	2.4
Other	20	47.6

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Conflict of interest

None of the authors report conflict of interests.

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