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Impaired Quality of Life One Year After Neuro-Chikungunya: A Brazilian Experience

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Abstract

Chikungunya virus (CHIKV) is a positive-strand RNA arthropod-borne virus that was first described in Africa about 65 years ago, and has now spread worldwide, mostly in underdeveloped countries. This study assessed 42 patients (34 women) with ages ranging from 30 to 78 years 12 months after the acute phase of CHIKV fever. A control group of 40 volunteers (27 women) with similar social and demographic features as the patients was used for comparison. Although the patients presented some neurologic symptoms during the acute phase of CHIKV infection, recovery was considered complete. They were evaluated using the Medical Outcome Study Short-Form 36 Health Survey (SF-36) in respect to their quality of life 12 months after the acute phase of the disease. In the comparison of the scores between groups, all domains were shown to be statistically significant showing a lower quality of life for the patients who had suffered neuro-chikungunya, although no patient had any apparent neurological sequela of CHIKV infection.

Keywords: Chikungunya; Fever; Mental health

Introduction

Chikungunya virus (CHIKV) is a positive-strand RNA arthropod-borne virus that was first described in Africa about 65 years ago, that now has spread worldwide, mostly in underdeveloped countries such as Brazil [1]. CHIKV is transmitted by the bite of an insect of the *Aedes* genus [2-5] that is found in poor countries with the ideal conditions to allow a widespread endemic of the disease [1,2]. Among the alphaviruses, CHIKV is the most important human pathogen in terms of morbidity [1,2]. The severe rheumatologic consequences of CHIKV are well known, and recently studies have shown the neurological consequences of this disease [5].

Chikungunya fever provokes general clinical signs such as headache, fever, myalgia, skin rash and a very intense arthralgia that often remains for a long period after the acute phase of the disease and negatively affects the quality of life of patients [6-9].

The chronic phase of CHIKV infection is defined by the persistence of symptoms for more than three months after the onset of the disease with a recent study showing that patients present impaired quality of life even 30 months after the acute phase of CHIKV [10].

This paper shows that patients, who presented neurologic disorders during the acute phase of CHIKV infection but who apparently had complete recovery of the symptoms, presented impaired quality of life one year after the acute phase of the disease.

Methods

This study compared the quality of life of 42 patients (34 women) with a mean age of 47 (range: 30 to 78 years) 12 months after the acute phase of CHIKV fever with a control group of 40 volunteers (27 women) with similar social and demographic features. The patients presented some neurologic symptoms during the acute phase of CHIKV infection but apparently had recovered completely. Patients with any type of apparent sequelae were excluded of the study. Chikungunya infection was diagnosed by serologic tests in all patients. The patients and controls were evaluated in a private clinic, in the city of Surubim, northeastern region of Brazilian between October 2016 and February 2017.

Quality of life was assessed by the Medical Outcome Study Short-Form 36 Health Survey (SF-36). This instrument uses scoring system that ranges from zero to 100, with 100 indicating the best health status and zero the worst. The survey uses affirmative sentences to assess eight domains that focus on the physical functioning (PF), limitations due to physical health problems (PR), bodily pain (BP), general health perceptions (GH), vitality-energy versus fatigue-(V), social functioning (SF), limitations due to emotional problems (ER) and general mental health covering psychological distress and wellbeing (MH). The patients gave their written informed consent to participate in the research and the study was approved by the Ethics Committee of the Federal University of Pernambuco.

Results

All the scores of the different domains of the SF-36 were statistically worse for the patient group compared to the controls, showing a low quality of life for patients who had suffered from neuro-chikungunya (Table 1). The worst scores of the CHIKV group were as follows. PR, with a mean score of 25 demonstrates difficulties and limitations at work and for daily physical activities due to physical impairment. The ER domain, with a mean score of 33, shows emotional difficulties derived from the negative impact of the illness on the physical health

(Figure 1). The mean score for the BP domain was 40, which reveals disabling pain, a common symptom in CHIKV-infected patients, and the V domain, with a mean score of 40, illustrates the patient's frequent feeling of physical exhaustion.

	Case group		Control group			P-Value
Domain	n	Score (Media)	n	Score (Media)	Maximum score	
Physical functioning PF	42	45	40	90	100	0.0001*
Physical role PR	42	25	40	100	100	0.0001*
Bodily Pain BP	42	40	40	75	100	0.0001*
General Health GH	42	45	40	65	100	0.0068*
Vitality: Energy/fatigue V	42	40	40	75	100	0.0001*
Social functioning SF	42	50	40	88	100	0.0001*
Emotional role ER	42	33	40	100	100	0.0001*
Mental Health, psychological distress and psychological wellbeing MH	42	44	40	76	100	0.0001*
*P-value <0.05 by the Fisher exact test						

Table 1: Impaired quality of life one year after acute phase of neuro-chikungunya.

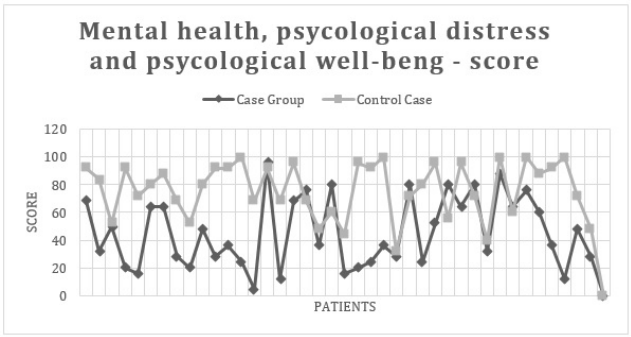

Figure 1: Impaired mental health in patients 12 months after the acute phase of neuro-chikungunya.

Discussion

The results of this research highlight the negative impact on the quality of life of patients who were infected by CHIKV, not only regarding physical limitations caused by pain and difficulties in performing daily activities, but also in respect to mental health. In this way, physical sequelae negatively affect socialization, perception of the self and general health, as well as reducing the patient's energy, with frequent tiredness and feelings of nervousness and depression.

It is well known that patients who are infected by CHIKV present physical and psychological limitations that may last years after the acute phase of the disease [5,10]. However, it has not been confirmed until now that CHIKV is neurotropic, with several studies showing that often patients have neurological and psychiatric symptoms in the acute and sometimes in the chronic phase of the disease, such as daily chronic headache and depressive and anxiety disorder, thereby substantially reducing their quality of life [1,5].

One study that compared three groups of patients: healed patients, non-healed patients and uninfected subjects showed that even after 30 months, all the domains of the SF-36 were compromised in CHIKV-positive compared to CHIKV-negative individuals, with a decreasing pattern of impairment from non-healed to healed CHIKV-positive patients to uninfected subjects [10]. The data found in the present study show that CHIKV infection can have a long-term impact on both physical and mental health. It is intriguing to note that even patients considered healed have so many physical and mental complaints.

This study has certain limitations. The small size of the patient sample limited the statistical power of the study and a proportion of eligible subjects declined to be interviewed about their quality of life.

A recent study showed that adequate clinical management in the acute phase of the disease can prevent or even avoid more serious complications [1]. Considering all the dysfunction caused by the disease, it would be ideal for all infected patients to have monthly follow-ups with a specialized team composed of a general practitioner, rheumatologist, psychiatrist, psychologist, physiotherapist and occupational therapist to identify and adjust factors related to the impaired quality of life of patients.

References

1. Martins H, Bernardino S, Ribas K, Santos C, Antunes T (2016) Outbreak of Neuro-Chikungunya in Northeastern Brazil. J Neuroinfect Dis 7: 2.
2. Martins HA, Bernardino SN, Santos CC, Ribas VR (2016) Chikungunya and Myositis: A Case Report in Brazil. J clin Diagn Res 10: 5-6.
3. Sane J, Kurkela S, Vapalahti O (2010) Chikungunya, a new global epidemic? Duodecim; Medical aikakauskirja 127: 457-463.
4. Pialoux G, Gaüzère BA, Jauréguiberry S, Strobel M (2007) Chikungunya, an epidemic arbovirosis. Lancet Infect Dis 7: 319-327.
5. Martins H, Santos C, Ribas V, Sougey E, Valença M (2016) Depression, anxiety, and hopelessness in patients with chikungunya fever in Brazil. J Neuroinfect Dis 7: 2.

6. Burt FJ, Rolph MS, Rulli NE, Mahalingam S, Heise MT (2012) Chikungunya: A re-emerging virus. The Lancet 379: 662-671.
7. Weaver SC, Winegar R, Manger ID, Forrester NL (2012) Alphaviruses: Population genetics and determinants of emergence. Antiviral res 94: 242-257.
8. Martins H, Bernardino S, Santos C, Ribas V, Valença M (2016) Neuro-chikungunya: A review. Med Res Arch 4:1-13.
9. Bhatia MS, Gautam P, Jhanjee A (2015) Psychiatric morbidity in patients with chikungunya fever: First Report from India. J Clin Diagn Res 9: 1-3.
10. Marimoutou C, Vivier E, Oliver M, Boutin JP, Simon F (2012) Morbidity and impaired quality of life 30 months after chikungunya infection: Comparative cohort of infected and uninfected French military policemen in reunion island. Medicine 91: 212-219.