

Short communication

Seven native cases of dengue in Abidjan, Ivory Coast[☆]

Sept cas de dengue autochtone à Abidjan, Côte d'Ivoire

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Received 11 December 2013; received in revised form 9 April 2014; accepted 6 August 2014

Available online 16 September 2014

Abstract

Objective. – We had for aim to describe the epidemiological, clinical, biological, and outcome features of dengue fever in Abidjan, in 2010.

Patients and methods. – We retrospectively studied the files of patients hospitalized for dengue fever in 2010, in Abidjan. The diagnosis was made on clinical symptoms and positive dengue PCR and/or IgM.

Results. – Seven patients were included (5 men, 2 women, median age of 51 years [31–65 years]). They presented with a febrile pain syndrome ($n = 7$), jaundice ($n = 3$), rash ($n = 2$), and hematemesis complicated by thrombocytopenia ($n = 6$) and leukopenia ($n = 5$). Three patients had a positive IgM serology and 4 had a positive dengue PCR for DENV-3. The outcome was favorable for 6 patients, and 1 patient died of severe hemorrhage.

Conclusion. – The authors advocate the implementation of epidemiological surveillance of dengue and vector control in the Ivory Coast.

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Keywords: Abidjan; Dengue hemorrhagic fever

Résumé

Objectif. – Décrire les aspects épidémiologiques, clinico-biologiques et évolutifs de la dengue à Abidjan en 2010.

Patients et méthodes. – Étude rétrospective des patients hospitalisés pour une dengue en 2010 à Abidjan. Le diagnostic a été retenu devant des signes cliniques évocateurs et la PCR-dengue positive et/ou présence d'IgM.

Résultats. – Sept patients ont été inclus (5 hommes, 2 femmes), âge médian : 51 ans [31–65 ans]. Ils ont présenté un syndrome algique fébrile ($n = 7$), un ictère ($n = 3$), un rash cutané ($n = 2$) et une hématomèse, accompagnés de thrombopénie ($n = 6$) et de leucopénie ($n = 5$). Trois patients présentaient une sérologie positive en IgM et 4 une PCR positive pour DENV-3. L'évolution a été favorable chez 6 patients, 1 patient est décédé d'hémorragie grave.

Conclusion. – Les auteurs préconisent l'instauration d'une surveillance épidémiologique de la dengue et la lutte antivectorielle en Côte d'Ivoire.

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Mots clés : Abidjan ; Dengue hémorragique

1. Introduction

Dengue fever, a re-emerging arbovirolosis, affects 100 million patients worldwide every year and causes 50,000 deaths [1,2]. Most studies concerning Africa focus on imported cases in Europe and in Asia, in travelers having stayed on the African continent [3–5]. The main vector of the dengue fever, *Aedes*

[☆] Communication presented at the 5th Congress of the African Society of Infectious Diseases, from November 6 to 8, 2013 in Brazzaville (Congo).

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Table 1
Socio-demographic and clinical data of patients hospitalized for dengue fever in 2010 in Abidjan.
Données sociodémographiques et cliniques des patients hospitalisés pour dengue en 2010 à Abidjan.

Variables	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7
Age	47	65	31	56	60	39	59
Sex	Male	Female	Male	Female	Male	Male	Male
Usual residence	Cocody	Marcory	Cocody	Cocody	Cocody	Yopougon	Marcory
History							
Travel to an endemic zone	No	No	No	No	No	No	No
Updated yellow-fever vaccine	Yes	No	No precise	No precise	Yes	Yes	Yes
Cause of admission	Fever	Fever	Fever	Fever	Fever	Fever	Fever
	Lumbalgia	Asthenia	Headaches	Headaches	Asthenia	Headaches	Headaches
		Pruritus		Emesis			
Others symptoms	Arthralgia	Myalgia	Arthralgia	Arthralgia	Hematuria	Arthralgia	Myalgia
			Myalgia	Myalgia	Melena	Myalgia	
Delay before hospital management	4 days	10 days	2 days	3 days	4 days	3 days	4 days
Symptoms							
Temperature	40.4 °C	38 °C	39.5 °C	39 °C	39.8 °C	39 °C	38.5 °C
Presentation	Papular rash	Jaundice, rash	–	Jaundice	Jaundice	–	–

aegypti, has been reported in the Ivory Coast for several years, whereas *Aedes albopictus* was discovered for the first time in 2010 [6,7]. The same year, cases of dengue fever were reported in Abidjan, and we had for objective to describe their epidemiological, clinical, biological, and outcome characteristic.

2. Materials and method

2.1. Study settings and design

We conducted our study in Abidjan, economic capital of the Ivory Coast, the population of which was estimated at 5 million inhabitants, in 2010. The climate is tropical with 2 rain seasons: from May to July (long season) and from October to November (short season). This retrospective study of confirmed cases of dengue fever in patients hospitalized in the Infectious and Tropical diseases unit (ITDU) of the Treichville Teaching Hospital was conducted between May 1 and October 31, 2010.

2.2. Patients

We included patients according to the following criteria:

- age ≥ 18 years, whatever the gender, having never travelled outside of Abidjan in the 6 months before hospitalization;
- clinical and biological signs suggesting dengue fever (acute algic febrile syndrome, hemorrhage, platelet count $< 150,000/\text{mm}^3$, elevation of hematocrit levels $\geq 20\%$) according to WHO criteria [8];
- confirmation of dengue fever by RT-PCR performed before the 5th day following onset of the disease [9], and/or by ELISA (homemade technique in the Dakar Pasteur Institute) performed after this delay (IgM).

2.3. Compiling and analyzing data

We compiled the socio-demographic data (age, gender, occupation, usual residence, country of origin), history (travel to a

dengue fever epidemic area, vaccine status for yellow fever, previous medical treatments). We also compiled clinical (delay before hospital management, clinical symptoms), biological (CBC, urea, creatinine, transaminases, antigen Hbs, total and conjugated bilirubin, prothrombin time, protidemia), therapeutic (various treatments administrated), and outcome (duration of hospital stay, status on discharge).

3. Results

Seven out of 28 patients with suspected dengue fever hospitalized au ITDU between May 1 and October 30, 2010 were confirmed biologically (5 men, 2 women), with a median age of 51 years [31–65 years]. They were all autochthonous Ivoirians having never travelled to a dengue fever epidemic area. Their socio-demographic characteristic are listed in Table 1. The median delay before hospital management was 4 days [2–10 days]. The clinic symptoms were: a febrile algic syndrome for all patients (median temperature: 39.5 °C; range 38 °C to 40 °C), skin rash ($n=2$), a hemorrhagic syndrome (hematuria and melena), and 3 cases of jaundice. The biological abnormalities were thrombopenia ($n=6$), leukopenia ($n=5$), anemia ($n=1$), hypertransaminasemia ranging between 3 and 100 times the normal level ($n=5$), and hypercreatininemia ($n=1$). Two patients presented with hepatocellular failure, and 1 with uncomplicated *Plasmodium falciparum* malaria. The dengue fever RT-PCR was positive for serotype 3 (DENV-3) in 4 cases and the blood test was positive for IgM in the 3 other cases. The patients were all given analgics and antipyretics, and 1 patient was given Artemether in intramuscular injections. Fresh frozen plasma was administered to 2 patients, 1 of whom underwent 2 dialysis sessions, but finally died of multi organ failure (Table 2).

4. Discussion

These autochthonous cases of dengue fever in patients hospitalized in Abidjan are the first reported in the Ivory Coast. The latest documented dengue fever epidemic in West Africa

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