Acute Pericarditis and Viral Infection

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Abstract: Introduction: Hantaviruses is a disease of fever character caused by the virus, RNA from simple tape, of the Bunyaviridae family. Hantaviruses may occur in two clinical types: 1) hemorrhagic fever with renal syndrome in Europe and Asia; 2) cardiopulmonary syndrome by hantaviruses only in Americas. Acute pericarditis is a clinical syndrome with the following characteristics: chest pain, pericardium friction and evolutive alterations of repolarization in the electrocardiogram. The most common etiology is idiopathic and viral. Case report: A man, 38 years old, living at the rural area, with myalgia, arthralgia, fever, loss of appetite, diarrhea, dry cough, chronic headache and retroorbital pain for 5 days. He was diagnosed with classical dengue, so, he received medical treatment with oral hydration and symptomatic. He went to the Emergency Unit Care - Ribeirão Preto in the 6th day of symptoms, because of the worsening in his clinical condition, with the diagnosis hypothesis of Syndrome of Dengue Shock. Though, serology for dengue was negative. With this result and for the fact that the patient lived in a rural area a survey about the presence of Hantaviruses was made. As the result for the serology had positive for Hantaviruses. With the diagnosis for Cardiopulmonary Syndrome and Pericarditis for Hantaviruses it was made a clinical support to maintain the vital functions, with emphasis in oxygenation and observing the respiratory functions. The patient had satisfactory evolution in the clinical condition. Discussion: Ribeirão Preto is an endemic area for Dengue. Dengue is a fever disease that in its initial phase, has common symptoms with other diseases, like Hantaviruses. This case refers to a patient with clinic and laboratorial exams compatible with Dengue. Though, with the worsening of his symptoms, and the Hypothesis of Shock Syndrome Dengue, treatment began according to the preconizing protocol and the Electrocardiogram identified alterations of repolarization, and the echocardiography was indicated, where the pericardial effusion was evident. Pericarditis was not mentioned as a complication of cardiopulmonary syndrome by hantaviruses. Conclusion: In this report we introduced the case of a patient initially medicated for Dengue and after had Hantaviruses confirmed. EKG helped in the identification and the severity of the illness and the sorological exams defined the infection. Only the clinical board and the epidemiology can't be used for the diagnosis of Dengue. Serology survey is getting more important for these pathologies not being sub notified and not treated correctly and conveniently.

Keywords: Acute Pericarditis, Hantaviruses, Dengue, Hemorrhagic Fever, Chest Pain

1. Introduction

Hantaviruses is a disease of fever character caused by the virus, RNA from simple tape, of the Bunyaviridae family. Transmission occurs by inhalation of viral particles present in excrements, urine and saliva of wild rodents; represented by the hairy tail mouse (Necromys lasiurus), forest mouse (Akodon sp) and rice little mouse (Oligoryzomys sp).[1]

Alterations in the ecosystem, proximity of human beings with contaminated sources in the rural area, in work or leisure activities facilitate the appearance of new patients, mainly in adults. The incubation period may vary from 9 to 33 days, with a media of 14-17 days. [2][3]

Hantaviruses may occur in two clinical types: 1) hemorrhagic fever with renal syndrome (HFRS) in Europe and Asia and 2) cardiopulmonary syndrome by hantaviruses (SCPH), only in Americas. [5]

Patients have similar symptoms as influenza in the beginning of cardiopulmonary syndrome.[3] The prodrome, that last 3 to 6 days, precede the pulmonary edema; in this
phase can be observed fever (100%), myalgia (85-95%),
sickness (73%), diarrhea (40%), and less frequent, chronic
headache, vomit, abdominal pain, thorax pain, sweat and
vertigo.[6]

When patients look for care, telling about specific
symptoms like cough and dyspnea, tachycardia and
hypotension, CSH is already in an advanced stage.[7] In
literature we find reports of hantaviruses with encephalitis[7]
and sinus bradycardia. [8][9]

Acute pericarditis is a clinical syndrome with the
following characteristics: chest pain, pericardium friction and
follow up of repolarization in the
The most common etiology is idiopathic and viral. [11]

2. Case Report

On the 14th of February, man, 38 years old, living at the
rural area. He had myalgia, arthralgia, fever, loss of appetite,
diarrhea, dry cough, chronic headache and retroorbital pain for
5 days. He looked for medical care in the beginning of the
symptoms, and was diagnosed with classical dengue, so, he
received medical treatment with oral hydration and symptomatical. The Complete blood count CBC realized at
that moment showed Hemoglobin (Hb)- 14,70 g/dL,
Hematocrit (Ht) - 41,90%, Leukocyte (L) - 2,140/mm³,
Platelets (PL) - 82,000 /mm³. Glutamic-oxaloacetic
transaminase (GOT)- 29 U/L, Glutamic pyretic transaminase
(GPT)- 52 U/L.

Despite treatment, the patient had worsening of the
symptoms and of his general condition, mentioning dyspnea
to minimal efforts, tachycardia and intense pain from inferior
members.

He went to the Emergency Unit Care - Ribeirão Preto in the
6th day of symptoms, because of the worsening in his clinical
condition: Blood Pressure (BP) – 90 x 70mmHg, oxygen
saturation (SATS) - 89%, Respiratory rate (RR) - 40/min, time
of capillary filling > 4 seconds, Heart rate (HR) - 120bpm,
derhydrated 2+/4+ and cold extremities. Pulmonary system:
shock.

The laboratory exams showed : Hb - 16,90 g/dL; Ht -
47;30%, L - 6,140/mm³, PL - 46,000/mm³, Creatinine - 1,0
mg/dL, Urea - 20 mg/dL, Na - 134 mEq/L, K - 4,1 mEq/L,
GTP - 43 U/L, GOT - 65 U/L, total bilirubin (BT) - 0,56, direct
bilirubin (BD) - 0,23, indirect bilirubin (BI) - 0,33,.

EKG - supraunlevelling of V1 - V3, inversion of T wave V4
- V5.

Thorax radiography: Opaque diffuse interstitial in both
lungs (SARA), pleural effusion in left basis, normal cardiac
area.

With the diagnosis hypothesis of Syndrome of Dengue
Shock, the patient was interned and treatment began with
volume replacement (Physiological Serum 0,9% - 2000 ml).

Exams at internation showed: total proteins (PT - 4,4),
thromboplastin activated time (TPA - 100%), international
normalized ratio (INR - 0,84), prothrombin time (TP - 10,5
seg), Albumin 2,5, troponin - negative brain natriuretic
peptide (BNP - 46,6), C-reactive protein (PCR - 54,90), lactic
dehydrogenase (DHL – 900), Gama GT (GGT-90), alkaline
phosphatase (FA – 179), erythrocyte sedimentation rate (ESR
- 47). Echocardiography: minimum pericardium effusion,
suggestive image of pleural effusion to the left, systolic
function from left ventricle preserved.

Though, serology for dengue was negative (IgM negative).
With this result and for the fact that the patient lived in a rural
area a survey about the presence of Hantaviruses was made.
As the result for the serology had positive for Hantaviruses.
(IgM+)

With the diagnosis for Cardiopulmonary Syndrome and
Pericarditis for Hantaviruses, it was made a clinical support to
maintain the vital functions, with emphasis in oxygenation
and observing the respiratory functions.

The patient had satisfactory evolution in the clinical
condition. After 3 days of internation he could go out of
hospital and was sent to ambulatorial attendance.

A new Echocardiography made 3 months after the
beginning of the symptoms showed: aortic insufficiency of a
discrete degree and systolic function from left ventricle
preserved.

3. Discussion

Ribeirão Preto is an endemic area for Dengue. Dengue is a
fever disease that in its initial phase, has common symptoms
with other diseases, like Hantaviruses.

This case refers to a patient with clinic and laboratorial
exams compatible with Dengue. Though, with the worsening
of his symptoms, and the Hypothesis of Shock Syndrome
Dengue, treatment began according to the preconizing
protocol and the EKG identified alterations of repolarization,
and the echocardiography was indicated, where the pericardial
effusion was evident.

Serology, though, didn’t confirm Dengue diagnosis and then
began the survey of other etiology for the disease. Because of
the patient’s profession the serology for Hantaviruses was
investigated, with a positive result. The serology exam, IgG e
IgM, is the pattern to Hantaviruses diagnosis. At the vascular
flow phase (acute phase), positivity may reach 100%; at the
prodromal phase the sensibility is smaller, and it may difficult
premature diagnosis. [5]

Dengue and Hantaviruses are different pathologies but have
important similarities: dysregulation of the vascular
endothelium, which conducts to an increase of the macro
vascular permeability and plasma overflow; immunity
mediated by cells that contribute to the aggravation of the
illness, particularly the T CD8+ cells that probably have a very
important role at the pathogeny; and the pro inflammatory
factors and the promotion of the permeability secondary
produced to a strong immune activation in infection for both
viruses. [3]

The EKG was important at the identification of a cardiac
alteration. Presence of myocarditis caused by Dengue was
related and can be aggravating in the evolution of these
patients.
In Asia were related complications at HFRS with encephalitis 7 and 3 patients with cardiological alterations; from these patients, one had dilatation from the right atrium with diffuse hemorrhage and two had severe sinusbradycardia. [8][9][10]

Pericarditis was not mentioned as a complication of CSH and Hantaviruses.

In this report the patient developed a less severe form of pericarditis with CSH.

Initial symptoms of Dengue may be similar to other fever diseases. But diagnosis can't be based only at the epidemiological aspect of the region. [9]

The cases of infection by Hantaviruses developing encephalitis[7] and cardiological alterations occurred in Asia and the patients developed HFRS. They were severe cases where one had dilatation from the right atrium with diffuse hemorrhage[8]; and two had severe sinusbradycardia in a patient with the severe form of HFSR[9][10]. In this report the patient developed a less severe form of pericarditis with CSH.

4. Conclusion

At the initial phase the FHV may have similarities. In this report we introduced the case of a patient initially medicated for Dengue and after had Hantaviruses confirmed. EKG helped in the identification and the severity of the illness and the sorological exams defined the infection.

Only the clinical board and the epidemiology can't be used for the diagnosis of Dengue. Serology survey is getting more important for these pathologies not being sub notified and not treated correctly and conveniently.

References


