Clinical Course Development of the Chagas Heart Disease in a Brazilian Patient: A Case Report

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Abstract

Chagas disease (CD) was firstly discovered by the Brazilian physician Carlos Chagas in 1909. It is an endemic condition caused by a protozoan named Trypanosome cruzi and it is transmitted by the popularly known barber mosquito. The major CD transmission modes to man are blood transfusion or congenital pathways; minor CD transmission modes are organ transplantation, accidental and oral forms. Oral transmission is being considered the main pathway responsible for several outbreaks of CD in Brazil mainly in the Amazon region where 41 cases have been registered in the year of 2011 associated with the acai intake. This epidemiologic cause occurs due to the instaillment of the barber in lowland areas where the acai is harvested; this, associated to poor fruit handling and hygiene, the final consumption is ought to be contaminated. The patient in this case study was chosen for the particular reason that this form of Chagas transmission is one of the least prevalent seen worldwide. Our study aimed to show the eight years length clinical course of a patient with Chagas disease.

Keywords: Cardiac rehabilitation; Heart disease; Edema

Case Study

This patient was referred to the cardiac rehabilitation outpatient clinic of our university. He was diagnosed of Chagas disease eight years ago and presented symptoms of overall fatigue, minimum efforts dyspnea, lower extremities edema, chest pain and dry cough. Firstly, every previous examinations and tests of the patient was assessed and registered in a medical file. Secondly, we conducted a physical, body composition (bioelectrical impedance analysis), quality of life (Minnesota questionnaire) and six minutes walking test assessments. All these tests we performed by the time of cardiac rehabilitation program entrance in our facility during the year 2014. No previous data of quality of life or functional capacity was registered prior to the patient’s admission in our rehabilitation facility. Nevertheless, our patient walked 530 meters in the six minutes walking test (Figure 1) and scored 6 points at the Minnesota questionnaire [1-5].

Patient’s Background and Disease History

Patient initials are V.M.S. and he is a 60 years old male, natural of Utinga BA, is catholic religion oriented with an incomplete high school educational background, works as a baker, currently lives in Embu of Arts-Sao Paulo in a two bedroom townhouse with his wife and five children. A report having enough period of sleep either at night and/or during the day when he feels the need to Patient also reports a proper food intake preferably with the ones with low potassium content. On the other hand enough body hydration was lacking and he was instructed to its importance especially with the diagnosis of pre-renal failure almost setting in. After diagnose no smoking and/or drinking intake was done even with his previous personal history of smoking and drinking for twenty and seven years, respectively. Throughout his life he has never performed any comprehensive physical activity such as walking or pedaling. Currently weights 55 kg and heights 1.65 m. His body mass index (BMI) is 20.2 kg/m² and presents normal blood pressure (120 over 80 mmHg of systolic and diastolic pressures). All current patient’s body composition data can be seen on table 1.

At the age of 52 years old our studied patient was diagnosed with Chagas dilated cardiomyopathy disease. One year after diagnosis he initially developed fatigue and dyspnea at maximum efforts which increased to minimum efforts, lower limbs edema, chest pain and cough without sputum production that persisted for a week. On March 2007 he had his first hospitalization due to severe chest pain that lasted five consecutive days. After discharge he was advised to seek follow up with a cardiologist.

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colonoscopy and endoscopy were carried out but no colon and/or increased serum potassium (Table 4) and weight loss. Exams such as alteration. By mid-2014 the tests showed a loss in the ejection fraction taking glibenclamide and accomplished dietary control. On the years after two months of treatment the patient showed insulin rejection. After two repeated tests similar values were found and the type II diabetes diagnosis was presented significant weight loss accompanied by extreme sweating again admitted to a hospital diagnosed with hepatitis; on July 2008 he Presented in a Brazilian Patient: A Case Report. J Clin Case Rep 4: 449. doi:10.4172/2165-7920.1000449

Table 1: Patient’s current body composition data.

| Variables          | Kg   | Percentage |
|--------------------|------|------------|
| Body cell mass     | 22.3 | 40.5       |
| Extracellular mass | 27.2 | 49.3       |
| Fat free mass      | 49.5 | 89.8       |
| Fat mass           | 5.6  | 10         |
| Intracellular fluid| 19.7 | 54.3       |
| Extracellular fluid| 16.6 | 45.7       |
| Total body fluid   | 36.3 | 100        |
| TBW lean mass      | 73.3 |            |
| TBW total weight   | 65.9 |            |
| Muscle mass        | 29   | 52.6       |
| Body mass index (kg/m²) | 10.7 |
| Basal metabolic measure (cals) | 1544 |

TBW=Total Body Water

Table 2: Patient’s echocardiogram variables displayed over time.

| Variables/Year | 2008   | 2012   | 2014   |
|----------------|--------|--------|--------|
| Total cholesterol (mg/dl) | 250    | 205    | 168    |
| High density lipoprotein (mg/dl) | 65     | 54     | 35     |
| Low density lipoprotein (mg/dl) | 154    | 136    | 108    |
| Triglycerides (mg/dl) | 138    | 66     | 125    |
| Glycaemia (mg/dl) | 423    | 124    | 161    |
| Glycated hemoglobin (%) | 5.6    | 7.0    |        |
| Hemoglobin (mg/dl) | 15.6   | 13.5   | 11.3   |
| Hematocrit (%)       | 44.9   | 39     | 32.9   |

Table 3: Patient’s laboratory blood tests displayed over time.

After the first appointment with the cardiologist a set of tests were taken. The echocardiogram showed that there was a dilated cardiomyopathy with left ventricular (LV) diastolic dysfunction (Table 2). Also, indirect immunofluorescence confirmed the positive serology for Chagas disease. At this point the patient began treatment with the following medications and initial doses: digoxin (0,125 mg), carvedilol (3,125 mg), monochord (40 mg) and furosemide (40 mg).

Patient health status improved, however, in the early 2008 he was again admitted to a hospital diagnosed with hepatitis; on July 2008 he presented significant weight loss accompanied by extreme sweating and polydipsia. Rapid counting glucose examination was performed and a value of 423 mg/dL was found (Table 3). After two repeated tests similar values were found and the type II diabetes diagnosis was confirmed. Human insulin treatment taken once a day was initiated. After two months of treatment the patient showed insulin rejection. As an alternative treatment to human insulin the patient started taking glibenclamide and accomplished dietary control. On the years between 2009 and 2014 the patient showed clinical stability with no test alteration. By mid-2014 the tests showed a loss in the ejection fraction percentage, pulmonary arterial hypertension development (Table 2), increased serum potassium (Table 4) and weight loss. Exams such as colonoscopy and endoscopy were carried out but no colon and/or esophagus injuries were seen. Our study case patient showed a typical over time Chagas disease presentation.

Final Considerations

The main findings of this case study are: there was a worsening of the patient’s cardiac function over the eight years after diagnosis (seen by left atrium diameter increase and left ventricular ejection fraction decrease) as well as pulmonary hypertension development (Table 2); also the patient developed kidney disease seen by increased serum potassium value (Table 4).

The first report on human Chagas disease is dated back to the pre-Columbian American period and is considered as a poverty disease since it is mainly associated with poor housing conditions [6]. Nowadays there is no cure and the current drugs available for treatment present severe side effects and are not effective for treating all cases. Chagas disease currently affects about 12 million people in poor regions of 21 countries of the Latin America. In Brazil, it is estimated that 1.6 million patients are infected [7].

Chagas disease can affect the heart, esophagus and bowel systems. Normally these organs swell and lose normal function. Nevertheless, the heart is the targeted system with the development of congestive heart failure, whose symptoms are shortness of breath, heart palpitations and feet swelling [8]. Heart impairment may also occur on its nerves leading to varying degrees of heart blocks which, in some cases, may be indicative of pacemaker implantation [9].

Andrade [7] aimed to evaluate the effects of chemotherapy in patients with Chagas disease. They found that bezonidazoïl has beneficial effects once the tested patients showed no electrocardiographic changes and serology reduction in seven years of follow-up. Although the authors did not comment on patient’s kidney function we call attention to the possible complications these patients can develop over time.

The year 2009 marks the 100 years of the disease discovery. Even so, after more than 100 years after its discovery we still are no way near to reach the disease cure. Nevertheless, most studies show that there are good therapeutic approaches to control its clinical side effects, however, not the prognosis. Currently, the main recommendations for these patients is lifestyle change by adopting any regular physical activity, good dietary practices and enough resting [6,10].

Conclusion

Although the patient presented a health status considered as clinically stable there was a worsening of the patient’s cardiac function over the eight years after diagnosis as well as pulmonary hypertension. Alongside with the patient’s heart deterioration, the development and progression of a kidney dysfunction was seen over time.

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