

Overcoming challenges to develop an effective assistance in an epidemic area of dengue fever

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Background

The World Health Organization estimates that 25,000 annual deaths occur due to dengue¹. In São Paulo, a 12 million inhabitant Brazilian city, we faced an epidemic in 2014 with 257.5 cases per 100,000 inhabitants². The municipal health department (MHD) predicted an increase and proposed in 2015 a joint action involving private hospitals for early detection and treatment of cases. The objective of this study is to describe this action in one of the 5 points of care which was provided by Hospital Alemão Oswaldo Cruz (HAOC).

Material/methods

In March 2015, the MHD identified five hot spot areas of dengue and organized tents located in the yards of facilities dedicated to primary care. Private hospitals provided healthcare workers trained to identify patients at risk of Dengue Shock Syndrome (DSS). We describe the activity of one of them. A first examination was performed by a nurse who verified vital signs and tourniquet test. Patients classified as *at risk* for DSS during screening had the blood tested for platelets and hematocrit. If hemoconcentration was present the patient received hydration and further physical examination with a new blood count. An ambulance was available for patient transportation if hospital assistance was required. We calculated the costs of the project. A satisfaction survey was made among patients.

Results

During the period from January 1st to 17th October 2015 there were 875 cases per 100,000 inhabitants in São Paulo city, three times more than the previous year.

References

1. www.who.int/topics/dengue/en
2. www.prefeitura.sp.gov.br/cidade/secretarias/saude/dengue

From April 22nd to May 22nd, HAOC admitted to the tent 1377 patients (50% were female) who attended 2468 visits (mean 1.79 visits/patient). Mean age was 34 years old (4 m to 84 yo). The most frequent comorbid conditions were hypertension (13.7%) and diabetes (7.2%). Fifty-five patients (3.9%) reported previous dengue. Among 203 with a history of yellow fever immunization, 14.2% patients had bleeding, similar to 12.7% among 1174 non immunized. The most common sites of bleeding were nasal mucosa and gums (both 37%), urine (17.2%), vaginal (9.8%) and gastrointestinal tract (7.3%). The tourniquet test was positive in 58 patients (4.7%). Visible bleeding or poor skin condition were the most common contra-indications for this test. The nadir of platelet count was achieved on the 6th day of symptoms (percentile 25: 88,500/mm³). The peak of hematocrit was achieved on the 4th day (percentile 75: 44,7%). We transferred 21(1.5%) patients to a reference hospital. Among the 2468 visits, 913 (36.9%) patients were classified as group A, 1309 (50.03%) B, 246(9.9%) as C. All group C and 25% from group B received hydration and follow-up at the tent. No deaths occurred. The total cost (excluded the physical structure of the tent) was R\$296,508.00 (US\$ 74,127.00) or R\$120.14 (US\$30.03) per visit. Satisfaction of patients was as follows: felt embraced by staff (99%), fast and effective approach (98%), staff cleaned their hands before examination (93%).

Conclusions

It was possible to implement a relatively low cost and effective measure for early identification of potentially severe cases of dengue.