Abstract
Use of neutrophil left-shift parameters in the diagnosis of inflammatory and infective disease has been evaluated previously in some studies, indicating that morphologic changes in neutrophils, either have a high specificity (band count) in predicting some infectious diseases and therefore may be a clinically useful tool. For these reasons we evaluated clinical features and the anormal neutrophil band count (>3%) in patients with diagnosis of dengue (FD) and dengue haemorrhagic fever (DHF). In this study 48 patients (54.2% male), 39.5% were <15 y-old. Clinical features were: 100% presented fever and cephalea, 83.3% myalgia, 64.6% hematemesis (78.4% in those with DH and 22.2% in FD, p<.01), 60.4% epistaxis, equimosis only in those with DH (10.8%), 47.9% dolor abdominal (59.5% in aquellos con DH y 11.1% en FD, p=.03) and hepatomegalia only in DH (29.2%). Las características clínicas fueron: 100% presentaron fiebre y cefalea, 83.3% mialgia, 64.6% hematemesis (78.4% en aquellos con DH y 22.2% en FD, p<.01), 60.4% epistaxis, equimosis solo en aquellos con DH (10.8%), 47.9% dolor abdominal (59.5% en aquellos con DH y 11.1% en FD, p=.03) y hepatomegalia solo en DH (29.2%). Las alteraciones hematológicas fueron: hemoconcentración y trombocitopenia (solo en aquellos con DH, 83.8% para ambas), 18.8% leucopenia, 29.2% linfocitosis, linfocitos atípicos (solo en DH, 40.5%, 68.8% monocitosis, y tiempos de coagulación prolongados, solo en DH (59.5% para PT y 67,6% para PTT). Finalmente, el contaje incrementado de bandas de neutrófilos se observó exclusivamente en pacientes con DH (en 45,9%). Algunos estudios han indicado que estos contajes pueden ser usados como indicador de agudeza en el dengue. Adicionalmente, las evidencias indican que el nadir de neutrófilos ocurre en 4to a 5to día después del inicio de la fiebre, y en algunos casos la supresión medular inducida por el virus dengue también ha sido sugerida. En todo caso, su utilidad debe ser mas estudiada.


Introduction
Use of neutrophil left-shift parameters in the diagnosis of inflammatory and infective disease has been evaluated previously in some studies, indicating that morphologic changes in neutrophils, either have a high specificity (band count) in predicting some infectious diseases and therefore may be a clinically useful tool.

Methods
For these reasons we evaluated clinical features and the anormal neutrophil band count (>3%) in patients with diagnosis of...
dengue (DF) and dengue haemorrhagic fever (DHF).

Dengue diagnosis was initially clinical and epidemiological, then serologically confirmed.

Clinical classification was made according international criteria in DF and DHF.

**Results**

In this study we evaluated 48 patients with dengue: the sex distribution was: 54.2% male and 45.8% female (NS differences between DF and DHF groups), being in the age distribution 39.58% <15 y-old.

In this group of patients, in those whose developed DF 11.1% has had previous dengue infections, and those with DHF only 2.7% referred this.

The clinical features of these patients were:

- 100% presented fever and 100% cephalgia,
- 83.3% myalgia,
- 64.6% hematemesis (78.4% in those with DHF and 22.2% in DF, p<0.01),
- 60.4% epistaxis, equimosis only in those with DHF (10.8%),
- 47.9% abdominal pain (59.5% in those with DHF and 11.1% in DF, p=0.03)
- and hepatomegaly only in DHF (29.2%) (Figure 1).

Other clinical complains in these patients were osteomuscular pain (83.33% with NS differences), skin eruptions (29.73% in DHF and 11.1% in DF), vomiting (51.35% in DHF and 44.4% in DF).

About the hematological alterations, these were:

- hemoconcetration and thrombocytopenia (only in those with DHF, 83.8% for both),
- 18.8% leucocytopenia (21.62% in DHF and 11.1% in DF),
- 29.2% lymphocytosis (35.14% in DHF and 11.1% in DF), with atypical lymphocytes (only in DHF, 40.5%),
- 68.8% monocytois (72.97% in DHF and 66.67% in DF), and
- elapsed coagulation times, only in DHF (59.5% for TP and 67.6% for TTP).

Finally, increased neutrophil band count was observed exclusively in those with DHF (in 45.9%) (Figure 2).

**Discussion**

Some studies in Thailand have indicated neutrophil counts could be used as acute dengue illness indicator 1,2.

Additionally, evidences indicated that neutrophil nadir occurrence on the 4th to 5th day after onset of fever, and in some cases dengue virus-induced marrow suppression has been suggested 3-5.

Another related aspect is the neutropenia and thrombocytopenia in DHF, which has been explained in part due to the increased
binding of neutrophil and platelet to endothelial cell.

In the case of neutropenia, some studies have indicated that IL-8 levels are increased in most patients with dengue virus infection and correlate with degranulation of neutrophils as well as with some clinical and hemodynamic variables, suggesting a role for IL-8 in the pathogenesis of dengue virus infection.

Validation and usefulness of these results should be further and deeply investigated.

References


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