

STUDY OF THE VARIATIONS IN COMMON LABORATORY PARAMETERS IN DENGUE PATIENTS WITH SECONDARY BACTERIAL INFECTIONS

Haputhanthri D.D.¹, Sabriya M.A.F.², Munasinghe D.H.H.²
and Wadanamby J.M.R. W.W.¹

¹Infectious Disease Hospital, Angoda, Sri Lanka

²Department of Botany, University of Sri Jayewardenepura, Sri Lanka

Secondary bacterial infections adversely affect the clinical course of primary dengue viral infection. Delay in microbiological culture results may also delay the initiation of antibiotics. Study objectives included identifying criteria which predicts secondary bacterial infections before culture confirmation, identify the organisms causing secondary bacterial infections and their antibiotic sensitivity patterns. A retrospective case-control study was carried out at the Dengue Management Unit of Infectious Disease Hospital Angoda. Study analyzed data of 103 patients with suspected secondary infections and received antibiotics; out of which 33 were confirmed with cultures and a control group of 103 who did not receive antibiotics. Independent sample *t*-test was carried out to find the significance between the groups. Results showed highest frequency of secondary bacterial infections on 6th and 7th days of illness and *Streptococcus* and *Staphylococcus* being most commonly isolated. Confirmed group has significantly higher neutrophil count ($3.32 \pm 0.35 \times 10^3 / \mu\text{L}$) ($P \ll 0.05$) and lower platelet counts ($49.33 \pm 7.66 \times 10^3 / \mu\text{L}$) ($P=0.01$) on 6th and 5th day of illness respectively. Whereas, the suspected group has significantly higher neutrophil count ($2.09 \pm 0.20 \times 10^3 / \mu\text{L}$) ($P=0.003$) on day 7 and lower platelet count ($49.11 \pm 4.01 \times 10^3 / \mu\text{L}$) ($P=0.0291$) on day 6. In both confirmed and suspected groups highest body temperature of the day was significantly higher ($P < 0.05$) than the control from the fever day 3 onward and their HCT values ($38.62 \pm 1.12\%$, $39.44 \pm 0.62\%$) were significantly lower ($P=0.008$, $P=0.002$) on third and fourth days of fever. CRP of confirmed group were higher than the control group from 3rd day of fever onward with uncertain significance due to limited number of data. The study suggests that absolute neutrophil count, platelet count and HCT can be used for early detection of secondary bacterial infection in dengue patients before the culture results are available. Further studies would be recommended to formulate a clinical tool based on the above mentioned parameters for early detection of secondary bacterial infection in dengue patients.

Keywords: *Antibiotics, microbiological culture, Dengue, Secondary infection*

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