OP 1

Validation of serum cytokines as potential biomarkers in acute dengue infection

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Objectives: Serum IL-10, Macrophage inhibitory factor (MIF) and interferons have been found to be associated with fatal dengue. We set out to investigate the possibility of using these cytokine as biomarkers to predict severe dengue.

Methods: Serum IL-10 levels were determined by quantitative ELISA in 215 adult patients with confirmed acute dengue infection (ADI). Serum IFNα and IFNγ levels were done in 79 patients. Serial recording of clinical features and laboratory investigations were done to determine clinical disease severity.

Results: 33 (17.46%) patients were classified as severe dengue (SD). Serum IL-10 levels were significantly higher (p=0.0034) in patients with SD (median= 121.9, range= 24.98 to 3271 pg/ml) when compared to those with non SD (median= 78.28, range= 7.18 to 1343 pg/ml). In the 29 patients with paired serum samples, serum IL-10 levels rose in all 6 patients with SD whereas in 20/23 patients with non SD, serum IL-10 levels fell in the critical phase. Although serum MIF values were higher in patients with SD (mean 70774, SD± 59874 pg/ml) when compared to those with non SD (mean 45362, SD± 26891 pg/ml), this was not statistically significant. The IFNγ levels were significantly higher (p=0.038) in patients with shock (median= 77.55, range= 18.21 to 468.4 pg/ml) when compared to those who did not develop shock (median= 35.25, range= 4.050 to 733.1 pg/ml).

Conclusion: Serum IL-10 levels appear to be associated with SD. It would be crucial to investigate the possible role of this cytokine in the pathogenesis of SD.