

**CHARACTERISTIC LYMPOPENIA
CORRELATED TO MONOCYTE
CHEMOTATIC PROTEIN-1(MCP-1) LEVELS
IN PANDEMIC INFLUENZA A/H1N1**

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OBJECTIVE:

- The novel influenza A(H1N1) virus is causing a global pandemic in which rapid differential diagnosis for early treatment remains challenging
- We assessed characteristic blood differentials and immune mediators in order to distinguish novel H1N1 influenza infections from other flu-like illnesses (OFI)

METHODS:

- A cohort of 285 flu –like patients with RT-PCR – confirmed present or absence of novel H1N1 influenza were recruited for measuring complete blood counts and plasma immune mediators including tumor necrosis factor (TNF) and IL-6 and chemokines including IL-8, monocyte chemoattractant protein-1 (MCP-1) and MCP-3
- Differences in blood differentials and levels of mediators between both groups and their relationship were assessed by using the non-parametric U-Mann Whitney test and the Spearman correlation coefficient, respectively

MAIN RESULTS :

-Patients with novel H1N1 infection had a significant leukopenia , particularly lymphopenia compared to those with OFI in early phase of disease ($p=0.04$) .In contract,H1N1 patients had significantly higher MCP-1 levels, but significantly lower CRP ($p=0.01$) and IL-6 ($p=0.33$) levels than patients with OFI

- Lymphopenia was inversely correlated to MCP-1 levels (correlation coefficient =0.378 ,p=0.001), the lymphopenia returned to normal in five to seven days; neutrophils decreased to the nadir in two to four days
- Lymphopenia and/or CRP levels <5mg/l provided a novel H1N1 influenza diagnosis with a sensitivity of 85.3%

CONCLUSION:

- In the novel influenza H1N1 pandemic, clinical symptoms of H1N1 are indistinguishable from those of OFI
- Lymphopenia and decreased CRP or elevated MCP-1 levels may provide an early biomarker to differentiate novel H1N1 from OFI