Paul K Marx et al., J Mol Genet Med 2015, 9:3
http://dx.doi.org/10.4172/1747-0862.C1.009

OMICS International
conferenceseries.com

3rd International Conference on
Genomics & Pharmacogenomics
September 21-23, 2015 San Antonio, USA

Procalcitonin (PCT) as a biomarker of disease severity in malaria and its associated CALC 1 -624 T/C promoter gene polymorphism

Paul K Marx, Srinivas Baskari, L Srinivas Nayak and Ch Venkata Ramana Devi
Osmania University, India

Malaria is a global health problem and its incidence is more prevalent in socio economically backward countries and developing countries like India. Gold standard microscopy for diagnosing malaria is choice for most clinicians. However among the newest biomarker, PCT has its own value in monitoring the severity of malaria and can be used for therapeutic management as well with highest diagnostic accuracy. PCT levels rise rapidly (within 6–12 hours) after an infectious insult with systemic consequences. Daily changes of plasma PCT levels give an indication of the course of the disease and the prognosis of the patient. Persistently elevated levels of PCT are associated with poor outcome and are now viewed as a failure of therapy or the lack of appropriate clearance of source of the infection. In the present investigation PCT was quantitatively analyzed along with conventional hematology and biochemical parameters and response to treatment was validated by PCT measurement in consecutive samples of both uncomplicated and severe malaria. Many studies have demonstrated that SNP's in genes may not only affect the expression or activities of the enzymes or proteins but are associated with the risk of different types of malaria. Since PCT is a product of CALC1 gene, we analysed CALC 1 -624T/C promoter polymorphism in malaria to disentangle their role with PCT as a marker for enhanced disease severity. Our findings indicate that PCT in plasma of malaria patients positively correlated with platelet count, WBC, Neutrophil (p value 0.001). We have found strong association between serum PCT levels and neutrophil toxic granules and their usefulness as surrogate biomarkers in the management of malaria patients. In conclusion, our findings indicate that persistently increased levels of PCT were always indicative of an unfavourable outcome and hidden parasitemia. Initial high levels of PCT were indicative of a more severe disease status (parasitemia, P value <0.001) and this reflected in a longer patient stay predicting adverse outcomes. From our observations it can also be concluded that -624T/C polymorphism may be related to higher risk of malaria in Indian population. So in current scenario, addition of various and reliable biomarkers to the standard work-up of patients with good publicity could increase diagnostic certainty and improve patient's management by administering proper therapies to the right patient at the right time thus guarantying full recovery, post hospital discharge.

paulbiochemist@gmail.com

Notes: