J Regen Med 2017, 6:4
DOI: 10.4172/2325-9620-C1-006

PROCALCITONIN-A BIOMARKER FOR INFECTED DIABETIC FOOT ULCER IN TYPE 2 DIABETIC PATIENTS AND ITS CORRELATION WITH INFLAMMATORY CYTOKINES

Dhamodharan Umapathy[a], **Ram Kumar K M**[a] and **Rajesh Kesavan**[b]
[a]SRM University, India
[b]Hycare for Wounds, India

Statement of the Problem: Diabetic Foot ulcer (DFU) represents a serious complication of diabetes and are often challenging to clinicians. One of the most important prognostic factors for the outcome of DFU is infection and diagnosis of this infected DFU (IDFU) is not always simple and explicit. Hence, an effective, specific and sensitive marker of inflammation which would help for the quick diagnosis is essential. Recent data showed procalcitonin (PCT), a precursor of the hormone calcitonin, predicts bacterial infection much higher than other traditional markers.

Aim: To estimate the circulatory PCT in type 2 diabetes mellitus (T2DM) with and without IDFU, and to further investigate the diagnostic accuracy of PCT by comparing with other traditional infection markers (CRP, WBC & ESR) and its association with circulatory inflammatory cytokines and/or clinical parameters of incident diabetes among South Indian subjects.

Methodology: A total of 185 T2DM subjects were selected and was divided into: Group-I T2DM subjects free from DFU (n=75), Group-II T2DM subjects with non-infected DFU/NIDFU (n=34), Group-III T2DM subjects with IDFU (n=76). PCT was estimated by ELISA and profiling of plasma cytokines was carried out using a multiplex bead-based assay.

Findings: PCT found to be a valid diagnostic marker for IDFU with high sensitivity and specificity. The area under receiver operating characteristic curve (AUCROC) for PCT was found to be high [0.99; (95%CI: 0.96-1.0)] in IDFU subjects and the cutoff value was ≥0.5 ng/ml, 54% sensitivity and 100% specificity with the positive predictive value of 100% and the negative predictive value of 12% for IDFU diagnosis. Moreover, the circulatory levels of PCT showed a positive correlation with Th-1 cytokines such as [IFN-δ (r= 0.21; p=0.03) and IL-28A (r=0.31; p=.003)] and Th-17 such as [IL-29/IFN-λ1 (r=0.20; p=.037)].

Conclusion: PCT could be used as valuable marker for diagnosing T2DM patients with IDFU.