Acute myocardial infarction in patients with type 2 diabetes mellitus is associated with reduced levels of salivary serpin B6

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Abstract

Background and Aim: In the present study, a potential salivary protein biomarker to predict the onset of acute myocardial infarction (AMI) was identified by profiling of saliva collected from patients with type 2 diabetes mellitus (T2DM) following AMI (n=10) in comparison with similar profiles generated from saliva of T2DM patients without AMI (n=10).

Methods: Profiling of salivary proteins was performed by two-dimensional electrophoresis (2-DE) and silver staining. Upon image analysis, identities of protein spots with altered abundance were determined by mass spectrometry and database query. This was followed by attestation of serpin B6 in the saliva of the T2DM patients using ELISA.

Results: Ten salivary protein spots, all with reduced abundance (adjusted p value ≤ 0.045; fold change ≥ 1.5), were detected. Among these protein spots with reduced abundance, serpin B6 was chosen for validation due to its location in cardiac tissues. Further attestation by ELISA showed similar abundance pattern in comparison with the initial 2-DE data.

Conclusion: Our study showed that AMI among patients with T2DM is closely associated with reduced levels of serpin B6 in saliva. This salivary protein is therefore a potential biomarker which needs to be validated in a longitudinal cohort study for accurate prediction of the onset of AMI.

Key Words: Acute myocardial infarction, Biomarker, Proteomics, Saliva, Serpin B6, Type 2 diabetes mellitus