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Differential Expression of microRNA's in CAD.

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Abstract:

Aim and Objective: Cardiovascular disease (CVD) is the largest cause of mortality worldwide, with CAD being the most frequent type caused by atherosclerosis. Genetic factors are responsible for 40-60% of CAD vulnerability. MiRNAs show potential as biomarkers since they regulate important pathways in CAD.

Methods: In the present study, RT-PCR was used to assess the expression levels of miR-499, miR-146a, miR-1 and miR-100, that are important in the progression and development of CAD in 57 CAD patients and 62 non-CAD control subjects.

Results: Expression of miRNAs **(**miR 499, miR-146a, miRNA-1 and miRNA-100) was in general seen to downregulated in cases as compared to control subjects. In particular, downregulation of miR-499 was found to be statistically significant. miR-146a was found to be upregulated 1.9 times than in the control subjects.

Summary: Significant downregulation of miR-499 in CAD subjects suggests that this microRNA might play a protective role in the cardiovascular system. Reduced miR-499 levels may result in the overexpression of genes involved in processes such as inflammation, cell proliferation, or oxidative stress, all of which are known to contribute to the development and progression of CAD.

Conclusion: Various studies have suggested that miRs could serve as potential diagnostic biomarkers for a multitude of pathologies in humans. miR-499 is also called as a cardiac tissue-specific marker. This study has shown the downregulation of miR-499 in patients with CAD which is in consistent with other studies across the world.
(250- 300 Words)

Keywords: microRNA, coronary artery disease