Searching for the Proteins which are Differentially Expressed in the Serum of Coronary Artery Disease Compared with Normal Reference Serum by Aptamer Based Biochip

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**Background and objectives:** We tried to search the proteins which are differentially expressed in the serum of patients with CAD compared with normal reference serum. Aptamer based biochip (AAB) was used for this purpose. Aptamer has the structure similar to cDNA and specifically bind to serum protein and can be analyzed by DNA microarray technique.

**Method and subjects:** We selected male patients with ages between 50 and 69 years. Using serum from 137 CAD patients and sex and age matched 40 normal reference serum we made a aptamer library. Using 3K biochips, we then analyzed serum of 96 CAD patients and 40 normal reference persons and compared protein profiles.

**Results:** Using this AAB we then tested serum of 28 acute myocardial infarction patients, 29 unstable angina patients and 39 stable angina patients. About 15 different proteins showed significantly different expression between patients with CAD and normal reference persons. The sensitivity and specificity of accurately sorting the disease category was 92% and 88% for the CAD patients. The positive predictive value was 86% and negative predictive value was 94%.

**Conclusion:** The cluster of proteins by AAB can be useful in differentiating CAD patients from normal reference persons and also between acute coronary syndrome patients and normal reference persons.