**RELATIONSHIP BETWEEN ASPIRIN RESPONSE RELATED MICRORNA AND THE RISK OF CARDIOVASCULAR EVENTS IN CAD PATIENTS**

**J.W. Zhang1**, T.F. Liu1, W.Y. Liang1, X.R. Feng1, L. Wang2, P.Z. Wang2, S.W. Fu3,

T.A. McCaffrey3, M.L. Liu1

1. Department of Geriatrics, Peking University First Hospital, Beijing, China

2. Department of Immunology, Basic Medical Sciences, Peking University Health Science Center, Beijing, China

3. Department of Medicine, Division of Genomic Medicine The George Washington University School of Medicine and Health Sciences, Washington DC, USA

*Aims*: Aspirin was widely used in the secondary prevention of cardiovascular diseases. However, individual response to aspirin varies from one patient to another. MicroRNAs (miRNAs), functioning as posttranscriptional regulators, has been reported to participate in various pathophysiological pathways. Our study tried to screen out aspirin response related miRNAs, then illustrate their correlation with cardiovascular risks in patients with coronary artery disease (CAD).

*Methods*: Potential aspirin response related miRNAs were screened out via miRNA sequencing, using blood samples from two groups, one consists of seventeen CAD patients who experienced cardiovascular events during regular aspirin therapy, while the other enrolled those with favorable aspirin response, and well-matched age, gender and BMI index. In order to validate our preliminary results, we enrolled CAD patients on 100 mg/d aspirin since January 2013, with medical records collected and peripheral blood samples drawn for miRNA quantitative analysis. All patients were followed up in outpatient department or by telephone calls regularly. Clinical outcomes were defined as the occurrence of cardiovascular events on aspirin treatment.

*Results*: Through bioinformatics analysis, 38 miRNAs differentially expressed were screened out, the ten miRNAs were chosen for further quantitative PCR analysis. High-on aspirin platelet reactivity (HAPR) was defined as AA-induced platelet aggregation - the upper quartile of our enrolled population. It was observed that miR-30c-5p was up-regulated and miR-3158-5p was down-regulated significantly in HAPR patients as compared to No-HAPR patients(P<0.05). Besides, the AUCs of miRNA 30c-5p and miRNA 3158-5p were greater than 0.7, which indicated the potential of both miRNAs in diagnosing HAPR status. Whats more, COX regression analysis showed miR-30c-5p and miR-3158-5p were significantly associated with the risk of cardiovascular events. *Conclusions*: In our enrolled patients, the expression of miR-30c-5p and miR-3158-5 were correlated with aspirin responses and the risk of cardiovascular events. However, long-term and larger-scale studies are still needed.