Thrombosis

[gw22-e0762] **SINGLE NUCLEOTIDE POLYMORPHISMS OF HO-1 AND COX-1 ARE ASSOCIATED WITH COMPLETE ASPIRIN RESISTANCE DEFINED BY LIGHT TRANSMITTANCE AGGREGATION IN THE ELDERLY**

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10.1136/heartjnl-2011-300867.550

Background Aspirin remains the cornerstone of treatment for atherothrombotic diseases, but various factors associated with inflammation, platelets, the vascular system, coagulation, and metabolism may result in aspirin resistance (AR). This study aimed to investigate the mechanism of genetic susceptibility to AR.

Methods The participants were 266 Chinese patients taking aspirin. The 34 patients with complete AR by light transmittance aggregation acted as the cases; the 232 aspirin-sensitive patients were the controls. The relationships between AR and 22 single nucleotide polymorphisms (SNPs) in 11 candidate genes, COX-1, COX-2, HO-1, P2RY1, P2RY12, GP1bα, GP6, PAI-1, SERPINC1, ACE and MTHFR, were investigated.

Results In this case-control trial, 20 SNPs and a haplotype (52G/744T) of P2RY12 had no association with AR. However, C-allele carriers of rs1330344 (–1676 T>C) of COX-1 had a significant association with AR, whereas, CC-genotype carriers showed no significant association with AR. By stratified analysis, CC-genotype status was associated with AR only in women. For rs2071746 (–413 A>T) of HO-1, the T-allele and TT-genotype status were associated with AR (p=0.04 and p=0.03 respectively); the AT/TT genotype increased the risk of AR 3.97-fold vs the AA-wild genotype.

Conclusions For the first time, it has been shown that HO-1 is associated with AR at the genetic level; and that rs1330344, which affects COX-1 transcriptional activity, is associated with AR only in Chinese women. AR is associated with inflammation in atherosclerosis, and this phenomenon can be detected directly and indirectly through platelet function tests.