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Haptoglobin Genotype as a Prognostic Factor for Operation Related Morbidity in Coronary Artery Bypass Grafting (CABG) Patients

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Post-CABG morbidity and mortality can be predicted by various factors. We present a new prognostic factor- the haptoglobin genotype.

Background:
The haptoglobin (Hp) gene has two common classes of alleles, encoding Hp 1 and Hp 2, where the latter has been shown to be an inferior antioxidant, when compared to the former. The Hp 2-2 genotype renders diabetic individuals at a 500% increased risk of developing cardiovascular disease, when compared to Hp 2-1 and Hp 1-1. The Hp 2 allele has also been linked to both increased myocardial infarct (MI) size and increased susceptibility to repeated percutaneous coronary intervention (PCI) and stenting among diabetic individuals.

Methods:
A cohort of 3054 diabetic individuals, drawn from 47 primary care practices, was prospectively followed for seven years for coronary heart disease outcomes. All treatment decisions regarding routine care remained at the discretion of the primary care physician.

Results:
Surgical intervention was required in 144 patients, with a genotypic breakdown of 15 Hp 1-1 (5.55%), 47 Hp 1-2 (4%), and 81 Hp 2-2 (5.66%). No significant differences were observed in the demographic baseline characteristics across the genotype groups for patients undergoing surgical intervention. Although, no statistically significant differences were found between patient groups regarding the lengths of bypass surgery or aortic cross clamp, the number of arterial grafts used or mortality rates, a significant difference was found in hospitalization periods among Hp 2-bearing patients, when compared to Hp 1 carriers.

Conclusion:
Extended postoperative hospitalizations, reflecting complex post-operative recovery, suggest prognostic potential in the Hp 2 allele regarding possible post-CABG surgery complications. Taken together with earlier reports correlating the Hp 2 allele with increased susceptibility to repeated PCI and stenting, closer follow-up should be considered for this specific population of diabetes patients.