Time to Hemoglobin in Acute Coronary Syndromes

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Background: Anemia correlates with poor prognosis in acute coronary syndromes (ACS). Lower hemoglobin concentrations in ACS patients might be a result of the underlying inflammatory response. We have presently explored the interactions between Hemoglobin, and inflammatory biomarkers in relation to the time elapsed from onset of anginal symptom to coronary angiography.

Methods: 850 consecutive male patients with ACS (435 with unstable angina, 415 with acute MI) were enrolled. Linear regression models were fitted for Hemoglobin as the dependant variable and age, renal function, cardiovascular risk factors, relevant medications, time from symptom onset to angiography, and the inflammatory variables as the independent variables. Two way Anova tests were used to determine interactions between time tertiles from symptoms onset and the tertiles of the respective Hemoglobin and inflammatory biomarkers concentrations.

Results: A significant decrease in hemoglobin concentrations with a parallel increase in CRP and fibrinogen concentrations were observed between the tertiles of time from symptom onset to angiography ($P < 0.001$). In the linear models CRP and fibrinogen entered as highly significant predictors of lower hemoglobin concentrations ($p<0.001$, $r^2=0.33$; $p<0.001$ $r^2=0.34$; respectively).

Conclusion: Inflammatory biomarkers are independent predictors of lower hemoglobin concentration in ACS patients. Longer time interval from symptom onset to angiography results in lower hemoglobin concentrations and higher inflammatory biomarker levels in men presenting with ACS.