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Inflammation and Heart Failure Incidence in Patients with Stable Coronary Heart Disease. Data from the Bezafibrate Infarction Prevention (BIP) study

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Background: Heart failure incidence is increasing and carries a poor prognosis in patients (pts.) with coronary heart disease (CHD) despite advances in medical and non-medical therapy. Inflammation predicts recurrent cardiovascular events in pts with CHD. It is currently not known whether increased levels of inflammatory markers can predict congestive heart failure (CHF) incidence in these pts.
Aim: To evaluate levels of inflammatory markers and incidence of CHF.
Methods and Results: Analysis comprises 2922 pts. with stable CHD and no CHF at baseline. White blood cells (WBC) count, C reactive protein (CRP) and fibrinogen were measured at baseline.
Five hundred and nine pts. (17.4%) developed CHF during 8-year of follow-up. Pts. who developed CHF during follow-up were older, had more often previous myocardial infarction, diabetes, hypertension, and peripheral vascular disease. In addition, baseline levels of CRP, fibrinogen and WBC were significantly higher in pts that developed CHF compared to those without CHF. Age adjusted rates and risk of incident CHF were related to levels of inflammatory markers. After adjustment for multiple confounding variables: increased levels of CRP, fibrinogen and WBC were significantly and independently related to the incidence of CHF (Figure).
In pts with MI during the study follow-up period, only CRP was predictive of future CHF. However in pts without MI during follow-up, all three markers of inflammation were independently associated with incident CHF during follow-up Conclusions: Increased levels of CRP, fibrinogen and WBC are independently related to the incidence of CHF in pts with stable CHD. The independent association in pts without MI during follow-up may suggest a mechanism independent of infarction by which inflammation is related to CHF.
Figure: Multivariate adjusted Hazards Ratio of CHF in Tertiles of Inflammatory markers (reference=tertile I)