INCREASED LEVELS OF SOLUBLE FMS-LIKE TYROSINE KINASE 1 (SFLT-1) ARE ASSOCIATED WITH WORSE OUTCOMES IN OUTPATIENTS WITH HEART FAILURE

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Authors: Andreas P. Kalogeropoulos, Wai Hong Tang, Vasiliki Georgiopoulou, Anjan Deka, Ali Azeem, Catherine Norton, Vikas Bhalla, Stanley Hazen, Javed Butler, Emory University, Atlanta, GA, USA, Cleveland Clinic Foundation, Cleveland, OH, USA

Background: Soluble fms-like tyrosine kinase-1 (sFLT-1) antagonizes vascular endothelial growth factor and placental growth factor (PIGF) and regulates apoptosis in vascular smooth muscle cells. sFLT-1 levels predict clinical events in systolic heart failure (HF); however, the association of sFLT-1 with other outcomes in HF has not been reported.

Methods: We examined the association of baseline levels of sFLT-1, PIGF, and sFLT-1 to PIGF ratio with (1) clinical events (death, transplantation, ventricular assist device implantation) and (2) admissions and emergency department [ED] visits in 173 stable HF outpatients (age, 57±12 yrs; 63% men; 58% white; 38% black; ejection fraction [EF] 29±15%) enrolled in a prospective cohort study.

Results: Over 32±8 months (total: 465 person-years), there were 27 (15.6%) clinical events (22 deaths, 4 transplants, 1 ventricular assist device), 413 all-cause admissions (167 [40.4%] for HF), and 199 ED visits. Baseline sFLT-1, PIGF, and sFLT-1/PIGF were 339±83 pg/ml, 19.2±5.1 pg/ml, and 18.9±7.4, respectively. Compared to the lower sFLT-1 tertile, patients in the upper tertile had (1) increased risk for clinical events (HR 4.5; 95% CI 1.2-17.3; P=0.029) and (2) higher healthcare resource utilization rates (Figure) in models adjusted for age, gender, race, systolic blood pressure, creatinine, NYHA class and EF. PIGF and sFLT-1/PIGF were not predictive of outcomes.

Conclusion: Increased sFLT-1 but not PIGF levels are associated with worse outcomes in HF outpatients.