High Sensitivity Troponin and the Risk of Atrial Fibrillation in Chronic Kidney Disease: Results from the Chronic Renal Insufficiency Cohort Study

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Introduction

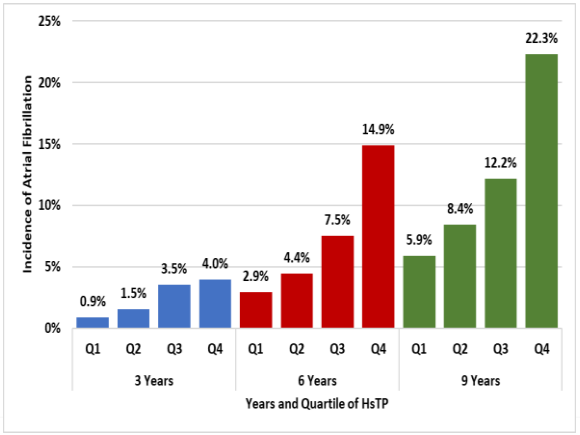
- Chronic kidney disease (CKD) is estimated to affect 14% of the adults in the United States[1]
- Patients with CKD have 2-3-fold increased risk of atrial fibrillation (AF)[2,3]
- Emerging literature show that HsTP is also associated with other cardiovascular events[4] (e.g. heart failure, stroke, peripheral artery disease, etc.)

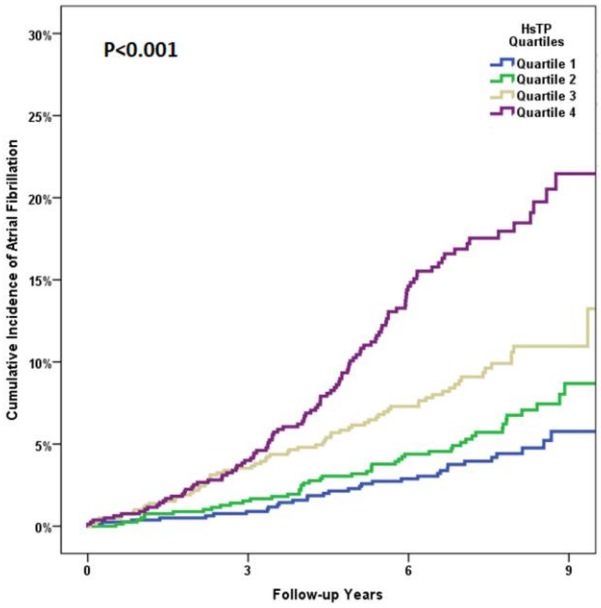
Aim

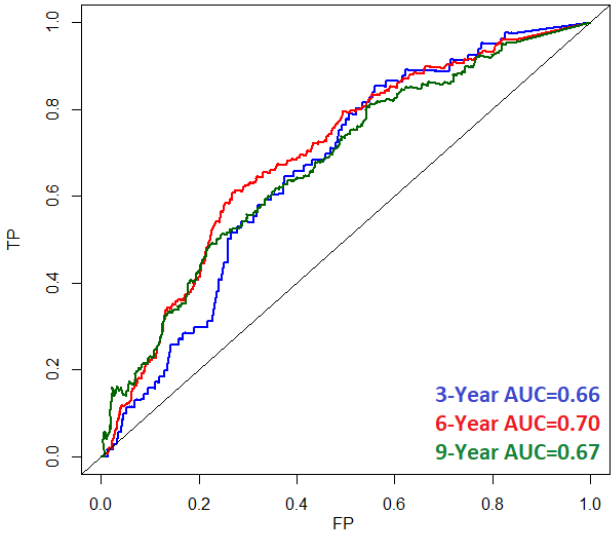
We sought to identify the utility of HsTP for risk stratification of AF in CKD

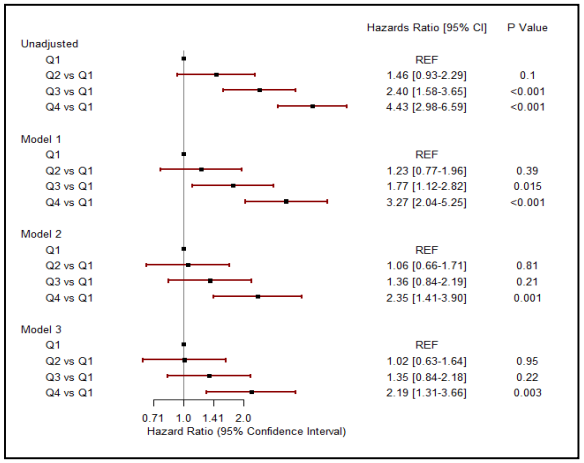
Methods

- 3,217 participants excluding preexisting AF
- High sensitivity troponin (HsTP) was measured at baseline
- Concentration-effect association between HsTP and incident AF was explored using HsTP as a continuous variable and penalized smoothed spline with cox regression models
- HsTP was then categorized into 4 groups by quartiles
- Constructed three Cox proportional hazard models with increasingly adjusted models
- Receiver operating characteristics and area under the curve were estimated using the Kaplan Meier method at 3 time points (3 years, 6 years, and 9 years)









Results

- Over a median follow up of 7.1 year years, 252 patients developed new-onset AF
- Compared with lowest quartile of HsTP (Q1), patients in third quartile of HsTP (HR 2.40, 95% CI: 1.58-3.65, P<0.001), and fourth quartile of HsTP (HR 4.43, 95% CI: 2.98-6.59, P<0.001) had higher incidence of AF
- After full adjustment in model 3, only patients in fourth quartile of HsTP had higher incidence of AF (Q4 vs Q1; HR 2.19, 95% CI: 1.31-3.66)
- HsTP had modest discrimination of AF risk, with 3-year AUC of 0.66, 6-year AUC of 0.70, and 9-year AUC of 0.67

Conclusion

- High sensitivity troponin is associated with risk of atrial fibrillation in patients with mild to moderate chronic kidney disease
- This association remained statistically significant despite accounting for traditional atrial fibrillation risk

References

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