

# Prognostic impact of CHA<sub>2</sub>DS<sub>2</sub>VASc and renal dysfunction in non valvular atrial fibrillation patients: which is the best equation to stratify risk of future events?

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**Purpose:** Renal dysfunction (RD) is associated with an increased risk of thromboembolic (TE) and hemorrhagic events (HE) in non-valvular atrial fibrillation (NVAF). Which method of RD evaluation can better stratify the risk of cardiovascular (CV) events in NVAF is still unknown. We evaluated the additive prognostic role of RD in a wide “real world” population of NVAF outpatients.

**Methods:** From November 2009 and October 2013, we enrolled 3,398 consecutive NVAF patients (pts). Clinical data were derived from the E-data chart for outpatient clinic (Cardionet®) of Cardiovascular Center of Trieste, Italy. In 1,509 pts the glomerular filtration rate (GFR) was estimated at first clinic evaluation with Cockcroft-Gault (CG), Modification of Diet in Renal Disease (MDRD) and Chronic Kidney Disease Epidemiology collaboration (CKD-EPI) equations. RD was defined as GFR <60 ml/min. We recalculated CHA<sub>2</sub>DS<sub>2</sub>-VASc score, adding 1 point for RD, using all the three equations. The median follow-up was 27 months (Interquartile Range-IR- 15 to 40). We evaluated incidence of death, CV hospitalization (CVH), HE (fatal bleeding or leading to transfusion, a decrease in hemoglobin level of 20 g/L or hospitalization) and thromboembolism.

**Results:** The median age was 75 years (IR 68-81), 39.7% were male; 38% of pts had paroxysmal, 31.9% persistent and 30.1% permanent NVAF. 1,217 (80.1%) pts had hypertension, 466 (30.8%) diabetes mellitus, 295 (19.5%) heart failure, 196 (13%) prior stroke or transient ischemic attack and 23 (1.5%) previous bleedings. Median GFR was 61.8 mL/min (IR 47-77) with CG, 72.4 (IR 59-87) with MDRD and

69.1 (IR 55-84) with CKD-EPI. Median HAS-BLED score was 3 (IR 2-4) and 3 in 70% of the pts; median CHA<sub>2</sub>DS<sub>2</sub>-VASc score was 4 (IR 3-5) and 2 points in 91.1% pts. 623 (41%) pts were on anticoagulant therapy (OAT). During the follow-up, we recorded 531 (35%) deaths or CVH, 113 (7.5%) TE and 24 (1.6%) HE. Adding 1 point for RD to CHA<sub>2</sub>DS<sub>2</sub>-VASc score pts were reclassified in a worse-class of risk in 47% with CG, 34% with CKD-EPI and 27% with MDRD (p<0.001). Pts with combined TE/HE during the follow-up were reclassified by the presence of RD in a worst class of risk in 62% with CG, 46% with CKD-EPI and 35% with MDRD (p=0.009). Stratifying these pts by antithrombotic therapy, the presence of RD, estimated by CG and CKD EPI, were associated to a significant higher risk of TE/HE during the follow-up (p=0.006) only in pts not treated with OAT; conversely using MDRD there was a significant higher risk only in anticoagulated pts (p=0.04). These results could be related to an higher rate of TE in the past medical history in the OAT group versus antiplatelets or not therapy (11,4% v 9,5% vs 5,1%, respectively, p<0.001). Adding RD (1 point) to CHA<sub>2</sub>DS<sub>2</sub>-VASc score, considering the pts that experienced death/CVH, 58.5%, 44.7% and 36.4% of pts with RD were reclassified in a worst class of risk with CG, CKD-EPI and MDRD respectively (p<0.001), independently from OAT.

**Conclusions:** In NVAF pts the risk reclassification by CHA<sub>2</sub>DS<sub>2</sub>-VASc and moderate RD seems to have an additive prognostic impact, considering death and CVH, TE and HE. CG was the best formula for global performance to reclassify pts for risk of events during the follow-up.

**KEYWORDS:** non valvular atrial fibrillation, renal dysfunction, thromboembolic risk, antithrombotic drugs, mortality.

**CITATION:** *Cardiol Croat.* 2014;9(5-6):204.

Received: 1<sup>st</sup> May 2014

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## Literature

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