

Relation of contrast volume to new onset atrial fibrillation in acute coronary syndrome underwent percutaneous coronary intervention

M. Cespon Fernandez, E. Abu-Assi, J.A. Parada Barcia, A. Lizancos Castro, B. Caneiro Queija, J. Torres, R. Dominguez, A. Galan, A. Iniguez Romo, S. Raposeiras Roubin

University Hospital Alvaro Cunqueiro, Vigo, Spain

Funding Acknowledgement: Type of funding source: None

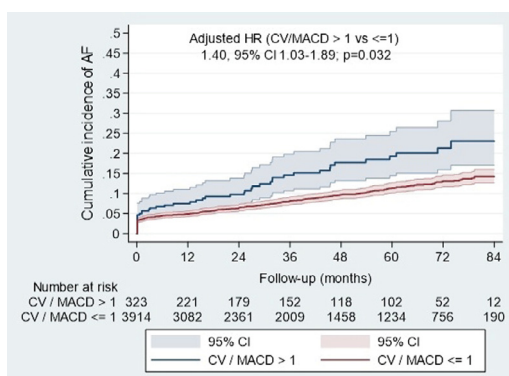
Introduction: There is an important relationship between atrial fibrillation (AF) and contrast induced nephropathy (CIN). Several hypotheses were suggested to explain this unidirectional association between CIN and AF, like influence on renin-angiotensin-aldosterone system and the inflammatory pathway, as well as the use of iodinated contrasts -due to its possible interaction at the thyroid hormone regulation-

Purpose: The aim of this study was to analyze the relation between contrast volume and the subsequent development of AF in patients with acute coronary syndrome (ACS)

Methods: A total of 6,133 ACS patients underwent PCI between 2010 and 2016 were analyzed. We have excluded 1,896 patients with prior history of AF, without data about contrast volume or with missing data about follow-up. The impact of contrast volume in the development of AF was assessed by Cox regression analysis. Hazard Ratios (HR) with 95% of confidence interval (CI) were reported. Maximum allowable contrast dose (MACD) was defined as $5 \times \text{body weight} / \text{serum creatinine}$.

Results: From the total study population (4,237 patients, 64.3 ± 12.8 years, 24.2% women), 399 (9.4%) developed AF during a mean follow-up of 3.5 ± 2.4 years. Mean contrast volume used was 199.9 ± 90.3 ml. Contrast volume was not associated with follow-up de novo AF (HR 0.99, 95% CI: 0.99–1.00; $p=0.834$). However, the ratio between contrast volume used and the maximum allowable contrast dose (CV/MACD) resulted a predictor of follow-up AF (HR 1.18, 95% CI: 1.02–1.37, $p=0.027$). The cumulative incidence of AF was 2.7 per 100 patients/year in patients with $CV/MACD \leq 1$ and 4.8 per 100 patients/year in patients with $CV/MACD > 1$. After adjusting for those variables associated with follow-up AF in the univariate analysis, the use of a contrast volume higher than MACD resulted an independent predictor of AF (HR 1.40, 95% CI: 1.03–1.89; $p=0.032$).

Conclusion: Doses of contrast volume higher than the maximum allowable contrast dose were independently associated with higher rates of AF during the follow-up.



Cumulative incidence of AF by groups