

Incidence and predictors of post-surgery atrial fibrillation occurrence: a cohort study in 53,387 patients

Guido Del Monaco¹, Enrico Brunetta¹, Stefano Rodolfi¹, Donah Zachariah², Konstantinos Vlachos³, Alessia Latini¹, Maria De Santis¹, Gabriele Pinna¹, Carlo Ceriotti¹, Paola Galimberti¹, Luca Poggio¹, Antonio Taormina¹, Vincenzo Battaglia¹, Giulio Falasconi¹, Diego Penela Maceda¹, Michael Efremidis³, Konstantinos P. Letsas³, Carlo Selmi¹, and Antonio Frontera¹

¹IRCCS Humanitas Research Hospital Electrophysiology and Electrostimulation Unit

²Royal Papworth Hospital NHS Foundation Trust Cardiology Service

³Onaseio Kardiocheiourgiko Kentro

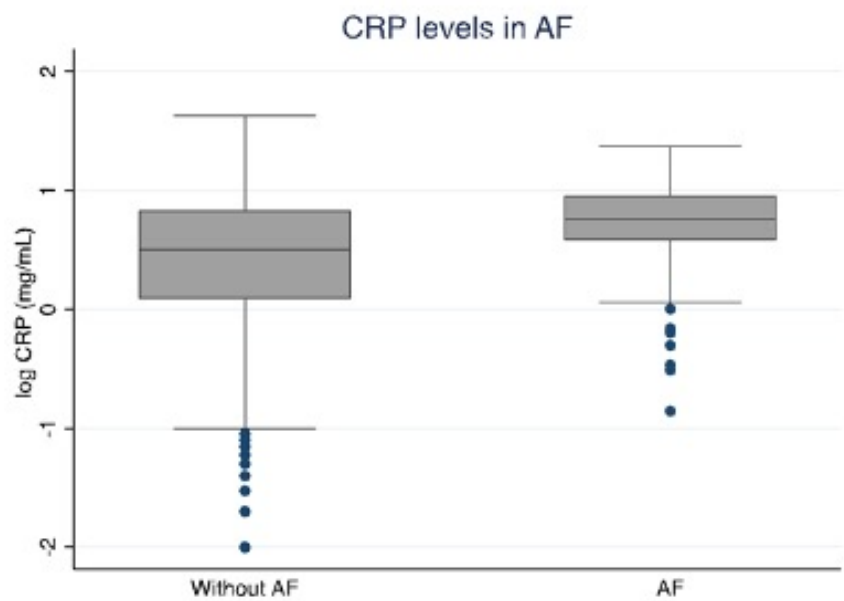
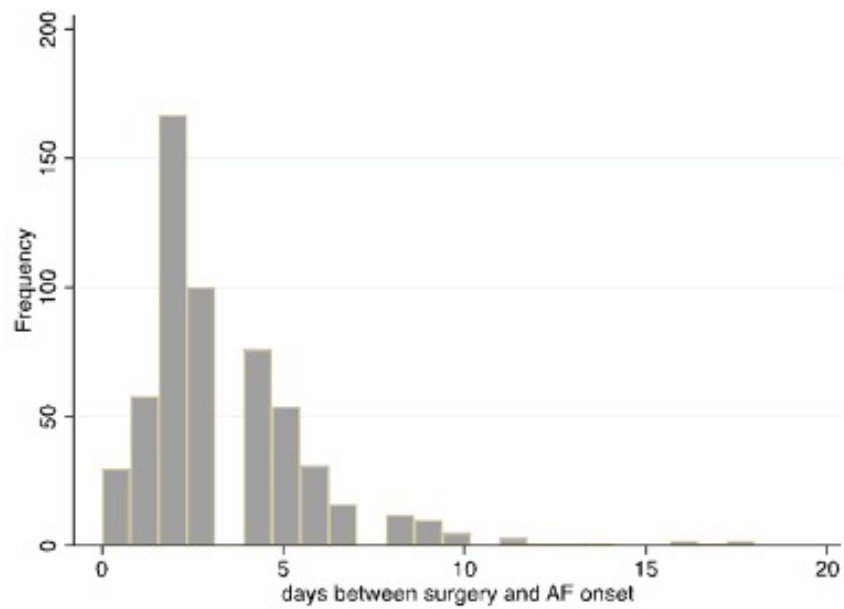
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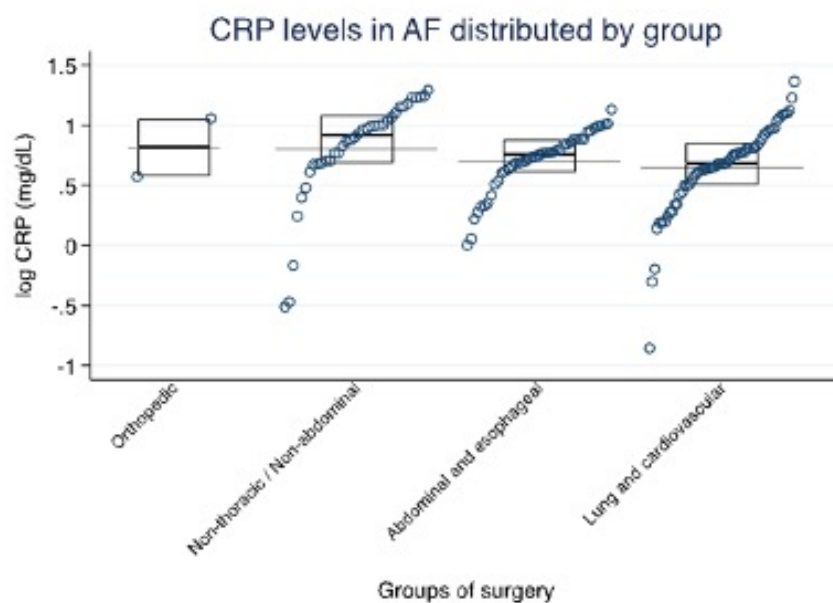
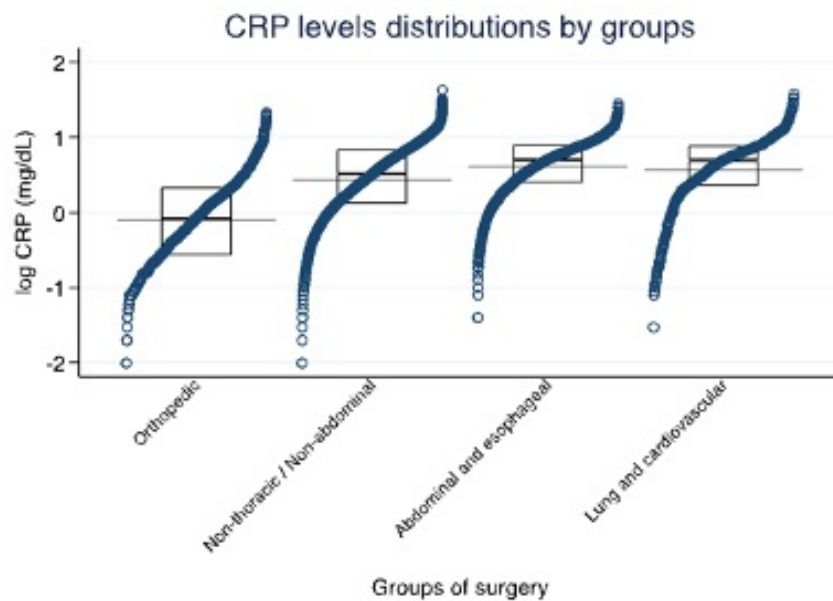
Abstract

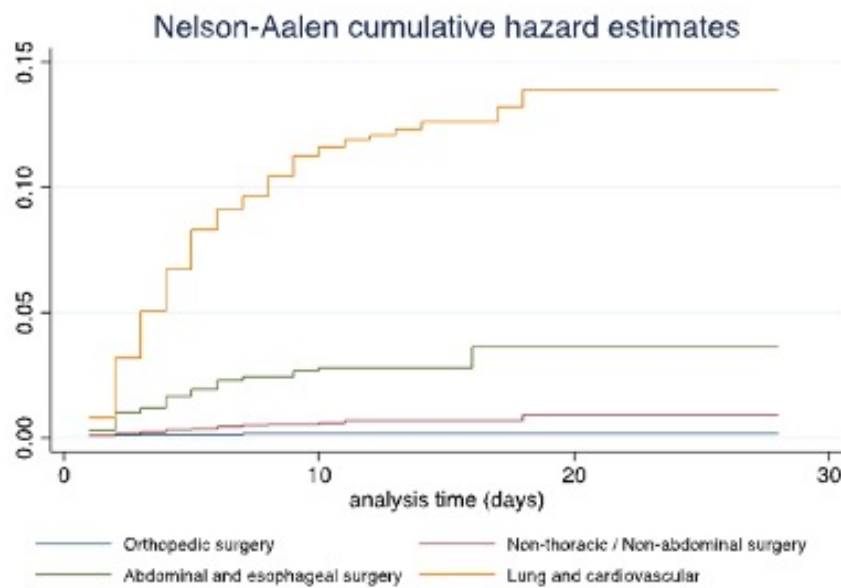
INTRODUCTION. Post-operative atrial fibrillation (POAF) represents the most common arrhythmia reported in the days following surgery. We aimed to investigate the incidence of POAF in the 28 days after surgery and determine its predictors, with a specific focus on inflammation markers. **METHODS.** We performed a retrospective single center cohort study that included consecutive adult patients who underwent a major surgical procedure between January 2016 to January 2020. Patients were divided into four subgroups according to the type of surgery: (I) orthopedic, (II) non-thoracic non-abdominal, (III) abdominal and esophageal, or (IV) lung and cardiovascular surgery. **RESULTS.** Among 53,387 included patients (48.8% male, mean age 59 ± 15.9 years), POAF occurred in 570 (1.1%) with a mean latency after surgery of 3.4 ± 2.6 days. Ninety patients died (0.17%) after a mean of 13.7 ± 8.4 days. The 28-day arrhythmia-free survival was lower in patients undergoing lung and cardiovascular surgery ($p < 0.001$). Patients who developed POAF had higher levels of C-Reactive Protein (CRP) (0.70 ± 0.03 vs. 0.40 ± 0.01 log₁₀ mg/dl; $p < 0.0001$). In the multivariable Cox regression analysis, adjusting for confounding factors (age, gender, length of hospital stay, and group of surgery), CRP was an independent predictor of POAF [HR per 1 mg/dL increase in log-scale = 1.81 (95% CI 1.18–2.79); $p = 0.007$]. Moreover, independent predictors of POAF were also age (HR/1 year increase = 1.06 (95% CI 1.04–1.08); $p < 0.0001$), lung and cardiovascular surgery (HR 23.62; 95% CI 5.65–98.73; $p < 0.0001$), and abdominal and esophageal surgery (HR 6.26; 95% CI 1.48–26.49; $p = 0.013$). **CONCLUSIONS.** Lung and cardiovascular surgery had the highest risk of POAF in the presented cohort. CRP was an independent predictor of POAF and post-surgery inflammation status may represent a major driver in the pathophysiology.

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