Atrial fibrillation with or without structural abnormalities. Analysis from a nationwide database

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Background: Atrial Fibrillation (AF) is often associated with underlying heart failure, valvular disease, ischemic heart disease, as well as other structural heart diseases, but can also occur as an independent entity which may be named pure AF or lone AF. Small cohort studies have suggested that lone AF patients may have a favorable prognosis in terms of mortality and ischemic stroke rates. We aimed to assess, at a nationwide scale, the prognosis of patients hospitalized with lone AF and AF associated with cardiac disease.

Methods: From the French administrative hospital-discharge PMSI database (Programme de Médicalisation des Systèmes d'Information) covering hospital care and representative of the whole French population, all consecutive patients with AF diagnosis hospitalized between 2010 and 2018 were included. From this huge database, 2,793,234 patients were included: group lone FA: 665,431, group AF and cardiac disease: 2,727,803. Incidence rates (%/year) for the outcomes (all-cause death, cardiovascular [CV] death, or ischemic stroke) during follow-up were compared between groups using incidence rate ratios (RR) for the whole cohort and also for a subgroup of 539,654 propensity score matched patients for non-cardiovascular conditions (269,827 with AF alone and 269,827 with AF and CD).

Results: The majority of this population had AF associated with a cardiac disease (n=2,127,803; 76.2%). At follow-up (median [IQR] 1.1 [0.1–3.4] years), patients with AF and CD were at higher risk of all-cause mortality (yearly incidence 13.6% vs 9.0%, RR [95% CI] 1.51 [1.50–1.52], $p<0.00001$) and CV death (4.4% vs 1.9%, RR 2.33 [2.30–2.36], $p<0.00001$) than those with lone AF. In the propensity score matched population (median follow-up [IQR] 1.9 [0.3–4.4] years), patients with AF and CD also had worse outcomes than patients with lone AF (yearly incidence rates for all-cause mortality: 10.6% vs 7.4%, RR 1.43 [1.42–1.45], $p<0.00001$; and for CV death: 3.3% vs 2.0%, RR 1.64 [1.61–1.68], $p<0.00001$). However, lone AF patients were at higher risk of ischemic stroke: yearly incidence rates 2.75% in those with lone AF vs 1.69% in patients with AF and CD (RR 0.62 [0.60–0.63], $p<0.00001$).

Conclusion: In our large study from a nationwide database about patients hospitalized with AF, two distinct clinical entities were identified, that could explain the results highlighted: 1) the consistently higher mortality in the group associating AF and underlying heart disease (AF may bea marker for poor outcome when there is a structural heart disease; 2) Lone AF group which prognosis may be related to a higher incidence of thromboembolic events. These results could have important implications in terms of thromboembolic prevention but further studies are still needed to investigate the underlying mechanisms of embolic pathophysiology and its specific management.