

**lek. Monika Maria Gawalko**

**Migotanie przedsionków i wybrane choroby współistniejące**  
*Atrial fibrillation and selected comorbidities*

**Rozprawa na stopień doktora nauk medycznych i nauk o zdrowiu  
w dyscyplinie nauki medyczne**

Promotor: dr hab. n. med. Agnieszka Kapłon-Cieślicka

I Katedra i Klinika Kardiologii Warszawskiego Uniwersytetu Medycznego



Obrona rozprawy doktorskiej przed Radą Dyscypliny Nauk Medycznych  
Warszawskiego Uniwersytetu Medycznego

Warszawa 2021 r.

## **Streszczenie w języku angielskim**

Screening and treatment of cardiovascular risk factors and comorbidities is one of the three main pillars of the treatment of AF. In Poland, there is a lack of multi-center, large-scale studies on the impact of comorbidities on the clinical picture, including the risk of thromboembolic events, as well as on the applied AF treatment.

The aim of this study is to characterize, evaluate the pharmacotherapy in patients with AF and selected comorbidities, including heart failure (HF) and vascular disease (VD) as well as to analyze the relationship between the risk of a thrombus in the left atrial appendix, its mechanical function and comorbidities in patients with AF.

### **Publication 1: VD in patients with AF**

Within the prospective international EORP-AF Long-Term General Registry, 701 Polish patients with AF were included. VD, defined as coronary artery disease (CAD) and/or peripheral artery disease (PAD), was found in 44% of patients with AF (CAD in 31%, PAD in 7.2%, CAD and PAD coexistence - in 5.9%). The occurrence of VD was independently associated with older age, diabetes, hypercholesterolaemia, and HF. Among patients with AF and VD, 96% were treated with antithrombotic treatment (triple antithrombotic therapy in 11%, dual antithrombotic therapy in 14%, oral anticoagulation (OAC) in 63% and antiplatelet therapy in 8.6%) and 4.1% of patients were not receiving any form of antithrombotic treatment. Concomitant triple antithrombotic therapy was associated with an increased risk of major adverse events, including all-cause death, compared with patients using OAC alone or OAC and single antiplatelet agent.

### **Publication 2: HF in patients with AF**

The prospective, multicenter registry POL-AF included 3999 patients with AF hospitalized in 10 Polish cardiology centers. Over 70% of patients had HF, half of them, HF with a preserved ejection fraction. Patients with concomitant HF were older, had more comorbidities, and had permanent AF twice as often (34%) than patients without HF (15%). Almost one fifth of patients with AF and coexisting HF had a history of a thromboembolic event. Despite class I indications for OAC in 98% of patients with AF and HF, as many as 16% of them did not receive OAC treatment on hospital admission. Predictors for not prescribing OAC at hospital admission included older age ( $\geq 75$  years), prior hemorrhagic events, anemia and antiplatelet therapy. Of patients with AF and HF not treated with OAC prior to admission to hospital, 63% received OAC (most commonly apixaban) at discharge.

As many as 15% of patients diagnosed with HF with preserved ejection fraction received class I antiarrhythmic drugs at discharge.

### **Publication 3: Comorbidities and mechanical function of the left atrial appendage in AF**

A retrospective, two-center registry enrolled 1476 patients with AF who underwent transesophageal echocardiography (TEE) prior to AF ablation or electrical cardioversion. During TEE, the presence of a thrombus in the left atrium and the mechanical function of the left atrial appendage were assessed by measuring the velocity of its emptying (left atrial appendage emptying velocity, LAAV). Patients were divided according to the value of left atrial appendage velocity (LAAV <20 cm/s and  $\geq$  20 cm/s). The incidence of thrombus in the left atrial appendix was almost four times higher in patients with decreased LAAV compared to those with LAAV  $\geq$  20 cm/s (20% vs 4.6%). In multivariate logistic regression, non-paroxysmal AF, HF and age  $\geq$  65 years were predictors of both left atrial appendage thrombus and decreased LAAV, while renal dysfunction was a predictor of left atrial thrombus but not decreased LAAV.

### **Summary**

The study used data from large multicentre registries, including Polish patients with AF. The collected data allow for a reliable assessment of the actual clinical picture of contemporary Polish patients with AF. Almost 44% of patients with AF have coexisting VD, which is associated with the use of triple anticoagulant therapy in 11% of them. At the same time, the use of triple anticoagulation therapy was associated with a higher risk of adverse events, including death from any cause. Moreover, it has been shown that in hospitalized patients with AF, HF occurs much more often than previously reported, in as many as 71% of patients, which is probably due to the analysis of patients with HF with a preserved ejection fraction. Despite class I indications for OAC in 98% of patients with AF and accompanying HF, as many as one in six patients was not treated with OAC prior to admission to the hospital. Similarly, one in six HF patients with a preserved ejection fraction received class I antiarrhythmic drugs despite a diagnosis of structural heart disease. The above results show a discrepancy between daily clinical practice and current guidelines. In patients with AF, HF increases the risk of thrombus formation in the left atrial appendage, by impaired mechanical function and related disturbances in blood flow, while kidney disease increases the risk of thrombus formation in the left atrium by mechanisms other than blood stasis.