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Atrial Fibrillation in Hemodialysis: Risks, Anticoagulation, and Clinical Outcomes

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Atrial fibrillation (AF) is highly prevalent among patients receiving hemodialysis, affecting up to one-quarter of this population and conferring substantial risks of thromboembolism, mortality, and hospitalization. However, the management of AF in hemodialysis patients remains uniquely challenging due to the coexistence of markedly elevated bleeding risk. Traditional risk stratification tools, including CHA₂DS₂-VASc and HAS-BLED scores, are not well validated in end-stage kidney disease, limiting their clinical utility in this setting. The role of anticoagulation in hemodialysis patients with AF remains controversial. Observational studies have suggested that warfarin may not provide a clear reduction in ischemic stroke and may increase the risk of hemorrhagic complications. Direct oral anticoagulants (DOACs), particularly apixaban, have emerged as potential alternatives with more favorable safety profiles in some real-world analyses; however, randomized trials such as RENAL-AF and AXADIA-AFNET 8 have been underpowered and inconclusive. Consequently, substantial uncertainty persists regarding the net clinical benefit of anticoagulation in this population. Non-pharmacologic strategies, including left atrial appendage occlusion, are gaining interest as potential options for patients at prohibitive bleeding risk, although robust data in hemodialysis populations remain limited. Importantly, AF in hemodialysis reflects a distinct pathophysiological milieu characterized by uremia, inflammation, and dynamic volume and electrolyte shifts, which may influence both arrhythmogenesis and clinical outcomes. In this presentation, we synthesize current evidence on the epidemiology, pathophysiology, and management of AF in hemodialysis patients, and propose a pragmatic, individualized approach to clinical decision-making. Future studies are needed to define optimal anticoagulation strategies and

improve risk stratification in this high-risk population.

Keywords: Atrial fibrillation, Hemodialysis, Anticoagulation, Stroke, Bleeding risk