



Atrial fibrillation ablation in hemodialysis patients: a new realm on the overlooked

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For many decades, atrial fibrillation (AF) has afflicted patients' quality of life (QoL), adverse outcomes, and economic burdens, affecting at least 1–2% around the globe (1). Prior landmark study substantiated that AF is a strong risk factor of ischemic stroke, and the need for thromboembolism prophylaxis is tailored by CHADsVASC scores (2). In addition, AF itself may precipitate heart failure, coronary ischemia, and debilitating palpitation, which discomfort and disrupt daily life.

The essence of AF treatment is to prevent thromboembolisms, essentially stroke, and to relieve symptoms. For the latter, there has been an exhaustive effort to develop the treatment modalities, from medical therapies to surgical ablation. Nonetheless, the tradeoffs between benefits and risks on these options are formidable, for example, ones might not have significant palpitation but suffer from the side effects of medications or the need to proceed with an open heart surgery for MAZE procedure. Catheter ablation (CA) has been later emerging, widely adopted and accepted among the greatest armaments in controlling the AF burdens, improving QoL, reducing HF admission and mortalities in certain populations (3–5).

Several factors influence the outcomes following the CA procedure, including age, sex, demographics, and underlying

conditions. While all commoners such as coronary artery disease (CAD) and structural heart disease are well studied, the implication of advanced stage chronic kidney disease (advanced CKD) and end stage kidney disease (ESKD) in patients undergoing AF CA are surprisingly but vastly limited. These populations have always been excluded from registries or clinical trials as they were preconceived by investigators as “end stage” spectrums.

Courageously enough, Chen *et al.* (6) investigated the role of CA on patients with AF who received intermittent hemodialysis (HD). This retrospective design study enrolled 25 patients on HD, and they were compared to 100 patients without HD on the basis of 1:4 matching by age, sex and type of AF. The author discovered that HD patients had a higher prevalence of hypertension and heart failure. However, following CA, 14 out of 25 HD patients (56%) and 77 out of 100 non-HD patients (77%) were free from AF recurrence in approximately mean follow-up 3±1.5 years, insinuating that a lower AF-free rate was found in HD patients following the first CA ablation. Next, repeat CA was performed in both HD and non-HD patients with AF recurrence, both of which had similar AF-free rates on mean follow-up 1.7±1 years.

Following the first ablation attempt, this unsatisfactory

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result would not be surprising as ESKD patients are at higher risk of AF recurrence. As previously noted, more comorbidities, structural heart changes under toxic milieu, and aberrant drug metabolisms, especially antiarrhythmic drugs (AADs) are probably responsible for the findings. Further, non-pulmonary vein foci may be significantly higher in patients with renal impairment, according to a prior study (7). On the contrary, AF recurrence rates after the second ablation attempt seem comparable despite the similar patterns of ablation techniques in both study groups. Fewer patients underwent repeat ablation, only 5 (HD) and 11 (control group). Small participants and study designs pose considerable limitations in this sub-analysis. Whether or not these include patients who were preferentially selected for repeat ablation is probable. Herein, the latter finding needs future studies with larger proportions of ESKD patients to further elucidate, including those who were on peritoneal dialysis.

The authors additionally narrated that AF ablation in ESKD has a decent safety profile, reflected by the absence of significant periprocedural complication rates and non-AF-related mortalities. This finding was opposite to a recent study (8) which suggested a correlation between advanced CKD/ESKD and higher complication rates. Again, the small numbers of participants and study designs preclude the absolute to this issue. Furthermore, the whole population in this study were with fewer co-morbidities, in which healthy population effect may confound the overall endpoints.

In summary, Chen *et al.* should be lauded for accomplishing the onerous tasks in this common, yet overlooked, population. This study provided supplemental perspectives on the understudied, but growing, group in the contemporary. The needs of dedicated randomized control trials and extents of patients patients with ESKD are in demand for in-depth analyses. More emphasis on AF catheter ablation in CKD patients should be heightened to improve the clinician's awareness.

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