**Safety of Aldosterone Receptor Antagonists in Patients with Congestive Heart Failure**

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**Background:** The aldosterone receptor antagonists, spironolactone and eplerenone, help to reduce morbidity and mortality in patients with heart failure with reduced ejection fraction (HFrEF), categorized as an ejection fraction of 40% or less. It is recommended to initiate one of these agents in patients whose symptoms are classified under the New York Heart Association (NYHA) class 2, 3, or 4 based on severity. Several monitoring parameters, including serum potassium levels, blood pressure, and renal function, are routinely assessed with these agents.

**Objective:** The purpose of this study was to evaluate the safety profile of spironolactone and eplerenone in patients with congestive heart failure.

**Methods:** This retrospective chart review assessed patients 18 years and older with an ICD-9 or ICD-10-CM code of heart failure. Additionally, included patients were taking spironolactone or eplerenone and had an outpatient encounter at MUSC Health between 07/01/2014 and 03/31/2021. The exclusion criteria involved patients with stage 5 CKD or end-stage renal disease, as well as patients who were taking medications that significantly altered potassium levels. The primary safety outcomes included change in serum potassium, systolic and diastolic blood pressure, and serum creatinine from baseline to the first follow-up measurement after agent initiation. Secondary safety outcomes included thromboembolic events and sexual dysfunction. Lastly, resource utilization outcomes, such as the number of CHF exacerbations and all-cause hospital admissions one year following initiation of the aldosterone receptor antagonist, were analyzed. Descriptive statistics were used for the demographic data, while t-tests and Mann-Whitney U tests were used for continuous data. Chi-squared tests were utilized for the categorical data.

**Results:** A total of 178 patients with a diagnosis of heart failure from the pre-specified time period were included. From the baseline demographic data, there were significant differences with more males taking eplerenone (57% vs. 91%, p < 0.001) and more patients on higher doses of eplerenone (13% vs. 31%, p 0.004), classified as 50 mg or more. When looking at the change in serum potassium, systolic and diastolic blood pressure, and serum creatinine from baseline to the first follow-up measurement, there were no significant differences seen. Moreover, there were no significant differences in the number of patients who experienced thromboembolic events or sexual dysfunction. There were no differences in resource utilization outcomes between the two groups initially; however, a significant difference was shown in the subgroup analysis of patients with HFrEF (n = 98). Within this group, 20 patients taking spironolactone had all-cause admission(s) after aldosterone antagonist initiation versus 8 patients taking eplerenone (37% vs. 18%, p = 0.04)

**Conclusion:** There are no statistically significant differences between eplerenone and spironolactone in terms of safety profile. Eplerenone may be a preferred treatment option if concerns for gynecomastia, particularly in the male population. In the HFrEF cohort, when looking at resource utilization, patients taking spironolactone were associated with higher rates of all-cause admissions following medication initiation.