McLaren PHYSICIAN PARTNERS CLINICAL CORNER

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New Treatment Option for CHF

More than 9 million people in the Unites States have congestive heart failure reduced ejection fraction (HFrEF). It is the most common diagnosis in hospitalized patients over the age of 65. One of nine deaths have heart failure as a contributing cause and inflicts considerably quality of life. It's an illness that consumes healthcare resources. Established therapies for chronic HFrEF include angiotensin receptor-neprilysn inhibitors (ARNIs), angiotensin-converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARBs), beta blockers, aldosterone antagonist and hydralazine/isosorbide dinitrate. All these therapies have been shown to reduce morbidity and mortality in randomized clinical trials.

Since the last ACC Expert Consensus for the management of heart failure in 2017 (referred to as the Guidelines) new therapies have emerged: the **sodium-glucose contransporter-2 (SGLT2) inhibitors**. Two landmark studies emerged utilizing **SGLT2i** for the management of HFrEF. The studies demonstrated reduction in cardiovascular death, decreased worsening of heart failure and reduction in first episode of congestive heart failure requiring hospitalization in patients treated with **SGLT2i** compared to placebo in patients with HFrEF with and without diabetes. The compelling data emphasizes its usage in patients with reduced ejection fraction.[1] It is clear that **SGLT2i** exhibit a benefit in patients with HFrEF. The mechanism of benefit from these agents in HFrEF remains uncertain. **SGLT2i** leads to osmotic diuresis and natriuresis and decreases in arterial pressure and compliance. It also leads reduction of preload and afterload blunting of cardiac stress/injury with less hypertrophy.

The SGLT2i are currently not approved for use in type I diabetes due to increased risk of diabetic ketoacidosis. SGLT2i are also contraindicated in patients on hemodialysis or with ESRD. Mild worsening of renal function after SGLT2 inhibitor initiation may also occur before long term improvement in renal function and caution in pts with eGFR <30 mL/min.

There are some significant potential side effects with SGLT2i use:

- May contribute to volume depletion: Assess for volume depletion and correct volume status in the elderly, patients with renal impairment or low SBP, and in patients on diuretics. Consider altering diuretic dose if applicable.
- Increased risk of mycotic genital infections: counsel patients on proper hygiene.
- Necrotizing fasciitis of the perineum (Fournier's gangrene): rare, serious, life-threatening cases have occurred in both female and male patients; assess patients presenting with pain or tenderness, erythema, or swelling in the genital or perineal area, along with fever or malaise.

References:

1. *The 2021 Update to 2017 EDCP for Optimization of Heart Failure treatment*

Special thanks to Dr. Dan Lee, Cardiologist at McLaren Bay Heart and Vascular, for the content of this Clinical Corner. Dr. Lee may be reached at (989) 894-3278.

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