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Sacubitril/Valsartan vs ACEi and Beta-blocker Therapy for Heart Failure Patients with Reduced Ejection Fraction (EF <40%)?

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Mary is a 64 year old female with Heart Failure with reduced ejection fraction. She has been hospitalized twice in the last year for exacerbations related to heart failure. She is still experiencing symptoms of heart failure after being on maximum ACEi, B-Blocker and Spironolactone therapy.

1 Ask: Research Question

Would adding Entresto™ (Sacubitril/valsartan) as adjunctive therapy improve morbidity/ mortality rates vs traditional ACEi and beta-blocker therapy for heart failure patients with reduced ejection fraction (EF <40%)?

2a Acquire: Search Terms

Search terms: heart failure, BNP, treatment of heart failure, sacubitril/valsartan

Databases: PubMed, Dynamed, UpToDate

Patient/Client group: Heart failure patients with reduced ejection fraction

Intervention: Switching ACEi for sacubitril/ valsartan

Comparison: Patients receiving sacubitril/ valsartan vs ACEi therapy

Outcome: Sacubitril/ valsartan patients had a reduction in cardiovascular death incidence

2b Acquire: Selected Articles

McMurray et al. (2014): A double blind study comparing patient morbidity and mortality rates of Sacubitril/valsartan vs ACEi

Yancy et al. (2017): Systematic review of Heart Failure signs and symptoms, diagnosing, and current treatment options

Nagarajan et al. (2011): Systematic review of BNP's effects within the body and its response to worsening heart failure

3a Appraise: Study Quality

McMurray et al (2014): Level II evidence; evidence obtained from one well-designed randomized trial comparing Sacubitril/valsartan to Enalapril in Heart failure patients (n= 8,436)

Yancy et al. (2017): Level I evidence; Systematic review of all literature that can be generalized to persons with heart failure with reduced ejection fraction. Official American Heart Association Guidelines.

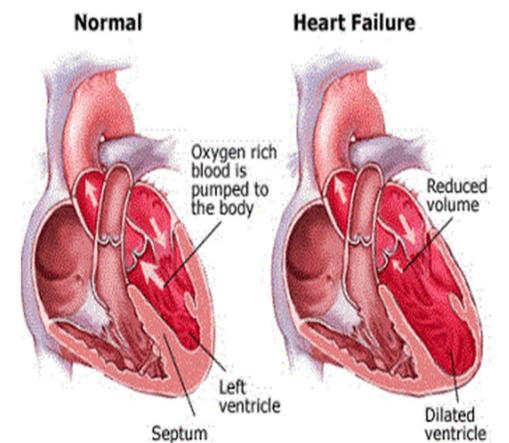
Nagarajan et al. (2011): Level V evidence; evidence obtained through review of many descriptive and qualitative studies (n= 57 studies) about BNP function and its response in heart failure

3b Appraise: Study Results

McMurray et al. (2014): Heart failure patients with reduced ejection fraction receiving equivalent doses of sacubitril/valsartan vs enalapril had a reduced rate of mortality related to cardiovascular deaths and a reduced rate of hospitalizations, 21.8% vs 26.5% respectively (hazard ratio, 0.80; 95% CI, 0.73 to 0.87; P <0.001)

Yancy et al. (2017): Appraised all major studies related to heart failure, recommendations to start ACEi first line, adding in B-blocker when tolerated with Spironolactone added when ACEi and B-blocker are not effective. Loop diuretics suggested for volume overload relief

Congestive Heart Failure



Nagarajan et al. (2011): Appraised 57 articles showing the BNP has the effects of vasoactive peptides within the body that act by blocking vasoconstriction, sodium reuptake and cardiac remodeling. BNP is also broken down by neprilysin which is inhibited by sacubitril.

4 Apply: Conclusions for Practice

McMurray et al. (2014): This study shows that when a patient is already on maximum pharmacological therapy (ACEi/ARB, B-Blocker and spironolactone) switching the ACEi/ARB to sacubitril/ valsartan will improve their mortality rates and reduce their number of hospitalizations.

A review of other literature showed there are many positive effects of BNP (vasoconstriction, sodium reuptake and cardiac remodeling) in patients with heart failure and blocking the break down of BNP will help keep it around longer and increase its effectiveness

References

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Clinical Bottom Line

Yes, sacubitril/valsartan improved the mortality rates of heart failure patients on maximum therapy (ACEi, B-Blocker and Spironolactone) when compared to an ACEi and B-Blocker

