Indian Health Service
National Pharmacy and Therapeutics Committee
Formulary Brief: ***Heart Failure***
-May 2017-

Background:
It is estimated that 5.7 million Americans currently live with heart failure.[1] The epidemic of heart failure in the United States is influenced by a number of variables such as an aging population, the twin epidemics of obesity and diabetes, and also the prevalence of smoking and uncontrolled hypertension. Heart disease is the most common cause of death among American Indians and Alaska Natives, who are collectively 20% more likely to die from heart disease compared to all U.S. races.[2] Over one-third of American Indian and Alaska Native people who die from heart disease are under the age of 65 years.

Discussion:
Heart failure is not a disease but rather a syndrome consisting of signs and symptoms which are collectively a consequence of relative impairment in heart pump function and resulting from diverse etiologies and mechanisms. Cardiac remodeling is the process by which a combination of mechanical, neuro-hormonal, and genetic factors alters cardiac physiology resulting in hypertrophy, myocyte loss, and fibrosis. A variety of pharmacologic interventions have been identified for the effective management of heart failure and are advocated by clinical practice guidelines to reduce heart failure-related morbidity and mortality.[3-7]

For patients at high-risk for heart failure or who have structural heart disease without heart failure symptoms, in addition to a heart healthy lifestyle, an appropriate preventive strategy may include use of ACE-inhibitors, ARBs, and statins when indicated.[3] Beta-blockers are recommended for the management of most patients with structural heart disease, with or without heart failure symptoms, regardless of the presence or absence of reduced ejection fraction.[3]

For patients with left ventricular systolic dysfunction, a beta-blocker and ACE-inhibitor should be routinely offered as first line therapy, with substitution of an ARB for ACE-inhibitor intolerant patients.[4] A mineralocorticoid receptor antagonist is indicated to reduce morbidity and mortality among patients with NYHA class II-IV heart failure and ejection fraction (EF) less than 35% as well as for EF less than 40% following an acute myocardial infarction with symptomatic heart failure or with a history of diabetes mellitus.[3]

For persistently symptomatic patients of African-American descent with reduced ejection fraction and NYHA Class III-IV heart failure, the addition of a combination of hydralazine and a nitrate is indicated.[3] Diuretics, such as furosemide, are indicated to reduce symptoms and improve exercise capacity in patients with signs and/or symptoms of volume overload.[7]

While of less certain benefit, digoxin may be considered for patients in sinus rhythm who remain symptomatic despite treatment with an ACE-inhibitor (or ARB), a beta-blocker, and a mineralocorticoid receptor antagonist.[7]

Last year, two new agents were added to heart failure guidelines from the American Heart Association and the European Society of Cardiology. Based on results from the PARADIGM-HF randomized control trial, which showed a 20% reduction in both heart failure hospitalization and cardiovascular death in patients with chronic symptomatic heart failure with reduced ejection fraction (NYHA Class II or III) who tolerate an ACE-inhibitor or ARB, replacement by an angiotensin receptor-neprilysin inhibitor (ANRI) is now recommended to further reduce morbidity and mortality.[6] Also included in updated guidelines is a new recommendation for use of the sinoatrial node blocking agent, ivabradine, to reduce heart failure-related hospitalization among patients with reduced EF on standard therapy including a beta-blocker at the maximum tolerated dose but whose resting heart rate remains above target.[6]

Conclusion(s):

Among chronic health conditions, heart failure is particularly amenable to guideline-based management because the foundation of peer-reviewed clinical research offers clear and convincing evidence for effective strategies to reduce both morbidity and mortality. The appropriate use of various medication classes, including beta-blockers, ACE-inhibitors, ARBs, mineralocorticoid receptor antagonists, and ANRIs has been shown to reduce heart failure-related morbidity and mortality.

If you have any questions regarding this document, please contact the NPTC at IHSNPTC1@ihs.gov. For more information about the NPTC, please visit the NPTC website.

References:

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