First-line therapies in heart failure with reduced ejection fraction.

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Introduction

Aldosterone antagonists, beta blockers designed specifically for heart failure, and angiotensin converting enzyme inhibitors should all be used to treat heart failure with a lower ejection fraction. All of these medications lower mortality. If the patient is unable to tolerate angiotensin converting enzyme inhibitors, angiotensin receptor antagonists should be utilised. If patients still experience symptoms despite using beta blockers, aldosterone antagonists, and angiotensin converting enzyme inhibitors, the combination of sacubitril and valsartan is advised. Treatment for prolonged symptoms may also involve the use of digoxin and diuretics. No medication has been demonstrated to decrease mortality in heart failure with intact ejection fraction. Diuretics should be used with caution when treating patients, and risk factors, especially hypertension, should be aggressively managed [1].

ACE inhibitors and angiotensin receptor antagonists

First-line treatment for heart failure with a decreased ejection fraction and asymptomatic left ventricular dysfunction is angiotensin-converting enzyme inhibitors. With a decrease in myocardial infarction and heart failure hospitalisation, its use results in a 3.8% absolute reduction (20% relative) in death. In all age groups, beneficial benefits start early and last a long time. The deleterious effects of chronic stimulation of the renin-angiotensin-aldosterone system, such as salt and water retention, vasoconstriction, and heart hypertrophy and fibrosis, are lessened by angiotensin converting enzyme inhibitors. Researches on sartans, which are angiotensin receptor antagonists, have not consistently shown a decrease in mortality. Because of this, sartans are only recommended as a backup option for people who cannot tolerate angiotensin converting enzyme inhibitors [2].

The lowest dose of treatment should start as soon as the diagnosis is made. If the blood pressure is 90 mmHg or higher systolic and limited by symptoms rather than the recorded blood pressure, up-titration is advised. If symptomatic hypotension develops, it is best to reduce or stop the dosage of other vasodilators first. If the patient is not congested, it is also best to lower or stop the dosage of the angiotensin-converting enzyme inhibitor. It is often normal for renal function to just slightly deteriorate (eGFR to decrease by up to 30%). A slight increase in potassium is to be anticipated, but the dose of the angiotensin converting enzyme inhibitor should be cut in half if it rises above 5.5 mmol/L. Once other potential causes of cough, such as pulmonary oedema or underlying lung illness, have been ruled out, switching from an ACE inhibitor to a sartan may be recommended [3].

Beta blockers

Another crucial first-line treatment for heart failure with a low ejection fraction is beta blocking medication. When used with angiotensin converting enzyme inhibitors, they are linked to similar decreases in hospital admissions for individuals in sinus rhythm and an absolute mortality reduction of 4.3% (24% relative reduction). Beta blockers provide antiarrhythmic properties, lower myocardial oxygen demand, shield against ischaemia, and lower the risk of abrupt cardiac death. You should only utilise beta blockers that have been proven to work in heart failure [4].

If the patient is older than 70 years old, these include nebivolol, bisoprolol, carvedilol, extended-release metoprolol succinate. Atrioventricular block of the second or third degree is an absolute contraindication to beta blockers. In order to continue therapy if these things happen, a pacemaker or cardiac resynchronization therapy should be taken into consideration. Only a slight contraindication applies to asthma. Before deciding not to administer beta blockers, chronic obstructive pulmonary disease should be evaluated with lung function tests. The patient should be able to tolerate beta blockers if there is no major airway reversibility. Typically, beta blocker medication has little to no clinically significant effect on lung function tests.

If clinical deterioration occurs or the heart rate drops to less than 50 beats per minute, the dose should be reevaluated. Asymptomatic hypotension does not necessitate a change in therapy, just like with angiotensin converting enzyme inhibitors. When opting to lower the dose of a beta blocker if symptoms are present, think about lowering the dose of any diuretic or, if there is no congestion, other vasodilators first. However, the additional vasodilating effects of carvedilol may counteract the early deterioration of heart failure. Bisoprolol and metoprolol have a less vasodilating impact and may be better tolerated if the blood pressure is borderline [5].

Conclusion

The cornerstone of treatment for heart failure with decreased ejection fraction is a combination of beta blockers and angiotensin converting enzyme inhibitors. If the patient is still exhibiting symptoms, aldosterone antagonists are

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added. These three medications lower morbidity and death. If symptoms continue, digoxin and diuretics may also be helpful. In heart failure with a low ejection fraction, the combination of valsartan and sacubitril is a developing substitute for angiotensin converting enzyme inhibitors. To achieve the greatest benefit on symptoms and survival, drug doses must be increased until they are at their highest tolerated levels.

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