Optimal Therapy for Congestive Heart Failure

Number 33 December 1998

What is the best therapeutic cocktail for the patient with congestive heart failure (CHF)?

"Triple drug therapy—ACE inhibitor (ACEI), diuretic, and digoxin—is hands down the best practice for the treatment of CHF in patients with symptomatic left ventricular dysfunction," say the researchers who conducted an analysis of the pooled data from the PROVED and RADIANCE trials.[1] Better maintenance of exercise capacity was seen in the triple drug cohort as compared with the ACEI and diuretic, or diuretic-only cohorts, and maintenance of left ventricular ejection fraction was better for patients taking digoxin.

"Add on" Therapy for CHF

CHF was listed as the cause of death in 250,000 cases last year and this number has increased dramatically over the past decade. It is estimated that more than 4.7 million Americans are affected with CHF and there are 400,000 new cases each year. We would anticipate that these numbers will only increase with the aging of the baby boomers. Obviously we're going to need more and better treatment.

Counterintuitive as it may seem, beta-blockers (BBs) are also being recommended for treatment of CHF. Pooled evidence suggests that beta blockade reduces all cause mortality in patients with ischemic and non-ischemic cardiomyopathy caused CHF.[2] A summary report of four randomized trials of the combined beta- and alpha-adrenergic blocking agent Carvedilol demonstrated an improved survival advantage in patients with CHF.[3] We're not sure yet whether this is a class effect or one agent is better than another but the "experts" together now feel that BBs should be added on top of our triple drug therapy once the CHF patients are stable. BBs decrease mortality by another one-half on top of ACEI benefits by decreasing detrimental left ventricular remodeling, a neuroendocrine effect. In other words, **BBs produce significant improvement in the shape and function of the heart in six to twelve weeks**, **an impressive response.** It is not easy or customary to add another drug when patients feel well, but doing so will definitely decrease mortality.

New Treatment Reduces Mortality By 27%

A new study, RALES, not yet published, presented at the American Heart Association meeting on November 11, 1998), added 25 mg./day of spironalactone (Aldactone) to routine triple drug treatment in patients with severe CHF. It was stopped 18 months prematurely because of a significant decrease in mortality.

The most likely mechanism of action is that it too has neuroendocrine effects which reverse ventricular remodeling by decreasing catecholemines. In addition most diuretics decrease serum potassium and magnesium levels which lead to an increased incidence of sudden cardiac death (SCD). Aldactone tends to reverse that effect.

This landmark study should have a major impact on how physicians treat patients with CHF and their resultant mortality rates.

A Different Perspective: Can statins decrease CHF events?

The answer is an unequivocal "YES!" Coronary artery disease is far and away the most common underlying etiology of CHF secondary to ischemic cardiomyopathies. Using statins to decrease events—*absolutely data proven*—for primary prevention, post MI and post procedures will stabilize lipid-rich plaque and improve coronary endothelial function. By maintaining coronary perfusion, there will be decreased infarction rates, decreased occurrence of severe mitral regurgitation, less stunned and hibernating myocardium and less remodeling status post myocardial infarction. This treatment will preserve LV function and significantly decrease the incidence of CHF. In the 4S study[4] there was a 21% reduction in CHF events and a 35% decrease in hospitalization for CHF in those on simvastatin (Zocor.)

CAVEATS:

1) **ACEI's-** Use them in doses proven beneficial (by the data), ex. lisinopril 30-40 mg./day or another ACEI in a comparable dose if clinically tolerated. Our compliance is still not what it should be and some studies (not yet proven) suggest even higher doses may be better.
2) **Digoxin**- Should be used in lower doses (probably 0.125 mg./day) maintaining a level between 0.5 and 1.0. In the digoxin morbitity-mortality study,[5] when the data is broken down into smaller subsets:
    - morbidity is definitely decreased
    - mortality was decreased in those with digoxin levels less than 1.
    - SCD was increased in those with levels greater than 1.
3) **BBs**- Add on only when the patient is stable at "dry weight"…and very carefully at low dose to hopefully avoid the more acute negative hemodynamic effects and obtain the beneficial longterm neuroendocrine effects at 6-12 weeks.
4) **Aldactone therapy for CHF**- Start in the acute phase. You MUST check SM-7 frequently initially. Start at 25 mg./day; if hyperkalemic, decrease to every other day. If not improved and not hyperkalemic, increase to 25 mg. Bid.

What would I want "my cocktail" to be…If I had CHF with LVEF<35%?

1) **Loop diuretic**—"to dry weight" and adjust as low as possible to maintain dry weight.
2) **ACEI**—high dose, minimum 40 mg. lisinopril or equivalent.
3) **Digoxin**—low dose, to maintain level between 0.5-1.
4) **Aldactone**—25 mg./day.
5) **BB**—add on as an outpatient—carvedilol right now until more conclusive data is available on other BBs, but I believe it's a class effect.
6) **Statin**—to make sure my cholesterol and LDL are less than 200 and 100 respectively.

N.B. *Heartbeat* and abstracts of the references can be reviewed at http:www.newsrounds.com under "South Jersey Heart Group."

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[1] *J AM HEART ASSOC* 1998; 32:686-692
[2] *J AM COLL CARDIOL* 1997; 30:27-34
[3] *N ENG J MED* 1996; 334:1349-55
[4] *LANCET* 1994; 344:1383-89 (4S)
[5] *N ENG J MED* 1996; 336:525-33