

## PROBLEM SOLVD: CHANGES IN HEART FAILURE MANAGEMENT

The management of heart failure has changed dramatically over the past 10 to 20 years, based on large-scale, randomized, controlled trials.

The Studies Of Left Ventricular Dysfunction (SOLVD) were two clinical trials dealing with congestive heart failure and asymptomatic left ventricular dysfunction. The SOLVD investigators were instrumental in our understanding of neurohormonal therapy, an integral component of heart failure management. The long-term results of SOLVD have really changed clinical practice.

### SOLVD

The SOLVD results, first published in 1991, compared enalapril, an angiotensin-converting enzyme (ACE) inhibitor, to placebo over a three- to four-year period in patients with an ejection fraction < 35%. The trials involved two different patient

populations and were categorized as:

1. *the Treatment Trial*, which included 2,569 patients with heart failure; and
2. *the Prevention Trial*, which included 4,228 patients without heart failure.

Heart failure-related hospitalization and myocardial infarction (MI) were significantly reduced with ACE inhibitors in both trials. Mortality, however, was significantly reduced in the Treatment Trial, with a non-significant trend in the Prevention Trial.

### XSOLVD

Sustained benefits of enalapril have now been demonstrated over a followup period of 12 years in the extended SOLVD (XSOLVD) followup study. Followup was 99.8% complete.


For patients in the Prevention Trial, the full survival benefit of enalapril emerged only after several years of followup. After a mean of 11.2 years, survival was 47% for the enalapril group compared to 41% for the placebo group; this difference in overall

survival was significant ( $P = 0.001$ ).

In the Treatment Trial, the benefit (in terms of reduced mortality with the ACE inhibitor) was sustained for approximately five years after the end of the study. However, after that time, the survival curves tended to converge. After a mean of 12.1 years, survival was 20% for the enalapril group compared to 21% for the placebo group; nevertheless, the difference in overall survival was significant ( $P = 0.01$ ).

Combining the data from both trials showed a 10% reduction in the risk of mortality in favour of enalapril ( $P = 0.0003$ ). The calculated absolute increase in median life expectancy for the combined trials was 9.4 months ( $P = 0.004$ ). Most of the survival benefit was due to a significant reduction in cardiovascular mortality (51.2% vs. 47.0%;  $P = 0.0001$ ).

### Physician's perspective

*Three- to four-year trials are too short to fully evaluate the benefits of ACE inhibitors. The ideal scenario would be to apply the XSOLVD experience (i.e., long-term followup) to other trials of pharmacologic interventions in heart failure.* 

References available—contact *Perspectives in Cardiology* at [cardio@sta.ca](mailto:cardio@sta.ca).

#### About the author ...

**Dr. Gregory Curnew** is an assistant clinical professor, McMaster University, staff cardiologist/internist and former director, coronary care unit, Hamilton General Division, Hamilton Health Science Corporation. He is also a member of our editorial board.

