Title: Relationship of Weight with Heart Failure Decompensation

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I**ntroduction:** Worsening heart failure (HF) episodes are thought to be associated with fluid overload and increased weight. The DECODE study remotely monitored weights, symptoms and device data from CRT-D patients and searched medical records to collect HF episodes as HF hospital admissions or unscheduled IV therapy to prevent inpatient hospitalizations. DECODE was designed to develop a worsening HF detection algorithm using data from a non-sequestered data set and then to test the algorithm on sequestered data. This preliminary analysis of the non-sequestered data examines weights prior to documented HF episodes.

Methods: Data were from 79 pts (92.0 pt-yrs). The last weight within 4 days before an episode was used to find relative weights for a 28-day pre-episode period. Episodes were excluded from analysis if they were within 28 days of a previous episode, had no weights, or had no weight within 4 days before the episode. Relative weights were averaged by pre-episode day across all episodes.

Results: 39 (of 79) patients had a total of 58 events. 36 (of 58) events (in 28 of 39 pts) were analyzed. 22 (of 58) episodes were excluded due to: no weights within 4 days of episode(10), no weights in the 28-day pre-episode period (6), or proximity to previous episode (6). The figure shows relative weights (mean $\pm$ SE) by pre-episode day and by pre-event week (heavy line). Relative weights were different by pre-episode day ($p<0.0001$, Kruskal-Wallis) and increased ($p<0.0001$, ANOVA) at 0.175 lbs/day over the 28-day pre-episode period.

Conclusions: Weights typically increase prior to HF episodes and may start about 2 to 3 week before the episode. Remote weight monitoring may be a valuable component of a worsening HF algorithm.