Discordant Weight Change and Net Volume Loss in Hospitalized Heart Failure Patients

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Background

- Volume loss and weight loss are two components used to determine efficacy of diuresis in the treatment of acute exacerbations of heart failure.
- Inconsistencies in recording on hospital floors can result in discrepancies between volume loss and weight loss.

Objective

We hypothesized that patients admitted to the Christ Hospital will demonstrate a positive relationship between volume loss and weight loss.

Methods

- We performed a retrospective review of 685 patients admitted for or with heart failure with diuresis from December 2017 to May 2018 and March 2020 to August 2020.
- The exclusion criteria consisted of patients who:
  1. died during hospitalization
  2. were treated with dialysis
  3. Underwent surgery of any kind during the hospitalization
  4. Left hospital against medical advice
- We collected admission and discharge labs, weight change, and all-cause readmission status within 30 days of discharge.
- We investigated the relationship between weight change and net output in heart failure patients, both overall and within the weight change category of 0 to 10 lbs lost.

Results

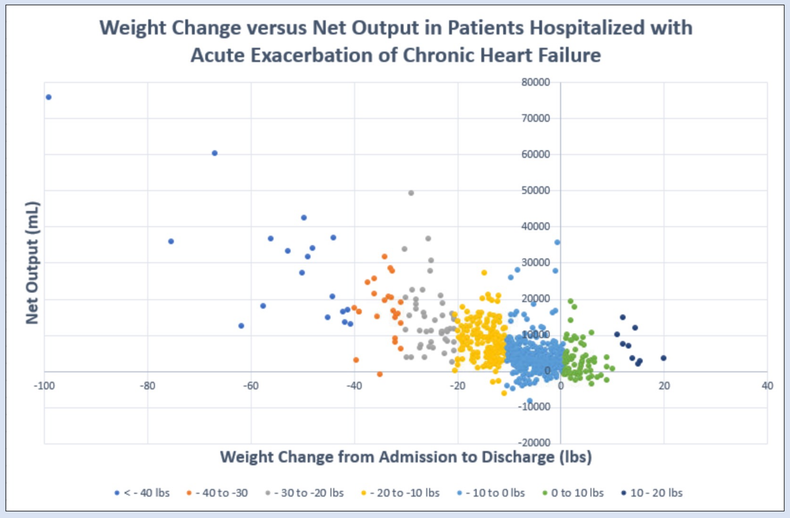

Figure 1: Negative values indicate weight loss and net loss of fluid during admission, while positive values indicate weight gain and net gain of fluid during admission. The net output was calculated by subtracting the patient's total intake from their total output during the length of their stay.

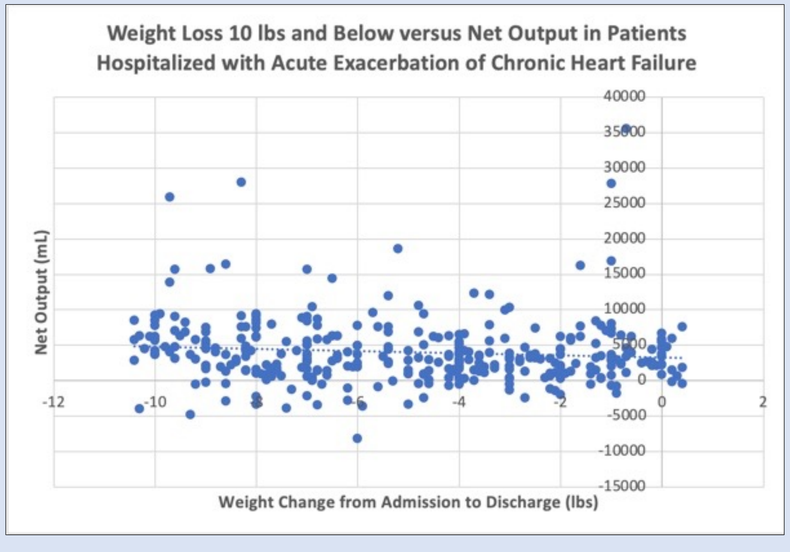

Figure 2: Negative values indicate weight loss and net loss of fluid during admission, while positive values indicate weight gain and net gain of fluid during admission. The net output was calculated by subtracting the patient's total intake from their total output during the length of their stay.

Results (Continued)

- The average age of patients included in this review was 71.
- The average length of stay of patients included in this review was 5.5.
- The average admission weight of patients included in this review was 209.9 lbs.
- The average ejection fraction of patients included in this study was 41%.
- A positive relationship is seen between weight change and net output above 10 lbs. weight loss.
- At 10 lb. weight loss and below, there is a wide variation in net output with no apparent correlation to weight loss. There are multiple patients who had an overall negative net output yet still lost up to 10 lbs.
- The was no correlation with net output in patients who gained weight

Conclusions

- Net volume output does not accurately reflect weight loss in patients hospitalized with heart failure, particularly in those who lose less than 10 lbs.
- This indicates that there may be discrepancies in the recording of intake and output by hospital staff or a true lack of relationship between net output and weight loss.
- This potential lack of relationship should be considered when determining target and efficacy of acute heart failure treatment.