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Higher Diuretics Doses Are Associated with Increased Mortality in Heart Failure Patients

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Background:
Diuretics are an integral regimen in treating symptomatic Heart Failure patients. In recent years, there is a debate regarding their potential hazard of increased mortality. Accordingly, the purpose of the current study was to evaluate whether higher diuretic doses (DD) are related to increased mortality in chronic systolic HF patients beyond other known clinical prognostic parameters, including renal function.

Methods:
A total of 476 systolic HF patients, followed in our HF clinic between August 2005 and May 2012 were included in our analysis {mean age 63.9 ± 13.8 years, 383 (80%) males and 93 (20%) females}.Of these patients, 161(33.7%) died during a mean follow-up period of 32.6 ± 21.5 months. We analyzed the association of total mortality in our HF patients for the following parameters: total DD dose in mg, (po/iv furosemide), documented at last clinical visit, age, gender, ischemic etiology, LVEF (% per echocardiogram) and chronic renal failure (defined as serum creatinine$\geq$ 1.5 mg/dL).

Results:
Mean DD was 76± 51mg. Higher DD were significantly associated with increased mortality (95±53 mg vs. 67±48 mg in the dead vs. alive HF patients respectively; $p<0.001$). When DD were analyzed based on Tertiles [T1$\leq$40mg; 40mg<T2$\leq$ 80mg; T3>80mg], there was a significant increased mortality as the doses were up titrated {T2 vs. T1: p=0.009, HR 1.79 (95% CI 1.16-2.77); T3 vs. T1: p=0.04; OR 1.92 (95%CI 1.24-2.98)}. Moreover, even in multivariate Cox regression analysis which included age, gender, ischemic etiology, LVEF and history of chronic renal failure; higher DD were still significantly associated with increased mortality. Survival curves based on daily DD are shown in Figure-1.

Conclusions:
Higher mean daily diuretic doses are associated with increased mortality in chronic systolic HF patients, irrespectively of other known clinical parameters including renal function. The nature of this associating, need to be further determined.