Associations of weight and weight change with mortality in hemodialysis patients

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Introduction
- A number of studies have shown associations between lower weight and increased risk of death in hemodialysis (HD) patients.
- In 2005, CMS began requiring height and weight on each dialysis claim, as part of the reimbursement calculation.
- Using these data, we examined associations of weight and weight change with risk of mortality.

Methods (cont)
- Comorbidity for each patient was characterized during this same 6-month period using a method previously developed and validated for identifying diabetes from claims which required:
  - at least one Inpatient, skilled nursing facility, or home health claim, or,
  - at least two physician/supplier or outpatient claims with the diagnosis code of interest.
- Beginning follow-up on July 1, 2006 a Cox model was used to assess the effect of weight and weight change (both categorized by quartiles) on risk of mortality through August 31, 2007 and adjusting for patient demographics, cause of renal failure, hospital days in the entry period, and comorbidity.

Results
- Weight loss was associated with higher levels of all comorbidities and more hospital days in the entry period.
- Although not as large in magnitude, weight gain was also associated with increased comorbidity and hospital days.
- Patients in the lowest 3 weight quartiles of had higher risks of death compared to patients in the highest weight group.
- Patients in the lowest slope group (weight decreasing the most) had higher risk of death than patients in the other categories of weight change.
- There was no evidence of a reverse J shape relationship of weight change with risk of death, with patients experiencing little change during the 6 months having the lowest risk of death.
- There was little evidence of a differential relationship between weight change and risk of death based on absolute weight.

Conclusions
- The association between higher weight and decreased risk of death has been shown in numerous studies.
- Although a number of studies have assessed interdialytic weight change and risk of poor outcomes, change in weight assessed over a 6 month period is more a measure of longer term trajectory of weight.
- Our results show that:
  - weight gain, low absolute weight, and weight loss are associated with increased risk of mortality.
  - Weight gain may reflect changes in evolving comorbidity and intercurrent events that may increase risk of death.
- Limitations:
  - Weight obtained from billing data.
  - Although proportional hazards models were used to control for confounding, there is a possibility of residual confounding due to unmeasured variables.