Age and gender differences in prevalence of comorbidities in hip fracture patients and their influence on outcome

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Introduction

- Hip fracture (HF) is a disastrous disease and leading cause of morbidity and mortality in the elderly. The global burden of HF is substantial and the actual numbers are rising globally mostly due to population ageing[1,2].

- HF incidence rates differ by age and gender but the role of chronic comorbid conditions was addressed only in a limited number of publications[3-8]. No reliable data on demographic characteristics and specific types of comorbidities associated with HF outcome exists.

Aim

- To analyse the prevalence of comorbidities according to age and gender and in regard to in-hospital mortality.

Patients and Methods

- *Data (prospectively collected) characteristics*
  - 3784 consecutive HF patients
  - Mean age 82.4 ± 8.73 [SD] years
  - 2816 females [74.4%]
  - 191 in-hospital deaths [5.04%]
- *Statistical analysis*
  - Python (SciPy, NumPy, pandas) used
  - Multivariate logistic regression
  - Area under the receiver operating characteristic curve (AUC)

References

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Results
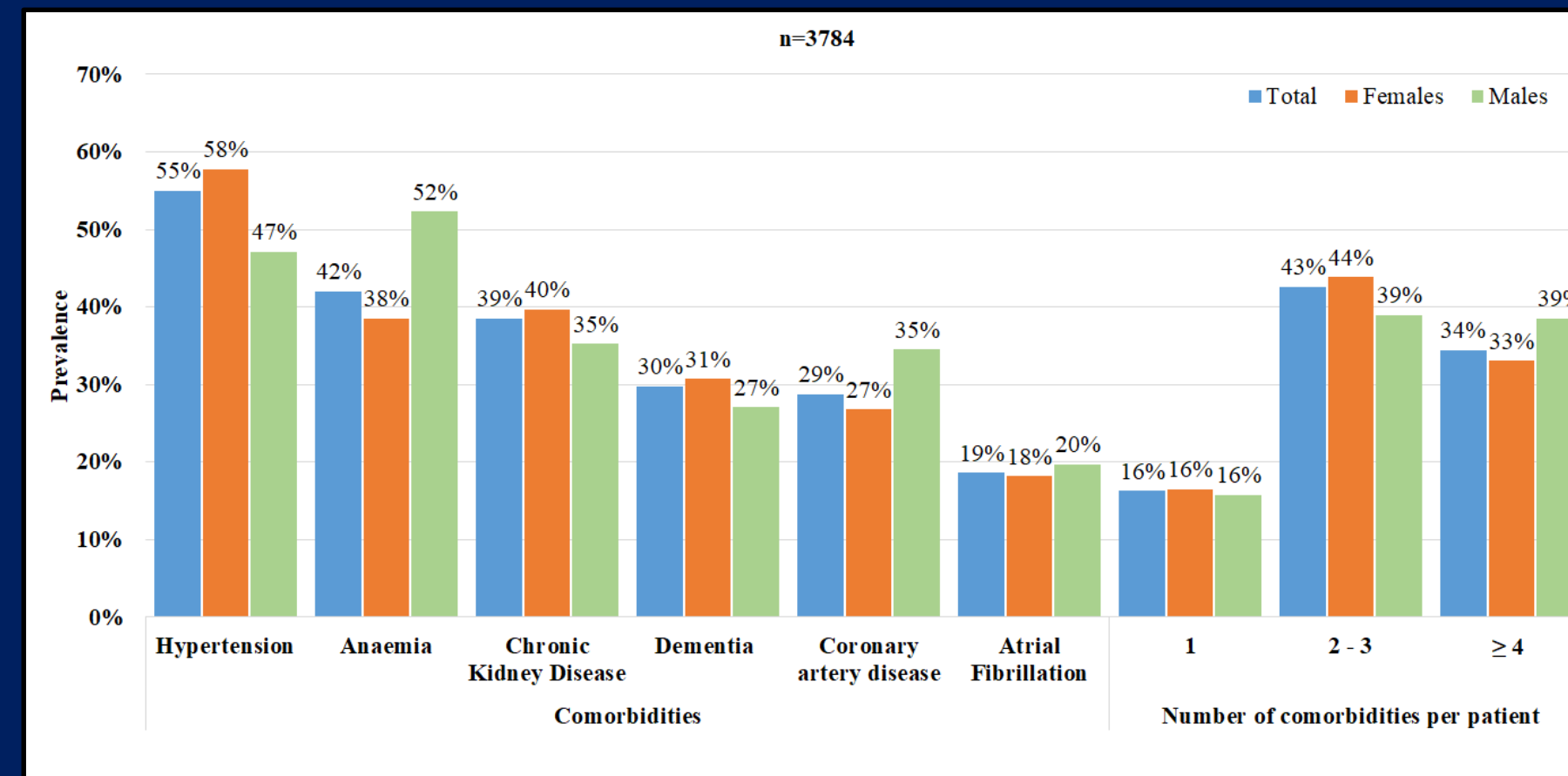
Prevalence of chronic diseases in HF patients

Figure 1. Five most prevalent comorbidities in HF patients.

- Among all HF patients, 617 (16.3%) had 1, 1612 (42.6%) had 2-3, and 1303 (34.4%) had 4 or more comorbidities.
- Most prevalent were hypertension (55.0%), anaemia (42.0%), chronic kidney disease (CKD, 38.5%), dementia (29.8%), and coronary artery disease (CAD, 28.8%) with higher prevalence among those >80 years.
- In females compared to males the prevalence of hypertension (57.7% vs. 47.1%, p<0.001), CKD (39.6% vs. 35.2%, p=0.016) and dementia (30.7% vs. 27.1%, p=0.035) were higher.

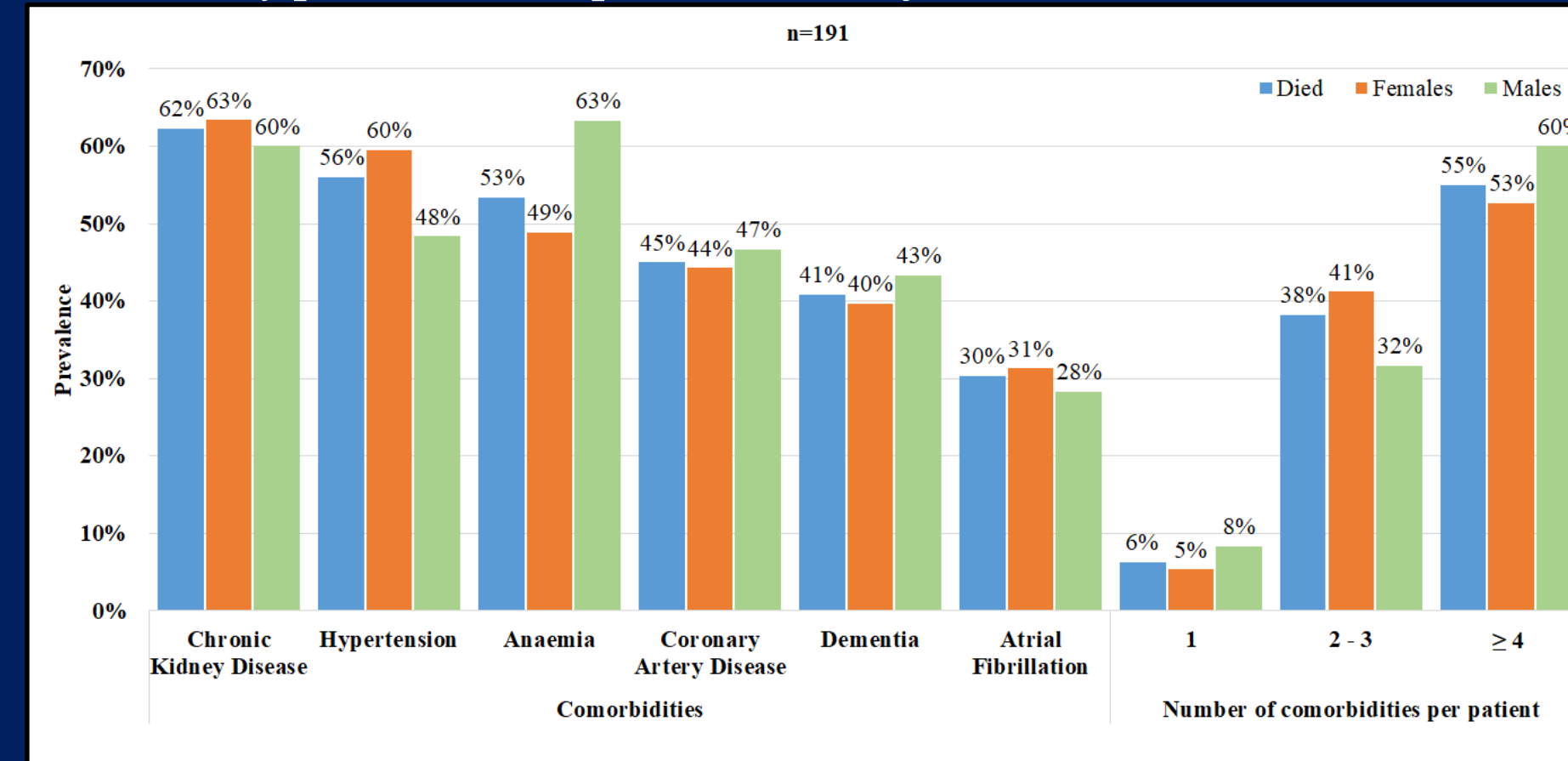*Comorbidity pattern in HF patients with a fatal outcome*

Figure 2. Five most prevalent comorbidities in HF patients who died in the hospital.

- Only 12 (6.28%) had 1 comorbidity, 73 (38.2%) had 2-3 and 105 (55.0%) had 4 or more.
- Most prevalent were CKD (62.3%), hypertension (56.0%), anaemia (53.4%), CAD (45.0%), dementia (40.8%) and atrial fibrillation (AF, 30.4%).

Results (cont.)

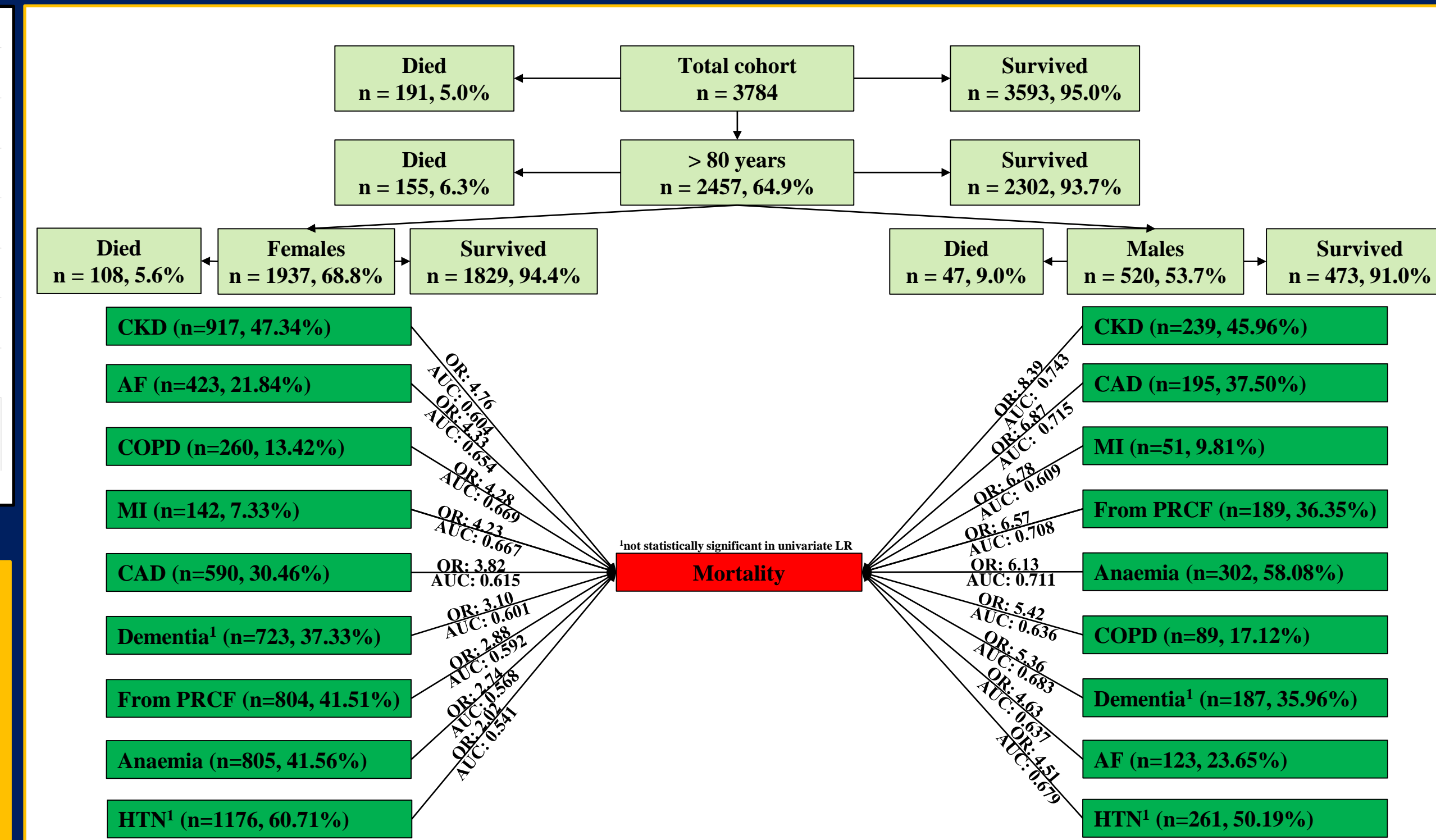*Contribution of age, gender and chronic diseases to fatal outcome*

Figure 3. Comorbid conditions, age and gender as prognostic indices for mortality.

- The greatest mortality risk demonstrated patients >80 years of age who had CKD, CAD, anaemia, or AF especially males.
- Mortality rate in males aged > 80 years was 9.0% while in females aged >80 years it was 5.6%.

Key points

- Multimorbidities are very common among HF patients and play an important role in outcomes; the effect of specific chronic diseases on hospital mortality seems to be different and age and gender influenced.

- Male sex, age>80 years, CAD, CKD, anaemia and AF are strongly associated with a fatal outcome in patients with HF.

- These clinical characteristics may help for clinical decision-making at admission by identifying the most vulnerable HF patients and introducing the appropriate treatments.

Conclusion and Significance

Risk stratification of HF patients and prediction of in-hospital mortality should include differential effects of specific comorbidities, age and gender.