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# Pumping Iron - How Do Race and Gender Affect the Risk of Anemia in a Cohort of Predominantly Hispanic Heart Failure (HF) Patients Seen in a Community Hospital in the Rio Grande Valley (RGV)?

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## Title

Pumping Iron - How Do Race and Gender Affect the Risk of Anemia in a Cohort of Predominantly Hispanic Heart Failure (HF) Patients Seen in a Community Hospital in the Rio Grande Valley (RGV)?

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## Introduction

Anemia in patients with heart failure (HF) is common. Data reported shows a variable prevalence ranging from 10-40%. Additionally, it has also been demonstrated that it is associated with poor outcomes. Multiple risk factors have been shown to contribute to the presence of anemia in HF patients (1). We were interested in determining the risk factors for anemia in HF patients in our population in the lower Rio Grande Valley.

## Methods

We performed a retrospective chart review of patients admitted with a diagnosis of HF (Heart Failure with Preserved Ejection Fraction HFpEF, Heart Failure with Reduced Ejection Fraction HFrEF or combined) during the year 2017 to our community hospital. Patients' charts were reviewed for multi-morbidities, laboratory data, and anemia treatments. Outcomes were assessed as readmissions and death within 1 year from index admission. Definitions were used according to preestablished guidelines. Statistical analysis was done using Minitab software and univariate and multivariate logistic regression analysis.

## Results

A total of 320 patients were evaluated. The average age was  $71 \pm 14$ , 121 (38%) were female, 229 (72%) were Hispanics, and average BMI was  $31 \pm 7$ . 118 (37%) patients had HFrEF and 102 (32%) had HFpEF. 218 (68%) had coronary artery disease, 280 (88%) hypertension, 188 (59%) diabetes mellitus, 149 (47%) chronic kidney disease, and 102 (32%) atrial fibrillation. Of 320 patients that were evaluated, 185 (58%) had anemia with a mean hemoglobin level of  $10 \pm 1$  mg/dl.

The major risk factors for anemia in our patient population were Hispanic race with an odds ratio (OR) of 1.8 (CI 1.01-2.3) p-value 0.03, HFpEF with an OR 1.6 (CI 1.2-2.6) p-value 0.04, female gender OR 2.3 (1.42-3.74) p-value 0.0007, and CKD with an OR 2.6 (CI 1.6-3.0) p-value 0.001 - all adjusted to age. Obesity and its different classifications was not a risk factor for anemia. Mortality and readmission rates were higher in patients with anemia (5.4% vs 2.9% and 34% vs 31%, respectively).

## Conclusions

We found that women were more likely to have anemia than men, confirming previous observations (2). Additionally, Hispanics were more likely than non-Hispanics to have anemia, which has been suggested in previous studies (3). This probably accounts for the high prevalence of anemia in our patient population. We had anticipated that obesity would be a risk factor, but thorough analysis of the data could not detect any increase in anemia no matter the degree of obesity. We believe that further

studies are warranted to evaluate this subset of HF patients since they are at higher risk of worse outcomes and to determine whether treating the anemia reduces negative outcomes such as death and readmission.

## References

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