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Introduction

Heart failure (HF) is an enormous medical and societal burden and a leading cause of hospitalization worldwide. In Korea, HF affected approximately 1.6% of the adult population in 2015, and an additional 3.4% of the adult population will have HF by 2040. Despite dramatic improvements in outcomes due to advanced medical therapy, readmission rates for HF exacerbation have been reported to be as high as 50% within 6 months of discharge.

Anemia is a common comorbidity in chronic HF and is associated with increased cardiovascular outcomes, reduced ability to exercise due to the reduced ability to carry and store oxygen, impaired quality of life, and increased risk of hospitalization. A recent meta-analysis of 153,180 patients with HF, reported in 34 published studies from 2001 to 2007, estimated the prevalence of anemia to be 37.2%. Despite the fact that anemia has been well known as a comorbidity in HF, its role in chronic HF has only recently been recognized, which is related to a variety of symptoms, daily activity or exercise capacity, prognosis, quality of life, mortality, and morbidity.

Until now, only limited reports have been available regarding the influence of anemia on readmissions and ED visits in patients with HF.

Purpose

We aimed to identify the prevalence of anemia and evaluate the relationships among anemia and hospital readmissions in Korean patients with HF.

Methods

Study design and Participants

This study is a cross-sectional, descriptive study, conducted at a tertiary care university hospital in Korea. 284 patients were used for data analysis in this study.

Instruments

We obtained socio-demographic and clinical information, including frequencies of readmissions, using face-to-face interviews and medical record reviews. Anemia was defined for adult men and women according to the criteria of the World Health Organization (WHO) as a Hb concentration lower than 13.0 g/dL in men and 12.0 g/dL in women.

Ethical consideration & Data collection

The institutional research board of S University Hospital in Cheonan approved the study protocol. All eligible patients were provided with information regarding the study by the principal investigator. All procedures were performed in accordance with the Declaration of Helsinki.

Results

Figure 1. Prevalence of Anemia and Rehospitalization in Heart Failure

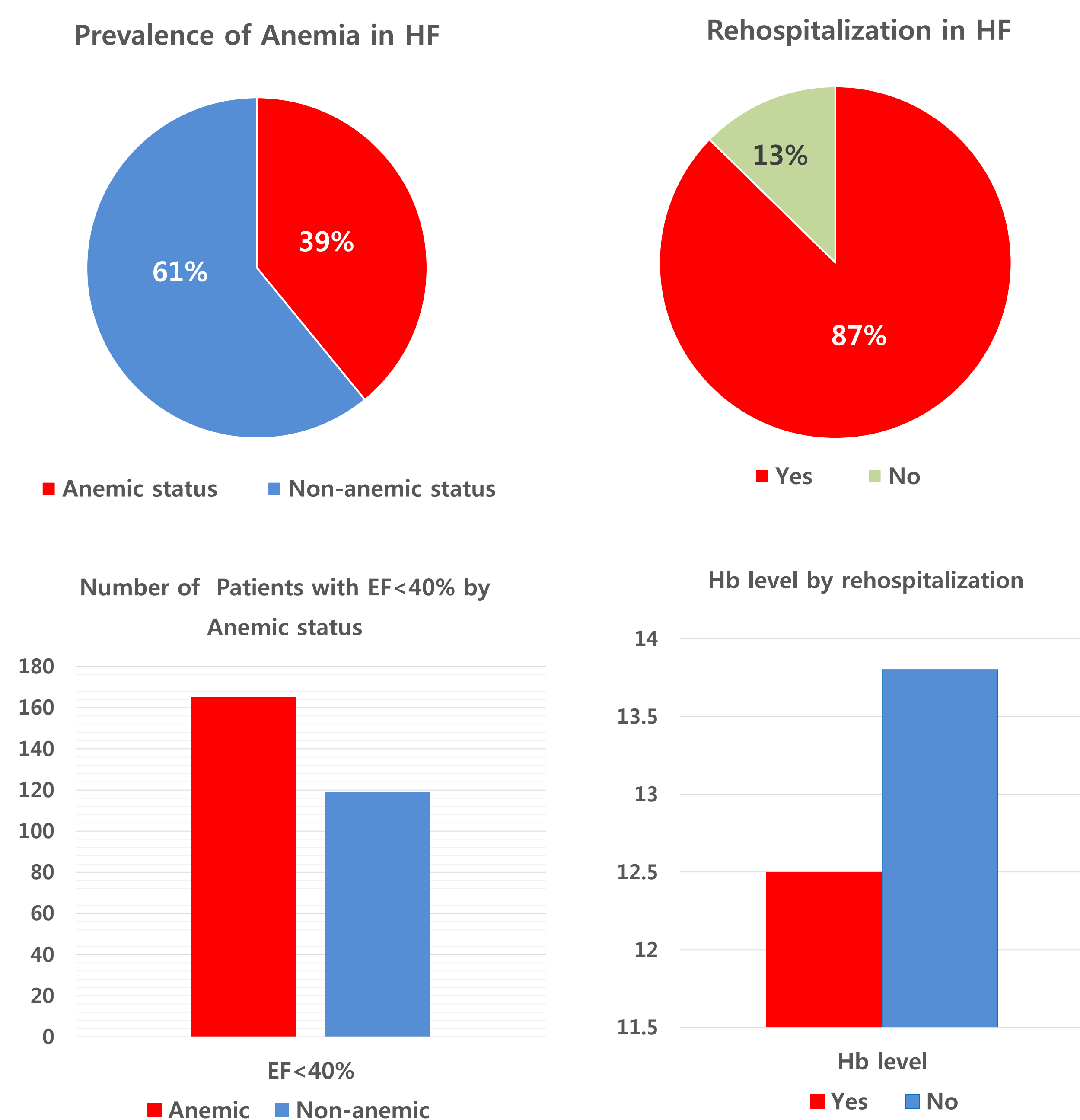


Table 1 Predictors of Rehospitalization in Patients with Heart Failure

Table 1 shows the unadjusted and adjusted predictors for hospital readmissions. In the adjusted model for hospital readmission, anemia (odds ratio [OR] = 8.04, 95% confidence interval [CI]=2.19-29.54, $p = 0.002$) predicted hospital readmission.

Predictors	Hospital readmissions			
	Unadjusted		Adjusted	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Age, year	1.02 (0.99-1.05)	0.218	1.01 (0.96-1.05)	0.753
Female	1.11 (0.55-2.24)	0.776	0.50 (0.17-1.48)	0.209
Having no job	2.10 (1.02-4.32)	0.044	2.39 (0.85-6.71)	0.099
Duration of HF diagnosis (> 1year)	1.35 (0.65-2.81)	0.424	2.58 (1.04-6.41)	0.042
NYHA class (III-IV)	1.23 (0.45-3.35)	0.688	2.14 (0.43-10.69)	0.354
Hyperlipidemia (yes)	2.49 (1.09-5.68)	0.031	2.48 (0.85-7.24)	0.096
ACEI (yes)	1.52 (0.56-4.12)	0.408	2.26 (0.59-8.56)	0.231
EF (≤40%)	3.28 (0.75-14.33)	0.114	1.99 (0.40-9.87)	0.399
Anemia (yes)	4.63 (1.74-12.30)	0.002	8.04 (2.19-29.54)	0.002

Conclusions

As anemia is a relatively frequent condition that is often under-diagnosed and untreated, its prevention and early detection may lead to improved outcomes such as reduced hospital readmissions. Therefore, nurses should be aware that careful assessment and ongoing monitoring for anemic condition are essential for preventing worsening symptom of HF. Furthermore, nurses should consistently monitor the patients' the dietary intake and nutritional status to prevent anemia. Further research is needed to examine the role of correction of anemia in reducing long-term mortality in patients with HF.



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