Predictors of potential clinically significant drug-drug interactions in patients with heart failure

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INTRODUCTION

Heart failure (HF) is a serious chronic condition related to frequent deterioration and hospitalization. Patients with moderate to severe HF have a poorer quality of life than individuals with some other chronic diseases.

Polypharmacy is common in this population, which may increase the risk of occurrence of potential drug-drug interactions (pDDIs).

OBJECTIVES

This study evaluates the prevalence and predictors of clinically significant pDDIs in HF patients.

STUDY DESIGN

A retrospective observational study was performed at the Cardiology ward of the University Clinical Hospital Center "Bežanijska Kosa" in Belgrade, Serbia.

A total of 173 patients who had more than one prescription during hospital stay were enrolled in the study. Demographic and clinical data were obtained from medical records.

METHODS

Lexi-Interact® was used as the screening tool.

Clinically significant pDDIs were considered of level X (avoid combination), D (modify regimen) and C (monitor therapy).

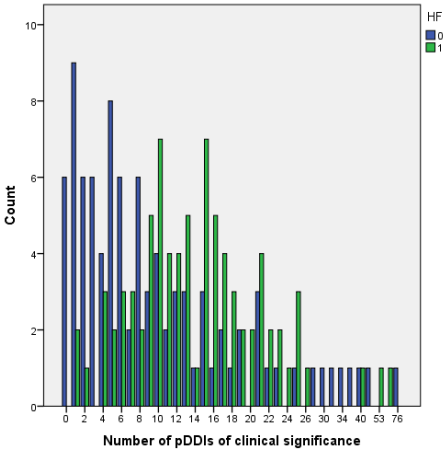
Statistical analysis was performed with PASW 18.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

Baseline demographic and medical characteristics

Characteristics	Number of patients(%); mean±S.D.
Age ≥65 years	130 (75.1)
Gender, male	95 (54.9)
Length of stay, days	9.52±4.59
Primary diagnose of heart failure	81 (46.8)
Drugs	
0-4	24 (13.9)
5-9	87 (50.3)
≥10	62 (35.8)
Number of drugs per patient	8.53±3.77
Occurence of X class pDDIs	14 (8.1)
Occurence of D class pDDIs	82 (47.4)
Occurence of C class pDDIs	165 (95.4)

The prevalence of pDDIs in the group with HF was 100%, compared to 93.48% without HF.



The number of drugs (9.64±3.23) and pDDIs of clinical significance (14.80±9.16) was significantly higher in patients with diagnose of HF [*coded 1]

(p values <0.001 and 0.013, respectively)

Multivariable logistic regression analysis identified following variables as predictors for the ocurrence of pDDIs of clinical significance in HF patients:

	OR (odds ratio)	p-value
polypharmacy (≥5 drugs)	2.305	<0.001
diabetes mellitus	2.305	<0.001
renal disease	-5.913	<0.001
allopurinol	-2.407	0.022
diclofenac	3.015	0.001
isosorbide mononitrate	1.573	0.009
methylprednisolone	2.813	0.040
nebivolol	16.367	<0.001
ranitidine	-4.995	<0.001
verapamil	3.870	0.013

CONCLUSION

Heart failure patients are exposed to an extensive number of drugs and pDDIs of clinical significance, that could additionally jeopardize the achievement of the desired clinical outcome defined as stable or improved.

Electronic drug interaction software may be a valuable tool for screening and reducing risk to patient drug-related harm.