Identifying potentially inappropriate prescribing among heart failure patients in long term care using a disease specific tool

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Abstract
Introduction: Heart failure (HF) may affect up to 45% of elderly patients in long-term care (LTC) settings and elderly LTC residents are at risk of potentially inappropriate prescribing. Furthermore, a number of medicines have been identified as contraindicated or cautioned in HF as their use may lead to worsening HF or poorer prognosis.

Purpose: To assess the prescription of potentially inappropriate medicines (PIMs) in elderly HF patients in LTC using a disease-specific tool and to identify patient factors associated with the prescription of PIMs in these patients.

Methods: This is an observational study of 14 LTC facilities in Cork, Ireland. HF was identified when documented on the patients’ medical charts or by prescription of a loop diuretic. PIMs were identified using the Potentially Inappropriate Medicines in Heart Failure (PIMHF) consensus tool. The PIMHF is a HF specific tool that includes 11 medicines or medicine classes. Appropriate HF therapy refers to prescription of ≥2 of the following agents: loop diuretic, ACE inhibitor/angiotensin receptor blocker and beta-blocker. Poor renal function was defined as creatinine clearance <50mL/min. Comparisons between patients were conducted using independent sample t-tests for continuous variables and chi-squared tests for categorical variables. Univariable and multivariable logistic regression was used to determine the associates of PIMHF use. The model was adjusted for age and sex and the adjusted odds ratio (OR) and 95% confidence interval (CI) were determined.

Results: The total number of residents was 732, of whom 265 (36.2%) had HF. Average age of HF patients was 84.8±7.4 years and 30% were male. A PIMHF item was prescribed to 115 HF patients (43.5%). Of these 79 (29.8%) were prescribed ≥2 PIMHF items. The most commonly prescribed PIMHF items were nonsteroidal anti-inflammatory drugs (n=26, 9.8%); oral corticosteroids (n=21, 7.9%); pregabalin (n=14, 5.2%) and metformin in patients with poor renal function (n=9, 3.3%). Patients prescribed a PIMHF were prescribed more medicines (13.2±3.3 vs.12.3±3.7, p=0.003) and had a greater number of comorbidities (12.4±3.4 vs. 11.1±3.4, p=0.03) than those who were not prescribed a PIMHF. Patients prescribed a PIMHF were also more likely to have diabetes (20.9% vs. 9.3%, p=0.008), be prescribed a beta-blocker (52.2% vs. 0.0%, p<0.001), and be prescribed appropriate HF therapy (68.7% vs. 44.0%, p<0.001). In univariable regression analysis the patient characteristics significantly associated with PIMHF prescription were: higher number of comorbidities, higher number of medicines, diabetes and prescription of appropriate HF therapy. When adjusted, diabetes (OR=2.37, 95%CI 1.09-5.17) and appropriate HF therapy (OR=2.51, 95%CI 1.46-4.31) were associated with PIMHF prescription.

Conclusion: A disease-specific assessment tool may be of benefit in identifying opportunities to improve prescribing quality in HF patients residing in LTC.

Heart Failure Congress - Paris 2017 - 2017, May