Prognostic impact of cardiovascular polypharmacy on octogenarians with heart failure with preserved ejection fraction

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On behalf of Osaka CardioVascular Conference (OCVC)-Heart Failure Investigators

Funding Acknowledgements: Type of funding sources: Private company. Main funding source(s): Roche Diagnostics K.K. and Fuji Film Toyama Chemical Co. Ltd

Backgrounds: Drug treatments of heart failure with preserved ejection fraction (HFpEF) have a little clinical benefit, but cardiovascular polypharmacy (CP) trend is observed in elderly HFpEF. We investigated the impact of CP on octogenarian with HFpEF.

Methods: We examined 783 consecutive octogenarians (≥80 years) enrolled in the PURSUIT-HFpEF registry. We defined medications for hypertension, dyslipidemia, heart failure (HF), coronary artery disease, stroke, peripheral artery disease, and atrial fibrillation as cardiovascular medications (CM). In this study, we defined CP as ≥5 CM. We investigated whether CP was correlated with the composite end point (CE) of all-cause mortality and HF rehospitalization.

Results: The proportion with CP was 51.9% (n=406). Background characteristics correlated with CP were frailty, history of coronary artery disease, atrial fibrillation and left atrial dimension. Multivariable Cox proportional hazards analysis showed CP was significantly and independently correlated with CE (hazard ratio (HR): 1.31; 95% confidence Interval (CI): 1.01-1.70) in addition to age, clinical frailty scale, history of HF admission and N-terminal pro brain natriuretic peptide (Table). Kaplan-Meier curve analysis showed that, compared with the non-CP group, the CP group had significantly higher risk of CE and HF (HR: 1.27; 95%CI: 1.04-1.56; P=0.02 and HR: 1.46; 95%CI: 1.13-1.88; P<0.01, respectively), but not any-cause death (Figure). In addition, diuretics were correlated with CE (HR: 1.61; 95%CI: 1.17-2.22; P<0.01), but antithrombotic drugs and HFpEF medications were not.

Conclusions: CP at discharge is a prognostic factor driven by HF rehospitalization in octogenarians with HFpEF. In these patients, diuretics may be correlated with the prognosis.

Univariable analysis | Multivariable analysis
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| HR (95% CI) | P value | HR (95% CI) | P value |
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Age | 1.06 (1.00-1.08) | 0.001 | 1.05 (1.02-1.08) | <0.001 |
BMI | 0.97 (0.94-0.99) | 0.009 | 0.98 (0.95-1.02) | 0.337 |
Clinical frailty scale (3-<) | 1.47 (1.19-1.82) | <0.001 | 1.20 (0.92-1.570) | 0.187 |
HF readmission | 1.76 (1.41-2.18) | <0.001 | 1.42 (1.08-1.86) | 0.011 |
CP | 1.27 (1.04-1.56) | 0.021 | 1.31 (1.01-1.70) | 0.044 |
Heart rate | 1.01 (1.00-1.02) | 0.011 | 1.01 (1.00-1.02) | 0.237 |
Hemoglobin | 0.92 (0.87-0.97) | 0.003 | 0.97 (0.91-1.05) | 0.477 |
eGFR | 0.99 (0.98-1.00) | <0.001 | 1.00 (0.99-1.01) | 0.746 |
Log NT pro BNP | 1.50 (1.350-1.67) | <0.001 | 1.37 (1.20-1.57) | <0.001 |
E/e’ | 1.02 (1.00-1.04) | 0.002 | 1.01 (0.99-1.03) | 0.458 |

BMI indicates body mass index; BNP, brain natriuretic peptide; CI, confidence interval; CP, cardiovascular polypharmacy; eGFR, estimated glomerular filtration rate; HF, heart failure; HR, hazard ratio.