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Associations between number of medicines and adherence to prescribed cardiovascular medicines

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INTRODUCTION

Cardiovascular diseases (CVDs) have a substantial impact on the Australian community, accounting for 27% of total deaths in Australia (Australian Institute of Health Welfare, 2021). Cardiovascular medicines are among the most commonly used drugs worldwide, yet, patients with cardiovascular diseases must take medicines as directed to gain the intended benefits. The behavior of taking medicines as advised by clinicians is known as adherence. Understanding adherence to cardiovascular medicines in Australia is important to improve medicine use in the future. In previous studies, it is unclear if taking multiple medicines has an impact on adherence to cardiovascular medicines and a few studies have investigated the association in an Australian setting.

Aims and Hypothesis

Aim: To investigate the associations between number of medicines used and adherence to prescribed cardiovascular medicines.

Hypothesis: There is no association between number of medicines used and adherence to prescribed cardiovascular medicines.

METHOD

This cross-sectional study included data from the 15-years follow-up of the Geelong Osteoporosis Study (GOS), a population-based cohort. Participants who self-reported medicine use, gave access to their dispensed medicines data and who were dispensed ≥ 1 cardiovascular medicine (n=534) over two-years period were included in this study. Number of all medicines used was self-reported, while dispensed cardiovascular medicine records were obtained via data linkage to the Australian Pharmaceutical Benefits Scheme (PBS) database. Adherence to cardiovascular medicines was calculated using the Proportion of Days Covered (PDC). Adherence was defined using an 80% cut-point. Linear regression analyses were undertaken to investigate associations between number of medicines used and adherence to prescribed cardiovascular medicines, while adjusting for sociodemographic factors and health status of the participants.

RESULTS

Medicine data for 534 participants (median age 69.9 (IQR [62.21-77.08])) were examined, where 523 (97.9%) participants reported using a median number of 6 (IQR [3-8]) medicines. Adherence was measured for 1288 cardiovascular medicines dispensed where 973 (75.54.8%) cardiovascular medicine were not adhered to using the 80% adherence cut point. Using regression analyses, an association between the number of all medicines self-reported and adherence to prescribed cardiovascular medicines was observed. Furthermore, it was found that only age was associated with adherence to prescribed cardiovascular medicines.

Table 1. Linear regression model

Independent variables	Univariate		Multivariate	
	ß (95% CI)	*p*	ß (95% CI)	*p*
Number of medicines	*0.008 (0.004, 0.011)*	0.000	0.005 (0.001, 0.009)	0.008
Age	*0.004 (0.003, 0.006)*	0.000	0.003 (0.002, 0.005)	0.000
Sex	*-0.016 (-0.050, 0.018)*	*0.358*		
Socio-economic Status (IRSAD Quintiles)	*-0.028 (-0.095, 0.039)*	*0.417*		
Frailty (Fried Frailty Phenotype)	*-0.029 (-0.083, 0.025)*	*0.296*		
Comorbidities (Charlson's Comorbidity Index)	*-0.005 (-0.057, 0.047)*	*0.857*		

Significance at p < 0.05

DISCUSSION

Our findings are contradictory to what is found in a previous study by Choudhry et al. (2011) , which demonstrated that complex medicine regimens are associated with lower adherence. This might be due to that our study included all cardiovascular medicines used regularly while the study by Choudhry et al. (2011) was limited to cholesterol-lowering statins, angiotensin-converting enzyme inhibitors and angiotensin receptor blockers.

Therefore, the null hypothesis for this study is rejected.

CONCLUSION

The findings of this study demonstrated a positive relationship between the number of medicines used and adherence to prescribed cardiovascular medicines. This suggests the need for health care providers and public messaging to target patients with a low number of prescription medicines to optimise their adherence. These novel findings have added to an evidence base to support future research and targeted interventions in optimising adherence to prescribed cardiovascular medicines in groups who demonstrated the risk of non-adherence to their prescribed cardiovascular medicines.

REFERENCES & ACKNOWLEDGEMENTS

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