The Association of Medications and Falls in the Home Care Setting: A Systematic Review

Maureen Taylor, SPT, Blaire Wilkie, SPT, Tracey Collins PT, PhD, MBA, GCS
Department of Physical Therapy, The University of Scranton, Scranton, PA

INTRODUCTION

With the recent rise of people older than 65 years old, there is an increase in occurrence of polypharmacy in older adults. Polypharmacy is linked to adverse drug interactions and effects, a functional decline, increased fall risk, cognitive impairment, urinary incontinence, and poor nutrition.

PURPOSE

The purpose of this study was to determine the association between medications and falls in the home health care setting.

METHODS

A literature search of CINAHL, PubMed, Proquest, and Wiley (2007-2017) was conducted to identify studies that report the association between medications and falls in the home health care setting. Search terms included: (Home Health) AND (Falls) AND (Medication). Search limitations included: human subjects, 2007-2017, and English. Inclusion criteria included: adults> 18, receiving home health care, and assessment of fall risk. Two reviewers independently assessed each study for methodological quality and came to a consensus utilizing the MINORS guidelines.

RESULTS

A total of 157 articles were screened for eligibility. 8 articles were selected for further evaluation through the abstract review process. Following a detailed appraisal, 5 articles were included in the systematic review. Four out of 5 articles were non-comparative and MINORS scores ranged from 6/16 to 10/16 with an average score of 8.2/16. One out of 5 articles was comparative with MINORS score 13/24. Sample size ranged from 95 to 4,223 with a total of 5,823 subjects. Age ranged from 23-106 yrs (avg= 79.71). Outcomes used to assess fall risk included: Fall Risk Assessment Form (FRAF), Potentially Inappropriate Medication- induced Adverse Drug Events (PIM-ADE), Home Observation of Medication Related Problems by Homecare Employees (HOME), and researcher-developed fall risk evaluation questionnaires. Four out of 5 articles concluded that there was an association between falls and medication use in home care. Two out of 5 articles defined polypharmacy as >4 medications and one out of 5 articles report polypharmacy as >5 medications. Two out of the 5 articles identified benzodiazepine as being high risk for falls.

Presented at APTA CSM, New Orleans, LA 2018

Total yield of studies identified through database searches = 420

Articles remaining after removing duplicates = 157

Articles excluded based on title and abstract = 144

Articles Excluded for other reasons = 5

Articles assessed for eligibility = 8

Studies excluded for reasons including not meeting inclusion criteria = 3

MINORS SCALE					
Authors:	Chen et. al	Onda et. al	Arena et. al	Buovy et. al	Fonad et. al
A clearly stated aim	2	2	2	2	2
Inclusion of consecutive patients	2	1	2	2	2
Prospective collection of data	2	2	2	2	2
Endpoints appropriate to the aim of the study	1	1	1	0	1
Unbiased assessment of the study endpoint	0	0	0	1	1
Follow-up period appropriate to the aim of the study	0	0	0	0	0
Loss to follow up less than 5%	0	0	0	0	0
Prospective calculation of the study side	1	1	1	2	2
Additional Criteria					
An adequate control group	1	-	-	-	-
Contemporary Groups	0	-	-	-	-
Baseline equivalence of groups	2	-	-	-	-
Adequate statistical analysis	2	-	-	-	-
Total	13/24	6/16	8/16	9/16	10/16

CONCLUSION

There is weak to moderate evidence to support the association between medication use and falls in the home health care setting. The findings support the association between falls and medication use in homecare. Limitations included varied outcome measures, small sample size, and lack of prior research. Further research is required to determine the impact medication has on falls utilizing an intervention and control group rather than solely reporting on the intervention group.

CLINICAL RELEVANCE

Medication use has been shown to increase the risk of falls for patients in homecare. Medication reviews are essential in the homecare setting due to decreased direct contact to healthcare professionals. Physical Therapists might have the most interaction with patients receiving homecare. Thus, identifying adverse risk factors for falls related to medication and polypharmacy is crucial. When completing medication reviews it is critical to identify benzodiazepine, as it is reported as being high risk for falls.

REFERENCES

1. Chen S, Olsen S, Gleeson P, Mitchell K. Assessment of impact of medication use and dementia on fall risk in clients receiving home health care. *HHCMP*. 2012;24(5):228-233

2. Onda M, Imai H, Takada Y, Fujii S, Shono T, Nanaumi, Y. Identification and prevalence of adverse drug events caused by potentially inappropriate medication in homebound elderly patients: a retrospective study using a nationwide survey in Japan. *BMJ Open.* 2015;5:e007581

3. Arena SK, Rataj J, Thompson M, Peterson E, Bennis S. Medications and fall risk indicators among patients case-managed by physical therapists. *Home Healthc Now*. 2015;33:96-102

4. Buovy ML, Egberts TCG, Jansen PAF, Schuurmans MJ, Schop IMB, Sino CGM. Signs and symptoms indicative of potential adverse drug reactions in homecare patients. *J AM MED DIR ASSOC*. December 2013;14(12):920-925.

5. Fonad E, Robins Wahlin TB, Rydholm Hedman AM. Associations between falls and general health, nutrition, dental health and medication use in Swedish home-dwelling people aged 75 and over. *Health Soc Care Community*. November 2015;23(6):594-604

6. Maher RL, Hanlon JT, Hajjar ER. Clinical Consequences of Polypharmacy in Elderly. *Expert opinion on drug safety*.2014;13(1):10.1517/14740338.2013.827660. doi:10.1517/14740338.2013.827660

UNIVERSITY OF SCRANTON PENNSYLVANIA · 1888 · RELIGIO MORES CULTURA