Author's declarative title: Systematic review of randomised control trials evaluating falls prevention strategies in community settings.

Authors: Amanda Lee, Mark Hayter

Commentary on: Hopewell, S., Adedire, O., Copsey, B.J., Boniface, G,J,, Sherrington, C., Clemson, L., Close, J.C.T., Lamb, S.E. (2018) Multifactorial and multiple component interventions for preventing falls in older people living in the community London: John Wiley & Sons.

Commentary

Implications for practice
- There is some limited evidence that multifactorial interventions (based on individual risk assessment) may reduce fall rates in older people, whereas multiple component interventions (the same interventions offered to all patients) may reduce fall rates as well as the risk of falling.
- However, the evidence for these findings is of low quality which reduces the confidence we can place in the outcomes of these studies.

Implications for research
- Further research is required to determine the effectiveness of more specific intervention strategies, particularly those related to exercise and adherence to interventional regimes.

Context (80-120)

Falls are a common problem in older people and risk of injury increases with age[1]. There are a number of risk factors for falls, and preventative measures include use of predictive models to identify and reduce the perceived risks, based on estimations of frailty, medications, age, functional (cognitive and physiological) status, mobility, and environmental factors.

This study reviewed 62 randomised controlled trials to evaluate effectiveness of interventions to reduce falls in community settings[2]. Rather than evaluate individual interventions the review looks at two different types of fall prevention interventions. The first involves individualised interventions based on assessment of risk, the second involves general, non individualized, interventions.

Authors offer limited confidence in their findings, but highlight that both groups show a marginal reduction in falls rates when compared to 'no active treatment'.

Methods (100 – 150)

Authors combined data from 62 randomised controlled trials published 1990 – 2013 to explore positive and negative effects of both individualised and collective approach interventions to reducing falls in the community. The GRADE approach was applied to review quality and collate information into tables for cross analysis. Evidence summaries are presented for individualised, risk assessed interventions and also collective interventions. A third analysis presents information on individualised interventions compared with exercise. Information on variables is presented in comparator tables to summarise interventions against primary and secondary outcomes. These consist of rates of falls, relative risks of falls, with relative risks and rate ratios as descriptors. Random effects modelling was applied to pool data and present the findings against rates and risks of falls. There was moderate to high heterogeneity across some variables (i2 45-88%). However, there was a wide disparity of both measurement tools and population sampling methods applied to studies found in this meta-analysis.

Findings (75-100) –

Findings are based on 'low or extremely low' graded evidence. Falls prevention strategies included exercise, environmental adjustment, assistive technologies, medication review, patient education and/ or psychological interventions. The control groups included 'usual care'. The authors conclude a marginal reduction on rate of falls with individual risk based multifactorial interventions compared to 'usual care', but no reductions in other outcome measures. There is limited evidence to support whether multifactorial interventions are better than exercise alone. Moderate quality evidence supports multiple component interventions may reduce risk and rates of falls. However, there is limited evidence on whether this impacts other outcome measures (quality of life, recurrent falls, fractures, hospital admissions).

Commentary (250-300)

This review combines a range of evidence to evaluate interventions which reduce modifiable risk factors which have been applied to prevent falls in community settings. Authors used search criteria previously used in a 2012 Cochrane review which evaluated effectiveness of interventions to prevent falls [3.]
The study presents a sound methodological approach to reveal evidence on falls and falls risk strategies. However, they based this on evidence graded at low or moderate quality.
Confounding factors associated with falls and fall related outcomes are difficult to determine as falls within community dwelling populations are complex and multifactorial[4]. Therefore, aggregating data on a range of interventions has the potential to reduce specificity. Subjects investigated through this meta-analysis included a very diverse population. Though authors include age ranges, there are no analyses of functional status or age related comorbidities within the analysis. The extent of measured variables is also diverse across studies – for example 'medication review' as an intervention can differ significantly across studies, recording of falls should be undertaken through prospective calendars, completed

daily, [5,] yet this review included evidence supported through patient recall and retrospective recording of events.

Despite these potential issues, the review still reveals some highly important information. It combines data on similar variables across a range of studies and presents them in easily interpreted tabular format. Although this means evidence is deemed of low or extremely low quality, it informs the reader that there is little or limited evidence to support whether interventions are effective. The review also reveals a paucity of evidence on a range of interventions versus exercise alone, suggesting a need for further research. Authors also suggest analysis of adherence to interventions should be core to any further research, as they identify this as an underlying problem in falls related research methodology.

References (6 max)

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Commentator details
Name: Amanda Lee
Affiliation: University of Hull
Correspondence address: Dearne 018, Cottingham Road, Hull HU67RX
Email: a.j.lee@hull.ac.uk

Name Mark Hayter
Affiliation University of Hull
Email m.hayter@hull.ac.uk

Competing interests None