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EDITOR – We thank Donaldson et al (2004) for their contribution to the continuing debate regarding appropriate approaches for the analysis of falls data. Development and implementation of appropriate methods for analysing event rate data for recurrent events is an area of much recent focus and considerable controversy in statistics literature. A concern in addressing this data is that of data dependence, where the observed frequency of the event may depend on the history of previous events within that individual. Several different approaches have been described, including measures of proportions, counts, and survival times, each with different ways of accounting for event dependence.1 The primary analysis presented in our paper,2 which examined the effectiveness of a falls prevention program in the subacute hospital setting, employed a logrank statistic for recurrent events.3 This approach was developed as an analogue of the non-parametric logrank statistic for time to first events. This approach also, along with some other approaches, avoids the problem of specifying the dependence structure among recurrent events.4

Donaldson et al (2004) suggests a conditional Cox proportional hazards model may have been a more appropriate approach to analyse our data.5 This approach does have advantages, however it may be difficult to apply in studies such as ours. It considers only those participants who have experienced an equivalent number of events in the same “risk set”. Many patients have falls prior to hospital admission, during their acute hospitalisation, and even in the period between admission to subacute care and consent to participate in a trial in a subacute hospital. Using a conditional approach we would have had to decide if all patients started at “zero” falls at the commencement of their observation in our study. For us to do so would clearly have been unrealistic for several patients. Ignoring these falls would also have meant that the recurrent events observed in our study would have been assumed to be independent of previous events.4 Alternately, attempting to measure the number of falls each study participant had prior to their participation in our study would have been unrealistic. Humans tend to commence falling at a very early age, and may continue to have falls throughout their early and middle adulthood. Even using an estimate of the number of falls since turning 65 years (an arbitrary point admittedly) would be difficult considering the level of cognitive impairment of participants in our study.

There have been many analysis approaches described that could be applied to falls research data with both positive and negative aspects regarding their application.

REFERENCES


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