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Title: Pilot study: The long term effects of incontinence in older people

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Sponsor: Urology Research Foundation Board

Introduction:

Incontinence of the bladder and bowel represent a significant burden to the health of an older person and the resources of the health system. Urinary incontinence (UI) has been previously associated with depression and decreased quality of life. From the available literature it is unclear whether UI is a predictor of mortality and residential care admissions (RCA) independent of other factors such as disability and frailty. The number of studies looking into the relationship between faecal incontinence (FI) and mortality and RCA is small and the results again have been inconclusive.

Establishing a relationship (or a non-relationship) between incontinence, mortality and RCA will inform future management in Older Persons Health and allow allocation of resources to factors that make real differences to outcomes.

Since 2008 Canterbury District Health Board (CDBH) has been undertaking interRAI-Home care assessments for patients (aged 65+) being considered for access to home and community support services as well as access to residential care. An interRAI assessment is designed to be comprehensive, comprising of more than 200 questions including those on UI, FI and potential confounding factors. In 2013/14, 96% of those entering aged residential care have had a clinical assessment of need using interRAI.

Aims:

To evaluate whether incontinence, both urinary and faecal, are predictors of outcomes such as mortality and residential care admissions in the Canterbury region.

Methods:

- 1) Results from 1846 CDHB InterRAI assessments between Feb 2008 to Jun 2013 were obtained. Outcome data were taken as one year beyond this range.
- 2) Using the NHI linkage, data on utilisation of residential care subsidies and death were obtained.
- 3) Impact of UI and FI on these outcomes was analysed and was adjusted for potential confounding factors (e.g. age, gender, frailty, disability, dementia).

Results:

Mortality

A total of 787 deaths occurred in our study population between the date of interRAI assessment and the end of follow up.

The hazard ratio (HR) for death for the **UI** group compared to non-UI group was 1.17 (95% CI 1.01-1.36), increasing with higher frequency of UI. However adjustment for confounders revealed a non-significant result.

HR for death for the **FI** group was 1.72 (95% CI 1.43 - 2.06), increasing also with higher frequency of FI. In contrast to UI, this relationship persisted after adjusting for confounders. (HR 1.30, 95% CI 1.06 -1.58)

Residential care admissions

A total of 565 residential care admissions (RCA) occurred in our study population between the date of interRAI assessment and the end of follow up.

HR for RCA for the **UI** group was 1.35 (95%CI 1.13 – 1.61) but this association was not statistically detectable after adjustment.

HR for RCA for the **FI** group was 1.61 (95%CI 1.28 – 2.02), after adjustment the HR remained statistically detectable at 1.35 (95% CI 1.06 – 1.72).

Relationship between UI and FI

We found a high degree of concurrence between UI and FI. Increasing frequency of UI was related to increasing frequency of FI. When UI is added to the statistical model with FI already in it, the resulting improvement in the model is not statistically detectable for both mortality and RCA.

Conclusion:

In our study population we found that faecal incontinence was an independent predictor of mortality and residential care admissions. The apparent relationship between UI and the above outcomes prior to adjustment appears to be driven by the frequent concurrence of UI and FI. Urinary incontinence itself was not an independent predictor of mortality or RCA.

The potential uses for the accumulated interRAI assessment data are substantial. It represents a comprehensive description of variables relevant to an older person's health which is readily available for future research.

One possible future project (which would need larger numbers possibly from a national study) is to evaluate whether indwelling catheters have an impact on mortality and RCA in our study population.