

CORRELATES OF FI AMONG NURSING HOME PATIENTS

Hypothesis / aims of study

Residence in a nursing home (NH) is the single factor most strongly associated with fecal incontinence (FI) (1). Studies have shown a prevalence of FI between 17-95 % in NH residents (2). Several studies have demonstrated the complexity of FI in the group of frail elderly patients. FI is associated with lack of mobility, dementia, diabetes, cerebral stroke, Parkinson's disease, depression, COPD, urinary incontinence, constipation, laxative use and diarrhea. We undertook a cross sectional study in a large group of NH residents with the aim of further investigating the correlates of FI.

Study design, materials and methods

The present cross-sectional study was performed in NH in one urban municipality in Norway during June 2010. All 28 NH in the municipality were invited to participate. The total number of NH patients in the municipality was 1326 (pr. 20th August 2009). One NH and a single unit at a second NH declined to participate. A questionnaire designed to obtain information about FI, constipation (including laxative use as a marker), diarrhea, urinary incontinence, sex, age, length of residency/stay, type of care and diagnosis was distributed. FI was defined as involuntary leakage of stool at least a few times a month. Barthel's activity of daily living (ADL) index was used to obtain information about the level of functioning. The questionnaire had been pilot tested before use.

Registered nurses in each unit assessed the patients according to the inclusion criteria and filled in the questionnaire for each of the included patients. Patients who at the time of data collection were admitted to a NH institution were included if they had been a patient for more than three weeks or had prior stays of more than four weeks during the last six months. Patients who were 64 years or younger, as well as stoma patients, were excluded from the study. After exclusions a total of 1087 eligible patients remained. We received 977 questionnaires in response. This gives a response rate of 89.9%.

Statistical analysis performed was logistic regression, using the Predictive Analytics SoftWare, PASW 19.

Results

Mean age of the included patients was 85.5 years (range 65 to 107 years). Women constituted 73.9% and men 26.1% of the NH population. Patients in long-term care constituted 92.1%, and the remaining 7.9 % were in short-term care. Median duration of stay among patients in short-term care was 34 days, while median duration of residency among patients in long-term care was 624 days. Some level of cognitive impairment was reported in 80.3% of the patients. Mean score on Barthel's ADL index was 9.49 (range 0-20, 0 is worst score). Nurses reported that 42.9% of the patients had involuntary leakage of feces a few times a month or more.

Table 1 demonstrates the correlates of FI. We looked for correlates as identified in previous studies of FI in NH. The fraction of variance explained in this model was 50.4%. Significant correlates of FI were urinary incontinence, dementia, diabetes, length of stay between 4-5 years, impaired ADL-functioning for feeding, dressing and toilet use. Among the other variables in the Barthel's ADL index ability to transfer was significant as a protective factor, while grooming, mobility, ability to mount stairs and bathing, had no significant association with FI in this model.

Interpretation of results

This is a large cross sectional study with a very high response rate. The strongest predictor of FI in NH was diarrhea or loose stool: patients with diarrhea or loose stool had nearly 7 times higher odds of having FI (CI 4.02-11.54) compared to patients without these symptoms, which makes stool consistency an important correlate of FI. Several studies have demonstrated a significant correlation between laxative use, constipation or fecal impaction and FI, but this was not found in the present study. These finding may be an expression of laxative overuse or simply that constipation is underdiagnosed among NH patients. Patients with diabetes had nearly 2 times higher odds of having FI (CI 1.01-3.46). Diabetes may lead to complications in the neurological system that controls the bowels. FI may also be a side effect on the bowels from the use of anti-diabetic medications like Metformin.

Table 1. Correlates of FI	OR	95% CI
Sex	0.98	0.63-1.51
Age	1.00	0.97-1.02
Length of stay <1 year	1.00	Reference
Length of stay 1-2 years	1.38	0.84-2.27
Length of stay 2-3 years	1.10	0.62-1.95
Length of stay 3-4 years	1.41	0.75-2.66
Length of stay 4-5 years	2.86	1.24-6.60
Length of stay >5 years	1.52	0.83-2.77
Constipation	1.08	0.74-1.56
Diarrhea	6.81	4.02-11.54
Urinary incontinence	2.48	1.50-4.10
Dementia	2.19	1.27-3.79
Stroke	1.03	0.60-1.78
Parkinson's disease	0.67	0.32-1.39

Diabetes	1.87	1.01-3.46
Hip problems	1.48	0.82-2.65
Depression	0.92	0.46-1.83
COPD	1.60	0.82-3.13
Feeding (Independent)	1.00	Reference
Feeding (Needs some help)	1.32	0.84-2.05
Feeding (Unable)	2.61	1.50-4.55
Grooming	0.44	0.15-1.25
Dressing (Independent)	1.00	reference
Dressing (Needs some help)	2.06	0.79-5.40
Dressing (Dependent)	3.35	1.15-9.78
Transfer (Independent)	1.00	Reference
Transfer (Needs some help)	0.44	0.23-0.83
Transfer (Needs a lot of help)	0.59	0.26-1.33
Transfer (Can't sit, lift used)	0.56	0.20-1.58
Toilet use (Independent)	1.00	Reference
Toilet use (Help needed)	3.76	1.91-7.38
Toilet use (Can't use toilet)	8.70	3.07-24.62
Mobility (Walks)	1.00	Reference
Mobility (Walks with support)	1.36	0.76-2.45
Mobility (Able to move chair)	0.74	0.28-1.99
Mobility (Immobile)	2.01	0.83-4.87
Stairs (Independent)	1.00	Reference
Stairs (Needs help)	2.01	0.85-4.74
Stairs (Unable)	2.15	0.81-5.74
Bathing	0.66	0.14-3.23
Sight reduction	0.64	0.28-1.46

Reduced ADL-functioning and cognitive impairment are main reasons for admission to NH. This affects the patients' ability to control leakage of feces. Patients with dementia or cognitive impairment had 2.2 times higher odds of having FI compared to patients who did not have cognitive impairments. To be unable to eat, dress or use the toilet independently were significantly associated with FI and are the factors with the highest OR (3.35-8.70). To be able to dress or use the toilet independently are essential factors in relation to managing one's bowels and the correlation to FI is highly understandable. This is an expression of a functional FI where the ability to cognitively know that you need to go to the toilet, to know where the toilet is, to be able to move to the toilet, to be able to remove and replace clothing, to have dexterity to unbutton and to be able to communicate that you need help from someone are each crucial components. On the other hand, in a group of frail elderly patients who have lost many functions, physically and cognitively, this is also a matter of the quality of care provided for the patient. Patients who had been residing in a NH between 4-5 years had nearly 3 times higher odds of having FI compared to patients who had stayed in a NH under a year (CI 1.24-6.60).

Patients with UI had 2.5 times higher odds of having FI compared to patients without UI (CI 1.50-4.10). Supposedly, this may be an expression of the same functional incontinence as mentioned above or may be due to a general pelvic floor problem. Interestingly, age and gender were not risk factors.

Concluding message

This large study demonstrates that diarrhea is an important correlate of FI among NH patients, and not constipation as shown in previous studies. FI among NH patients may also be due to a pelvic floor problem in general. In addition, FI can be seen in relation to frailty, as impaired ADL-functioning and length of stay to a large extent correlates with FI in this patient group.

References

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