

COST-EFFECTIVENESS ANALYSIS OF EDUCATION ON INCONTINENCE CARE IN A NURSING HOME

Hypothesis / aims of study

Urinary incontinence is a highly prevalent problem in the elderly population. Since the population over the age of 85 years old will grow from 2% of the total population to 5% in 2050, urinary incontinence is an important issue that cannot be ignored. An adequate policy towards toilet visits and continence care is a major concern in nursing homes consisting mainly of an elderly population. However, evidence based medicine conclusions and a clear generally accepted policy towards this issue is lacking. Also, economic realities raise the question if it is useful to force a toilet visit for residents who constantly leak urine in their incontinence material, certainly with the lack of time for the nursing staff to do toilet rounds.

This study aims to evaluate the policy towards incontinence and continence care in a nursing home in general. Moreover, we want to study the effect of education of staff on continence and examine if a higher awareness of this highly prevalent problem will lead to higher or lower costs in use of incontinence material and nursing time and to a better quality of life of the resident.

Study design, materials and methods

This prospective interventional study was conducted from september to november 2010. The study population is a convenience sample consisting of 120 permanent residents of a nursing home for the elderly, divided over 2 departments of each 60 residents. Residents in short stay, in coma, with an indwelling catheter, urostoma or urine collection device, with fecal incontinence or nocturia were excluded.

Residents of both departments underwent baseline measurements of different variables on toilet use and incontinence for a period of 3 weeks to map the policy in the nursing home towards incontinence and continence care before any study intervention. After this period, staff of only one department was educated on incontinence and continence care (intervention group). All variables studied in the baseline measurement, were then repeated in both the intervention and non-intervention group.

Five main outcome variables were registered during baseline measurement: type of incontinence material (nothing, light, heavy), incontinence pad status (wet or dry before toilet visit), voiding status (resident voids or does not void during toilet visit), nursing time per toilet visit and number of toilet visits per day. Incontinence was evaluated with the Katz-scale and quality of life was evaluated with EQ-6D-questionnaire and the visual analogue scale (VAS), representing a score for "the worst health status one can imagine" (0%) to "the best health status one can imagine" (100%).

Cost-effectiveness analysis was based on costs for incontinence material and nursing time, Quality Adjusted Life Years (QALY) and incremental costeffectiveness ratio (ICER).

Results

The mean age of the total study population was 83,8 years old (SD 7,502), with 28 male (23%) and 92 (77%) female residents. Based on the Katz-scores, 17,5% of the residents is continent, 82,5% is incontinent, ranging from accidentally incontinent for urine or feces to fully incontinent for both urine and feces.

For the type of incontinence material, a statistically significant difference was found between both measurements in daytime and nighttime. A decrease of heavy incontinence material in daytime and an increase of heavy incontinence material at night is reported after the intervention.

Table1: pre-intervention and post-intervention measurements of incontinence material in daytime and at night for the intervention group

Variable	Categories	PRE (N =60) N (%)	POST N (%)	P-value
Incontinence material	<i>Nothing</i>	13 (21.7)	12 (22.2)	0,007* 0,019*
	<i>Light</i>	19 (31.7)	33 (61.1)	
	<i>heavv</i>	28 (46.7)	11 (20.4)	
Incontinence material at	<i>Nothing</i>	19 (31.7)	17 (31.5)	
	<i>Light</i>	26 (43.3)	14 (25.9)	
	<i>Heavv</i>	15 (25.0)	25 (46.3)	

*p<0.05

No significant differences are found between pre-intervention and post-intervention measurements regarding incontinence pad status (p<0,855), voiding status during toilet visit (p<0,392), nursing time per toilet visit (p<0,676) and number of toilet visits per day 0,596).

From the residents who void during toilet visit, 45,5% wears heavy incontinence material during daytime. The majority of the nursing time is spend on residents who need help but do not void during toilet visit. The more incontinence material a resident

wears, the more toilet visits a day. And the residents with the most toilet visits a day, are those who void the least. Since these residents use the most incontinence material and cost more in nursing time, they contribute mostly to the total costs.

When comparing the pre-intervention and post-intervention results of the quality of life questionnaire for the global study population, a significant difference was found for the visual-analogue-scale-score (VAS). The quality of life presented increased with 4,44%. No significant differences were found for the EQ-6D-questionnaire.

A cost effectiveness analysis of the intervention shows a price difference of the mean costs between pre- and post-intervention measurements; the mean costs after the intervention have been reduced with €12,6. The intervention is effective, since there is an increase in the quality of life with 0,2 QALY. Calculation of the incremental cost effectiveness ratio gives a result of -70 euro per QALY, and although the costs show no significant difference, the post-intervention measurement is “dominant” and thus less expensive than the current policy on toilet visits and incontinence care.

Interpretation of results

In more than half of the residents the incontinence material is wet at the moment of toilet visit. However, only 41% of the residents actually voids when placed on the toilet, meaning it is not effective to force the residents to a toilet visit, since less than half of them actually voids.

The study also shows that residents with the highest number of toilet visits wear the heaviest incontinence material which is mostly wet; these residents have the highest contribution to the costs for nursing time. If they would have less toilet visits, costs would decrease.

A significant difference in quality of life was measured with the VAS. There was an increase of 4,4%, this seems however a minor change, and it is uncertain whether this has a clinical relevance.

No significant difference in costs was found, but the incremental cost-effectiveness ratio does show that the post-intervention measurement is less expensive and more effective than the pre-intervention policy.

Concluding message

As expected, education of staff did not influence incontinence of the residents, however, there seems to be an impact on quality of life, possibly due to the attention to and the awareness of this disabling problem. Also, education of staff and the influence on continence care shows a positive trend in cost-effectiveness.

Since forced toilet visits seem highly ineffective and contribute to a higher cost, further large-scale research on the subject is needed to evaluate the use of forced toilet visits of elderly and to develop a standardized approach of incontinence care in nursing homes.

Disclosures

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