Concealment of drugs in food and beverages in nursing homes: cross sectional study

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Abstract

Objective To examine the practice of concealing drugs in patients' foodstuff in nursing homes.
Design Cross sectional study with data collected by structured interview.
Setting All five health regions in Norway.
Participants Professional carers of 1362 patients in 160 regular nursing home units and 564 patients in 90 special care units for people with dementia.
Main outcome measures Frequency of concealment of drugs; who decided to conceal the drugs; how this practice was documented in the patients' records; and what types of drugs were given this way.
Results 11% of the patients in regular nursing home units and 17% of the patients in special care units for people with dementia received drugs mixed in their food or beverages at least once during seven days. In 95% of cases, drugs were routinely mixed in the food or beverages. The practice was documented in patients' records in 40% (96/241) of cases. The covert administration of drugs was more often documented when the physician took the decision to hide the drugs in the patient's foodstuff (57%; 27/47) than when the person who made the decision was unknown or not recorded (23%; 7/30). Patients who got drugs covertly more often received antiepileptics, antipsychotics, and anxiolytics compared with patients who were given their drugs openly.
Conclusions The covert administration of drugs is common in Norwegian nursing homes. Routines for such practice are arbitrary, and the practice is poorly documented in the patients' records.

Introduction

Several studies have described the use of drugs, including psychotropic agents, in the care of elderly people.[1–5] In situations in which psychotropic drugs are prescribed to sedate and control patients, the practice is often called "chemical restraint."[6–8] Although the use of psychotropic drugs has been said to erode an elderly person's autonomy and decision making skills by means of sedation,[8] covert administration of drugs has been little studied. The concealment of medicine in food or beverages is described in non-scientific articles,[9 10] and must be a well known practice among carers in nursing homes, but we found only a few scientific papers that report the practice of covert administration. Treloar et al reported that 71% of residential, nursing, and inpatient units in southeast England at least sometimes administered drugs covertly in food and beverages.[11] However, the paper did not report how many residents received drugs in this way. This paper caused some debate in Britain about the ethical aspects of covert administration.[12–14] An earlier Norwegian questionnaire study reported that 46% of the wards offering residential care for elderly patients sometimes hid drugs in the patients' food or beverages.[15]

In Norway the municipalities are responsible for nursing home care. No legislation allows that drugs can be concealed in the patients' food. According to the Act on Mental Health Care and Patients' Rights, drugs can, in some very special circumstances, be given to patients without their consent, but not concealed. The aim of this study was to describe the characteristics of patients and wards relating to the practice of mixing drugs in patients' food or beverages, to explore the reasons for such a practice, and to find out who decided that such an action should be taken. Furthermore, we wanted to examine how this practice was documented in the patients' records.

Methods

We carried out structured interviews with the professional carers (who knew the patients best) of a random sample of 1501 patients in regular nursing homes in 54 municipalities, from all five health regions in Norway. Of these patients, 1057 lived in 142 regular units and 444 lived in 79 special care units for people with dementia. We also included 425 patients from five teaching nursing homes, of whom 305 lived in 18 regular units and 120 lived in 11 special care units. This gave a total of 1926 patients. For each patient, we assessed degree of dementia, performance in the activities of daily living, and behavioural disturbance. We recorded ward characteristics such as size, staffing, and type of ward.

Covert administration of drugs

If any drugs had been concealed in the food or beverages during the previous seven days without the patient's knowledge or consent, we recorded it, along with the reason for hiding the drugs. We recorded drugs given on a regular basis as well as those given on special occasions (prn) and grouped them according to the Anatomical Therapeutic Chemical Classification (ATC-code). We did not record drugs applied directly on the skin, ear drops, or eye drops. As the use of prn drugs was not specified by date and frequency, we could not include it in the analysis. We lacked data about drugs for one patient; 32 patients did not receive any drugs, either on a regular basis or prn; and 20 patients had only prn drugs. We thus analysed data from 1873 patients.

If the interviewee stated that the patient had received covert drugs, we recorded whose decision it was to give them this way, the reason for the concealment, and whether the drugs were covert in food or beverages every time the patient received drugs

Table 1 Distribution of type of drugs by method of administration. Values are numbers (percentages) unless stated otherwise

ATC-code	ATC group name	Open administration (n=1630)	Covert administration (n=243)	P value for difference (χ^2)
A01-A09 and A13-A14	Alimentary tract and metabolism, excluding drugs used in diabetes and vitamins and mineral supplements	767 (47)	98 (40)	0.050
A10	Drugs used in diabetes	158 (10)	17 (7)	0.178
A11, A12, B03A, and B03B	Vitamins and mineral supplements	731 (45)	93 (39)	0.054
B01	Antithrombotic agents	560 (34)	71 (29)	0.114
C01-C10	Cardiovascular system	887 (54)	97 (40)	<0.001
G01-G04	Genitourinary system and sex hormones	268 (16)	39 (16)	0.878
H01-H05	Systemic hormonal preparations, excluding sex hormones and insulin	214 (13)	26 (11)	0.291
J01-J07	Anti-infectives for systemic use	189 (12)	46 (19)	0.001
L01-L04	Antineoplastic and immunomodulating agents	23 (1)	3 (1)	0.826
M01-M05	Musculoskeletal system	189 (12)	23 (10)	0.328
N02	Analgesics	528 (32)	92 (38)	0.091
N03	Antiepileptics	94 (6)	25 (10)	0.007
N04	Antiparkinsonian drugs	107 (7)	12 (5)	0.332
N05	Psycholeptics	880 (54)	137 (56)	0.485
N05A	Antipsychotics	416 (26)	78 (32)	0.030
N05B	Anxiolytics	358 (22)	74 (31)	0.003
N05C	Hypnotics and sedatives	362 (22)	40 (17)	0.042
N06A	Psychoanaleptics: antidepressants	505 (31)	62 (26)	0.084
N06D	Psychoanaleptics: antidementia drugs	16 (1)	0	0.121
R01-R07	Respiratory system	263 (16)	27 (11)	0.043
Other*	Unknown*	202 (12)	4 (2)	–

ATC-code=Anatomical Therapeutic Chemical Classification.
*Drugs without ATC-code: mainly laxatives, some vitamins or nutritional supplements and homoeopathic or natural medicines. Drugs recorded in illegible handwriting are also in this group.

(as a routine) or only in exceptional cases. We also asked whether covert administration was documented in the patient's records.

Patients' characteristics

We used a standardised interview, including rating scales, to ask the professional carer about the patient's function. We then calculated degree of cognitive impairment, function in activities of daily living, and behavioural disturbances.

We scored the degree of cognitive impairment, consistent with dementia, by means of the clinical dementia rating scale.[16 17] This scale ranges from 0 (no impairment) to 3 (severe impairment). Previous studies have shown that the scale is reliable and can be treated as a dummy variable with a cut-off point between 1 and 2 for no or mild dementia and moderate to severe dementia.[18] Patients with a score of 0 or 1 are probably capable of giving consent to treatment, whereas patients with a score of 2 or 3 have little capacity or are incapable.

We scored performance in activities of daily living according to the Lawton self maintenance scale,[19] which ranges from 6 to 30. We divided the scores into four logical groups: group 1=6-13, needing little or no help; group 2=14-17, needing some help; group 3=18-21, needing a lot of help; and group 4=21-30, needing help with everything. We used a cut-off point between 2 and 3 to dichotomise performance into "high function" and "low function."

We scored behavioural disturbance according to the brief agitation rating scale,[20] consisting of 10 items. Each item can be scored from 1 to 7; a high score indicates disturbed behaviour. A factor analysis of the items has shown that three items cluster into a group termed "physically aggressive behaviour," and three items cluster into non-aggressive agitation; the remaining items do not show any clear grouping pattern.[18] We recorded a patient as aggressive if at least one of the items for aggressive behaviour scored at least 3 (the behaviour was present at least once during seven days). We used the same principle for non-aggressive agitation.

Ward characteristics

We defined wards with up to 12 beds as small and those with more than 12 beds as large. We calculated the staffing ratio by dividing the number of carers on an ordinary morning shift by the number of beds. The median staffing ratio was 0.32, and we used this as the cut-off point between high and low staffing.[18] The mean (SD) staff ratio in regular units was 0.30 (0.07), compared with 0.36 (0.09) in special care units. Of the special care units, 71% (62; 3 missing) had a staff:patient ratio higher than average, compared with 37% (58; 2 missing) of the regular units.

Statistics

For the descriptive statistics we used SPSS version 12.02. Because we got data at two levels (patient level and ward level), we built a multilevel model for the regression analysis by using MLwiN version 2.0.[21]

Results

The proportion of patients in regular units with a clinical dementia rating scale score of 2 or 3 was 59% (803; 9 missing), compared with 91% (510; 2 missing) in special care units. Drugs were given covertly to 94 (17%; 95% confidence interval 14% to 20%) patients in special care units and to 149 (11%; 9% to 13%) of the patients in regular units. The 1873 patients who used drugs received a mean of 5.1 (range 1-20; SD 2.6) different drugs. Patients who received drugs openly used significantly more drugs (mean 5.2; SD 2.6) than did those who got the drugs covertly in food or beverages (mean 4.4; SD 2.2; P value for difference <0.001). For 95% (226; 4 missing) of the patients, drugs were routinely mixed in food and beverages. Table 1 shows the use of drugs among the patients by ATC-codes and whether they were administered covertly or not.

Table 2 shows who decided that drugs should be given covertly and how often the practice was documented. In 54% (119) of the cases, non-compliance was the reason given for

Table 2 People who made decision to conceal drugs in food or beverages and proportion of cases documented in records. Values are numbers (percentages)

	Cases decided	Cases with some documentation in patient's record
Manager	2 (0.8)	1 (50)
Physician	47 (19.5)	27 (57)
Nurse in charge	152 (63.1)	57 (38)
LPN/auxiliary	3 (1.2)	1 (33)
Relevant carer	7 (2.9)	2 (29)
Don't know or not recorded	30 (12.4)	7 (23)
Total	241 (100)*	96 (40)

LPN=licensed practical nurse.
*Information about decision and documentation of covertness of medication missing for two patients.

administering drugs covertly. Non-compliance means that the patient has refused to take drug or has spat it out. The next most common reason was a problem with swallowing (28%; 62), followed by "to perform the necessary treatment" (10%; 22). We lack data on reason for the disguise of drugs in 22 cases.

To find possible explanatory factors for the practice of hiding drugs in patients' food or beverages we did a bivariate logistic regression analysis using patient and ward characteristics as independent variables (table 3). We then entered the variables stepwise into a multiple logistic regression model, entering the variables with lowest P values first. Only variables that showed a significant adjusted odds ratio or had a significant influence on the other variables were kept in the model. As shown in table 3, patient characteristics such as degree of dementia, aggression, and low function in activities of daily living were the strongest explanatory factors for covert administration. Furthermore, patients in special care units had a higher risk of being given drugs covertly. The risk was lower for patients living in teaching nursing homes or in wards with a relatively high staff:patient ratio.

Discussion

This is the first study to report the frequency of covert drug administration in nursing homes at the level of the patient, so we cannot tell whether the practice of covert administration is more common in Norway than in other countries. In a previous Norwegian study, 43% of the wards in nursing homes and homes for elderly people reported that at least one patient was sometimes given drugs covertly,[15] whereas a British study reported the same for 71% of residential, nursing, and inpatient units,[11] indicating that this practice is not just a Norwegian phenomenon. The low rate of documentation of the covert administration of drugs makes the practice difficult to discover and indicates that it might be under-reported when studies are done with the patients' records as the source for data collection. When the physician who prescribed the drugs also took the decision that drugs should be mixed in food or beverages, the documentation rate was higher than when someone else took that decision. This may indicate that cases in which the decision is taken for medical reasons are more likely to be documented and that the "worst" cases, in which no medical reason exists, are hidden from inspection. Treloar et al reported similar results.[11] They found that the doctor was involved in the decision to give drugs covertly in 10 out of 34 homes, and in only 11 homes had the practice of covert administration been documented. The paper concluded that even if, as most of the carers and some of the authorities believe, covert administration can be justified, the poor recording and secrecy surrounding the practice in institutions are a cause for concern. We wholeheartedly agree.

Table 3 Explanatory variables for use of covert administration of drugs

Characteristics	Univariate analysis: odds ratio (95% CI)	Multivariate analysis, all patients*: adjusted odds ratio (95 % CI)
Ward (n=250)		
Type of ward, SCU *v* RU	1.60 (1.08 to 2.38)	1.83 (1.16 to 2.89)
Sample, TNH *v* RS	0.57 (0.32 to 1.00)	0.42 (0.23 to 0.76)
Proportion of unskilled carers, high *v* low	1.03 (0.69 to 1.53)	NS
Size of ward, large *v* small	0.76 (0.51 to 1.12)	NS
Staffing ratio, high *v* low	0.76 (0.50 to 1.16)	0.55 (0.35 to 0.84)
Patients (n=1873)		
CDR score, 2-3 *v* 0-1	8.59 (5.00 to 14.76)	4.18 (2.31 to 7.57)
ADL, low level of function *v* high	6.59 (4.32 to 10.04)	4.31 (2.78 to 6.69)
Aggression, yes *v* no	4.88 (3.62 to 6.59)	3.15 (2.27 to 4.36)
Non-aggressive agitation, yes *v* no	1.29 (0.97 to 1.72)	NS
Age, ≥80 *v* <80 years	0.95 (0.69 to 1.30)	NS

ADL=activities of daily living; CDR=clinical dementia rating scale; RS=random sample; RU=regular unit; SCU=special care unit for people with dementia; TNH=teaching nursing home.
*Only variables with significant adjusted odds ratios were included in the model.

Types of drugs

Our study shows that life sustaining treatment, such as drugs for cardiovascular diseases, were significantly more often given to patients who got drugs openly, compared with those who got drugs covertly. Drugs used for other physical disorders did not differ significantly between the two groups, except for anti-infectives (table 1), which were given more often to patients who got drugs covertly. Antiepileptics, antipsychotics, and anxiolytics are drugs that may be used as sedatives. These drugs were significantly more often given to patients who got drugs covertly, probably to control and sedate demented patients with disturbed behaviour. This assumption is strengthened by the fact that the degree of dementia and aggression are strongly associated with covert administration. We think that the term "chemical restraint" is a good description when psychotropic drugs are used for sedation, because these drugs do in fact restrain the patient. Sedation may in turn lead to the worsening of already poor function in activities of daily living (table 3), leading to a poor quality of life. By involving the family in cases in which psychotropic drugs are given to patients with dementia, the use of such drugs will probably be reduced. Treloar et al thought the same, however, but found that family members were no more concerned about the use of psychotropic drugs than were staff.[11] Thus, to raise the general awareness of covert administration as an ethical and legal problem and the use of psychotropic drugs with their potential side effects, involving the families of the patients will not be sufficient.

Type of ward

Table 3 shows that teaching nursing homes and high a staffing ratio are associated with the lower use of the practice of mixing drugs in the patients' food or beverages. The reason is probably that teaching nursing homes offer educational programmes to the staff in order to improve the quality of care. Wards with a higher staff ratio may also have the opportunity (time) to run educational programmes for the staff. We had expected that fewer patients in special care units than in regular units would have been subjected to covert administration, because the staff in a special care unit are usually more highly trained and aware of the patients' needs, but the reverse was true. The most likely

What is already known on this topic

The practice of covert drug administration in food and beverages is well known in residential and nursing homes, but no prevalence rates exist

No information is available on which patients are particularly subjected to covert administration or on the procedures for documenting the practice

What this study adds

In Norway, 11% of patients in regular nursing home units and 17% of patients in special care units for dementia were covertly administered drugs at least once, and in 95% the practice was routine

Patients with severe cognitive impairment, reduced function in activities of daily living, or aggressive behaviour were more often subjected to covert administration

The practice of covert drug administration was poorly documented in the patients' records

explanation is that the proportion of patients with a severe degree of dementia and behavioural problems is extremely high in special care units. Hiding the sedative drugs in food and beverages may in many cases be the only way of administering the drugs, because of the non-cooperation of patients who may lack the capacity to understand and give consent to drug treatment.

Who takes the decision?

We are concerned that the physician responsible for medical treatment in nursing homes is not involved in all cases in which it is decided to give drugs covertly. We believe that such involvement would reduce the frequency of the practice, or at least that the practice would be better documented. A Swedish study showed that the quality assurance of drug administration was positively associated with the quality of the communication between the physician and the nurses, and was higher in nursing homes where discussions about drug treatment took place in the multidisciplinary team.[22] Nygaard et al have reported that in nursing homes with a full time physician the use of antipsychotic drugs is lower than in nursing homes where a physician works part time.[23] Even though these two studies did not include covert administration, the importance of an interested physician, cooperating with other health personnel in the nursing home to reduce the use of covert administration, might be substantial.

Conclusion

The practice of mixing drugs in patients' food and beverages is common in Norwegian nursing homes but is poorly documented in the patients' records. The procedure for the decision to hide drugs seems to be arbitrary.

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