



Original article

Under-detection of pain in elderly nursing home residents with moderate to severe dementia



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ABSTRACT

Background/Purpose: Elderly patients who are cognitively impaired tend to have a decreased ability to communicate and report pain, which results in the under-detection and under-treatment of pain. This study aimed to describe the prevalence of pain in elderly patients with moderate to severe dementia who were residing in nursing homes and to determine the factors associated with pain.

Methods: Elderly patients older than 60 years of age with Mini-mental State Examination (MMSE) scores of <20 who were resident in three selected nursing homes were recruited. Demographic data and comorbidity were recorded. Information about treatment with analgesic drugs, physical restraints, the presence of depression, and behavioral disturbances was collected from medical records and from health care workers. Pain was assessed using the Chinese version of the Pain Assessment in Advanced Dementia Scale (PAINAD-C).

Results: A total of 309 residents with a mean \pm SD age of 85 ± 7.5 years and a mean \pm SD MMSE score of 9.6 ± 6.3 were included in the study. A total of 61.5% (190) of patients experienced pain as defined by a PAINAD-C score of ≥ 2 . Only 30.7% (95) of patients were treated with analgesic drugs. Univariate analysis showed that a lower MMSE score, male sex, poor mobility level, treatment with psychotropic drugs, use of physical restraints, presence of physical aggression, and being uncommunicative were associated with pain. The major factors associated with pain were the use of physical restraints [odds ratio (OR) 3.1], the presence of physical aggression (OR 2.55), male sex (OR 2), and poor MMSE score (OR 0.94).

Conclusion: Pain is highly prevalent among nursing home residents with moderate to severe dementia and is associated with the use of restraints. However, only half of the patients in this study were treated with analgesic drugs. An improvement in the caregivers' knowledge of pain assessment together with the provision of adequate treatment for pain is necessary in the care of these groups of patients with dementia.

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1. Introduction

Pain is an important problem in frail elderly patients.¹ The prevalence of pain is high in both elderly patients living in institutions and in those living in the community.^{2,3} It has been reported that older adults tend to experience more painful illnesses than younger adults.⁴ Huffman⁵ found that patients with increasing cognitive impairment tend to have a decreased ability to report pain compared with patients without dementia. This can result in

both the under-detection and under-treatment of patients with dementia who have difficulty communicating their pain, or if there is reduced awareness by health care workers about the management of patients with dementia who have pain.⁶ Some studies have indicated an alteration of pain experience in patients with Alzheimer's disease (AD). Benedetti et al⁷ found that there is a high tolerance of experimental pain in patients with AD compared with elderly patients without dementia and other subtypes of dementia. Pain in patients with dementia may exacerbate cognitive decline and agitated behavior. In a study of severely disabled nursing home residents, aggressive behavior was significantly more common in patients with two or more pain-related diagnoses.⁸

The prevalence of pain in older people with dementia has been reported to vary greatly from 28% to 83%.^{9,10} These varying rates

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reflect the difficulty of assessing pain in patients with dementia. Different methods can be used to assess pain. These include gathering information from medical or clinical records of diagnoses and the use of self-reported pain. Although self-reported pain may be the gold standard for measuring the prevalence of pain in patients with mild dementia, those with moderate to severe dementia are not reliably assessed or are excluded altogether.¹¹

There is an interaction between pain, cognitive impairment, depression, and behavioral disturbances. An increased awareness of pain in patients with dementia can help caregivers to provide more effective care for these groups of patients, resulting in an improvement in their quality of life and a reduction in health care costs.

The aims of this study were to describe the prevalence of pain in patients with dementia residing in nursing homes, to identify the association of pain with the use of analgesic drugs, and to identify the risk factors for pain in this group of patients.

2. Methods

Six nursing homes were invited to participate in this study and finally only three government-supported nursing homes with a total capacity of 550 patients agreed to participate. The inclusion criteria were: a diagnosis of dementia from medical records; resident in a nursing home for at least 4 weeks before data collection; age >65 years; and no major environmental changes within the previous month. The exclusion criteria were: those patients with a terminal illness or an acute stage of any illness; patients with severe hearing and visual impairments that affected their ability to participate; and patients experiencing distressing social circumstances such as the death of a close relative or friend.

Basic demographic information including age, sex, and ambulatory status (walking with aids or being chair-bound or bed-bound) was recorded. Cognitive status was measured using the Mini-mental State Examination (MMSE).¹² Comorbidities were recorded from the patients' medical records and the Charlson Comorbidity Index¹³ was calculated. A higher Charlson Comorbidity Index indicates greater medical comorbidities. Depressive symptoms were registered if mentioned as present in the medical records of the patients. 'Uncommunicative' was defined as the absence of verbal communication.

Pain was assessed using the Chinese version of the Pain Assessment in Advanced Dementia Scale (PAINAD-C).¹⁴ PAINAD-C is a five-item observational tool. Patients were observed during activities and behavioral indicators of pain were recorded: breathing, negative vocalization, facial expression, body language, and ability to be consoled. Each of the five assessments had a range from 0 to 2, giving a total score of 10. A higher score indicates more severe pain. A score of ≥ 2 was defined as having pain.¹⁵ The primary caregiver, who was familiar with the patient and knew his or her usual behavior, was responsible for the PAINAD-C scoring. The primary caregivers were usually the health care assistants of the nursing home. Residents were observed at randomly selected times during personal morning care (e.g. washing and showering). Morning care was chosen as the observational moment because it is believed to be a provocative time for pain.¹¹ All primary caregivers were trained in scoring with the PAINAD-C tool by the authors before the start of patient recruitment.

Information on treatment with analgesic drugs was recorded from the patients' medical records. The number of different drugs used to treat pain was registered in accordance with the WHO analgesics ladder: no pain medication, nonopioids (WHO I), weak opioids (WHO II), and strong opioids (WHO III). WHO II and III are combined because of the rare use of weak opioids. Current drugs used for pain were defined as drugs used for four or more days in the preceding week.

Behavioral disturbances were recorded as any of the following symptoms: wandering, verbal disruption, physical aggression, regressive behavior, and hallucinations.¹⁶ Each of them were coded as present or absent. Descriptive statistics were computed from the respondents' characteristics and in relation to pain. Differences between groups were analyzed for continuous data using the Student *t* test or the Mann–Whitney *U* test as appropriate, and the Chi-square test was used for categorical data. The logistic regression model was set up to identify the independent factors associated with pain.

Written consent was obtained from the patients with mild dementia. For those who were unable to comprehend, written consent was obtained from their legal surrogate guardians. Permission to conduct the study was obtained from the managing directors of the nursing homes.

Approval was obtained from the Hospital Authority Regional Ethics Committee.

3. Results

In total, 309 patients were recruited. The mean \pm SD age was 85 ± 7.5 years and the mean \pm SD MMSE score was 9.6 ± 6.3 . There were 125 (40.5%) male patients. More than 90% of patients were chair-bound or bed-bound: 180 (58.3%) were chair-bound and 104 (33.7%) were bed-bound. The commonest cause of dementia, seen in 131 (42.4%) patients, was AD; 120 (38.8%) patients had vascular dementia and 44 (14.2%) patients had mixed dementia. The median Charlson Comorbidity Index was 3; 108 (35%) patients were uncommunicative. Two hundred patients (64.7%) were put in restraints. Behavioral disturbances were reported in 169 (54%) patients. A total of 98 (58%) patients displayed verbal disruption, 60 (35.5%) patients experienced hallucinations, 55 (32.5%) patients were physically aggressive, 12 (7%) patients wandered, and 10 (5.9%) patients showed regressive behavior. A total of 102 (33%) patients, nearly one-third of the total, were treated with psychotropic drugs. Among them, 59 (19.1%) patients were treated with antipsychotic drugs, 39 (12.6%) patients received antidepressant drugs, 31 (10%) patients were given sedative or hypnotic drugs, and five (5.1%) patients were prescribed anxiolytic drugs. Thirty-nine (12.6%) patients had depression according to their medical records.

The mean \pm SD PAINAD-C score was 2.3 ± 2.2 . When pain was defined as PAINAD-C ≥ 2 , it was found that it was present in 190 (61.5%) of our patients. However, only 95 (31%) patients were treated with analgesic drugs and the mean number of analgesic drugs used was only 1.08 (range 0–3). The most commonly prescribed analgesic drug was paracetamol, prescribed in 91 (29.4%) patients, and only eight of our patients were prescribed tramadol for pain relief.

Table 1 gives the basic demographic variables among patients with and without pain. Univariate analysis found that a lower MMSE score, male sex, mobility level, treatment with psychotropic drugs, use of physical restraints, the presence of physical aggression, and being uncommunicative were associated with pain. Logistic regression analysis adjusted for mobility level, treatment with psychotropic drugs, and being uncommunicative found that the MMSE score [odds ratio (OR) 0.946, 95% confidence interval (CI) 0.9–0.998], use of restraints (OR 3, 95% CI 1.58–5.67), the presence of physical aggression (OR 2.55, 98% CI 1.1–5.87), and male sex (OR 2, 95% CI 1.07–3.79) were independently associated with pain (Table 2).

4. Discussion

Our study found that there is a high prevalence of pain in these patients with moderate to severe dementia patients resident in

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