Effects of dementia on perceived daily pain in home-dwelling elderly people: a population-based study

PEKKA MÄNTYSELKÄ1,2, SIRPA HARTIKAINEN1,3, KIRSTI LOUVIVUORI-LAAKO1, RAIMO SULKAVA1

1Department of Public Health and General Practice, University of Kuopio, PO Box 1627, 70211 Kuopio, Finland
2Unit of General Practice, Kuopio University Hospital, PO Box 1777, 70211 Kuopio, Finland
3Municipal Hospitals of Kuopio, Niuvantie 4, PO Box 38, 70101 Kuopio, Finland

Address correspondence to: P. Mäntyselkä. Fax: (+358) 17 162937. Email: pekka.mantyselka@uku.fi

Abstract

Background: Pain is a significant problem in the elderly, but the impact of dementia on perceived pain has not been studied in population-based study settings.

Objectives: To analyse the prevalence of daily pain and analgesic use among home-dwelling older people with and without dementia.

Design: A cross-sectional population-based survey.

Setting: Population of Kuopio city, Finland.

Subjects: 523 home-dwelling subjects aged 75 years and older.

Methods: Structured clinical examination and interview.

Results: Prevalence rates for any pain, any daily pain, pain every day interfering with routine activities, and daily pain at rest were significantly lower in those subjects with dementia (43%, 23%, 19% and 4%, respectively) compared to those subjects without dementia (69%, 40%, 36% and 13%, respectively). The subjects with dementia were less likely to use analgesics (33%) than the non-demented (47%).

Conclusion: Dementia was related to a lower prevalence of reported pain and analgesic use among home-dwelling elderly people.

Keywords: Pain, dementia, cognitive impairment, elderly

Introduction

In Western societies, individuals aged 75 years and older represent the fastest growing section of the population. In them, morbidity and social problems are on the increase, posing challenges to the health care system. Most of these elderly people wish to remain at home as long as possible. Thus, it is important to investigate the presence of major symptoms like pain, which can affect functional status and the quality of life in elderly people. Persistent pain is very common among elderly people. A study from Scotland has shown that the prevalence of chronic pain can be as high as 62% in the general population of people aged 75 years and older [1]. A population-based French study indicated that the prevalence of daily chronic pain was 33% [2]. In an epidemiological study from the United States the presence of pain on a daily basis had a great impact on perceived health status among home-dwelling elderly people [3]. Based on the
studies of nursing home residents, it is known that cognitively impaired patients suffer a significant amount of untreated pain [4–6], which worsens the quality of life and may cause behavioural symptoms.

There are very few epidemiological studies into the frequency of daily pain focusing on home-dwelling elderly people. The impact of dementia on perceived pain has not been studied in population-based study settings. The objective of this study was to analyse the prevalence of daily pain and analgesics used among home-dwelling people aged 75 years and older with and without dementia.

Methods

This study is a part of the Kuopio 75+ study which is a population-based health survey based on the clinical epidemiology of diseases, symptoms and medication in the elderly aged 75 years and older. A random sample of 700 subjects was drawn from the total population of people born before 1 January 1923 and living in the city of Kuopio (population 80,000) in eastern Finland, on 1 January 1998 (n=4,518) [7, 8]. Ninety-nine of the 700 subjects could not be examined (79 refused, five could not be contacted, and 15 died before the examination). Thus, a total of 601 subjects (86% of the random sample) were available in 1998 for an in-depth investigation. Of these 601 subjects, the present study was based on the 523 home-dwelling elderly people.

A geriatrician and a trained nurse performed a structured clinical examination and interview. The overall physical and neurological status was examined. The examination included basic laboratory tests and chest X-ray. Patients were referred for further examination and imaging if warranted by their clinical condition. Medical records from the municipal health centre and from the local hospital and Kuopio University Hospital were evaluated. Thus, diagnoses of chronic diseases were based on patient records, clinical examination and further examinations if needed. The detected chronic diseases included vascular diseases (ischaemic heart disease, chronic heart failure, peripheral vascular disease), stroke, diabetes mellitus, osteoarthritis of the hip or knee, and depression. Depression was diagnosed according to DSM-IV criteria [9]. A history of cognitive decline was obtained by interviewing the subject and relatives and other people who knew the subject, as well as reviewing all the medical records. The diagnosis [9] and degree of dementia [10] were based on DSM-IV and DSM-III-R criteria. All dementia diagnoses were subsequently evaluated by a neurogeriatrician (RS). The clinical diagnosis of dementia was established and the type and stage of dementia were determined in consensus meetings, using all the data available [8]. The structured interview included items concerning sociodemographic factors, living conditions, social life and health.

Subjects were asked about perceived pain during the preceding month. In addition, the caregiver was asked about the subject’s pain symptoms if necessary, and the interviewer and geriatrician assessed the presence of pain during the interview and medical examination. Emphasis was placed on daily pain: ‘Have you had (has the subject had) musculoskeletal (back or joint) pain?’ (0=no; 1=yes daily; 2=yes sometimes). Subsequent questions evaluated the presence of daily pain interfering with routine activities, daily pain at rest and use of analgesics to ease pain.

Differences of prevalence rates between the demented and non-demented were analysed with the chi-square (χ²) test. In addition, 95% confidence intervals (CI) were obtained for differences between prevalence rates of pain and use of analgesics.

Written informed consent was obtained from the subjects or their relatives. The ethics committee of the Kuopio University Hospital approved this study. The study was supported by the city of Kuopio and the Nordic Feather of the Lions.

Results

There were a total of 77 demented subjects (15%). Of these, two were excluded from the analysis due to missing data on pain. Table 1 shows the characteristics of the study subjects without and with dementia. The proportion of males was similar among the subjects without and with dementia. The median age of the non-demented subjects was 79 years, for demented subjects it was 84 years. There were no significant differences in vascular diseases, stroke, diabetes, osteoarthritis or depression between these groups. Dementia was

<p>| Table 1. Characteristics of the home-dwelling elderly study subjects without dementia and with dementia |
|-------------------------------------------------|------------------|-----------------|------------------|------------------|------------------|</p>
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Subjects without dementia (n=446)</th>
<th>Subjects with dementia (n=75)</th>
<th>P value for difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociodemographic characteristics</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Males</td>
<td>123</td>
<td>27.6</td>
<td>20</td>
</tr>
<tr>
<td>Age, mean (median)</td>
<td>80.3 (79.0)</td>
<td>83.0 (84.0)</td>
<td>0.001</td>
</tr>
<tr>
<td>Living alone</td>
<td>268</td>
<td>60.1</td>
<td>47</td>
</tr>
<tr>
<td>Disease characteristics</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Vascular disease*</td>
<td>333</td>
<td>74.7</td>
<td>53</td>
</tr>
<tr>
<td>Stroke</td>
<td>45</td>
<td>10.1</td>
<td>10</td>
</tr>
<tr>
<td>Diabetes</td>
<td>90</td>
<td>20.2</td>
<td>13</td>
</tr>
<tr>
<td>Osteoarthritis of hip or knee</td>
<td>47</td>
<td>10.5</td>
<td>6</td>
</tr>
<tr>
<td>Depression</td>
<td>97</td>
<td>21.7</td>
<td>18</td>
</tr>
</tbody>
</table>

*aVascular diseases included ischaemic heart disease, chronic heart failure and peripheral vascular disease.*
rated as mild in 43 individuals, moderate in 27 and severe in five subjects. Of the subjects with dementia, 64 could answer the questions regarding pain themselves, while the caregiver assessed the perceived pain in 11 cases. Of the subjects with severe dementia only one (out of five) could answer the questions regarding pain for him/herself.

The detailed prevalence rates of pain are shown in Table 2. Two-thirds of the subjects had perceived some pain. One-third experienced pain on a daily basis during the preceding month. Prevalence rates for any pain, any daily pain, interfering daily pain and daily pain at rest were significantly lower among the subjects with dementia (43%, 23%, 19% and 4%, respectively) than among those without dementia (69%, 40%, 36% and 13%, respectively). If the analysis was restricted to only those subjects who could report on their own pain themselves, the prevalences were slightly lower for the subjects with dementia (40%, 21%, 17% and 3%, respectively). The prevalence of daily pain increased with age in both the non-demented and demented subjects. The differences between these groups were not attributable to the age of the subjects. The prevalence of pain was not dependent on the degree or specific diagnosis of the dementing disorder. Of the subjects with mild dementia, 42% (n=18) had experienced pain during the preceding month. The corresponding percentages for those with moderate and severe dementia were 41% (n=11) and 60% (n=3). Of the subjects with mild dementia, 19% (n=8) had daily pain, while for those with moderate or severe dementia, the corresponding proportions were 26% (n=7) and 40% (n=2). The differences between these groups were not statistically significant (for any pain, P=0.73; for daily pain, P=0.49). The subjects with dementia used analgesics less frequently (33%) than those without dementia (47%).

### Discussion

Dementia was related to a lower prevalence of reported pain and analgesic use among the home-dwelling older people. This prevalence trend was irrespective of the description of pain used. Our findings are in line with previous results obtained from studies of nursing home residents. As far as we are aware, the present study is the first to demonstrate this trend in a representative population-based sample of older subjects.

Some studies have suggested that the perception and processing of pain may be altered by dementia [3, 6, 11, 12]. It has been claimed that patients with Alzheimer’s disease tend to perceive less pain intensity and pain effect, and that dementia at a relatively early stage may be associated with a change in the actual pain experience [13]. This may be one possible explanation for our findings. However, it is most unlikely that dementia protects sufferers from disorders causing pain [6]. Identifying and measuring pain in subjects with altered abilities to communicate and remember constitutes a major problem in any assessment of pain in elderly people [12, 14]. On the other hand, the pain reports of demented subjects who can still communicate have been found to be as valid as those obtained from cognitively intact patients [6]. The demented subjects of this study were mostly people able to give self-report. Thus, we suggest that the information received from the study subjects is valid. Validated pain assessment scales for subjects with dementia have been developed. In addition to these scales, direct observation and history from caregivers should be used in any assessment of pain [14].

There is a considerable risk that disorders causing pain may not always be recognised in demented patients. Such a failure leads to under-utilisation of pain treatment, and may cause behavioural problems and the subsequent prescription of neuroleptics instead of analgesics. The correct detection, diagnosis and treatment of the pain experienced by demented elderly subjects is a challenge in clinical practice and in the training of medical staff.

### Key points
- Daily pain is common among the home-dwelling elderly.
- Dementia is related to a lower prevalence of reported pain and analgesic use.
- The correct detection, diagnosis and treatment of the demented elderly subjects’ pain is a challenge in clinical practice and in the training of medical staff.

### References

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