
The underdetection of pain of dental etiology in persons with dementia

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Abstract

Background. *The detection of dental pain in persons suffering from dementia has not yet been investigated.*

Subjects and methods. *Twenty-one nursing home residents with a mean age of 88 participated in this study. Nine rotating volunteer dentists came to the nursing home to conduct dental evaluations. Two outside geriatricians performed a second assessment, and additional information concerning dental status was obtained from the minimum data set (MDS).*

Results. *Over 60 percent of assessed participants were considered to have a pain-causing condition. Less than half of these were rated by the geriatricians as having dental-related pain. Only one participant was rated to have dental or mouth pain on the MDS. Only one of the 18 persons with either a full or partial evaluation had no dental problems.*

Conclusions. *Dental problems are underdetected and undertreated in the nursing home. Better training for non-dentists in detection of such problems and better reimbursement for dental care are needed to improve care of residents.*

Key words: *dementia, dental problems, nursing home, pain*

Introduction

According to a national study, more than 60 percent of nursing homes in the United States “either did not have services of dentists at all, or had them only on call or only off-site.”¹ Different aspects of dental care in frail elders have been reported in the literature and include an investigation of dental needs of nursing home residents via caregivers’ and residents’ attitudes about oral health,²

the quality of dental care and its organizational aspects,³ and motivation of management and nursing staff in improving dental care in nursing homes.⁴

One barrier to providing quality dental care is the lack of staff accuracy in assessment. Results of one recent study, which employed the Brief Oral Health Status Examination (BOHSE) instrument, suggested that nurses’ ability to assess dental problems in residents might be dramatically improved by training.⁵ Another study⁶ showed that a 30-minute training session on how to use the minimum data set (MDS) oral health assessment and the resident assessment protocol (RAP) significantly and positively influenced the accuracy of nurses’ evaluations.⁷

While a few recent studies concentrated on assessing the oral health status and dental needs in older populations, research in handicapped people and especially in noncommunicative, cognitively impaired elders is still lacking.⁸ Surprisingly, the issue of dental pain and care in persons suffering from dementia is missing, even in studies of that population. In a very detailed review of experimental findings pertaining to sources of chronic pain in persons suffering from dementia, there was no mention of dental pain.⁹ Despite the lack of attention, dental problems are known to occur in cognitively impaired elders. Unfortunately, the results of studies on oral health and dental care in nursing home residents indicate that the problem remains underestimated.^{10,11} If dental pain could be properly detected and treated, the quality of life for older people and caregivers alike would be significantly improved.

The following study describes dental pain detection and evaluation in nursing home residents suffering from cognitive impairment.

Methods

Participants

Twenty-one nursing home residents participated in the study. Most residents were female (n = 19); two residents

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were male. All participants were Caucasian. Sixteen were widowed; five were married. The mean age was 88 years (range = 75 to 103). On the average, the participants' length of stay in the nursing home was 2.26 years. The mean Mini-Mental State Exam (MMSE)¹² score was 8.82 out of 30 (range = one to 27; low scores represent cognitive impairment) and the mean minimum data set cognition score (MDS-COGS)¹³ was 4.55 on a scale of zero to 10 (range = one to nine; high scores represent cognitive impairment). All residents suffered from dementia.

Setting

The study was conducted in a large, nonprofit nursing home in a metropolitan area. The dental evaluations were conducted in the dental clinic rooms in the nursing home.

Procedures

Informed consent was obtained for each participant as approved by an institutional review board. Nine rotating volunteer dentists came to the nursing home to conduct dental evaluations. In addition to the dental evaluation, two rotating geriatricians from outside the nursing home assessed the participants. As part of a physical examination, the geriatricians rated the presence of dental or denture discomfort and whether it was active or inactive. If present, the severity of pain, discomfort, or distress associated with it was rated as none, minimal, moderate, or severe. At times, the geriatricians rated discomfort as "unable to assess." Both dental and geriatrician assessments were standardized and entered on forms specifically prepared for this study.

Both the demographic (or background) variables and the pain assessment variables were extracted from the residents' MDS. The demographic or background variables were: gender, date of birth, race or ethnicity, date of entry into the nursing home, education, marital status, short-term memory, long-term memory, memory or recall ability, cognitive skills for daily decision-making, comatose, hearing, communication devices or techniques, making oneself understood, ability to understand others, change in communication or hearing, and self-performance in activities of daily living (ADL). The dental pain MDS assessment included two items: mouth pain and inflamed gums.

Results

Feasibility of dental evaluations

Dental evaluations were rated as unable to be done, partially completed, half completed, majority completed, or fully completed. Twelve of the participants (57.1 percent) had fully completed examinations. Three people

(14.3 percent) had the majority of the evaluation completed, three people (14.3 percent) had partially complete evaluations, and the evaluation could not be performed for three of the participants (14.3 percent). Of the three people for whom the examination could not be conducted, one had one attempt, another had three attempts, and the third had five attempts. For all three residents, the reason for failing to perform the examination was because of their inability to cooperate throughout the examination. All three people suffered from severe cognitive impairment, as assessed by the MMSE and the MDS-COGS. All three residents had an MMSE of one. Two of these had an MDS-COGS of six and one had a score of seven. Of the six participants for whom the examination was either partially or not performed, the reasons for noncompletion were resident fatigued or sleeping, communication problems, resistive behavior, or the patient's mouth being in constant motion; in one patient, the reason was unspecified.

Prevalence of dental problems

On the standardized form, dentists were given a list of dental problems and asked whether the problem existed and whether the condition caused pain (see Table 1). The dentists were also asked how severe they believed the pain to be for each problem. Of the 18 persons with either a full or partial evaluation, one person had no dental problems, six people had one problem, three people had two problems, three people had three problems, two people had four problems, and three people had six problems. The mean number of dental conditions identified was 2.61.

As can be seen from Table 1, at least some of the participants exhibited each of the dental conditions rated. These ranged from 22 percent having cervical caries to 50 percent having dentures. For each of the conditions, a dentist identified at least some pain, ranging from 14 percent of those with gingivitis to 86 percent of those with broken teeth. Two of the diagnoses were considered to be in the "other" category; both conditions were "retained root tips." These numbers should be considered as an underestimation because the dentists could not perform the full examination in some cases and were unsure of the extent of pain in other cases.

Potential pain associated with dental conditions as perceived by dentists

Participants had a mean of 1.06 conditions associated with pain. As mentioned above, one person had no dental problems identified. Despite their conditions, seven people were assessed to have no detectable pain; six people had one condition that caused pain; three people had two conditions that caused pain; one person had three conditions causing pain; and one person had four conditions

Dental problem	Percent with problem	Percent of those with problem rated as having pain
Broken teeth	39	86
Fractured teeth	28	60
Cavities	28	40
Cervical caries	22	25
Periodontal disease	44	25
Gingivitis	39	14
Dentures	50	33
Retained root tips	11	50

causing pain. Most pain ratings were of mild to moderate levels. Only one person was rated as having severe pain associated with the dental condition of retained root tips.

Relationship between findings from the dental examination and the geriatricians' examination

Were problems identified by geriatricians also identified by dentists? The outside geriatricians identified five residents as suffering from denture or dental discomfort. A dentist identified three as having pain associated with dentures. The other two were not identified by the dentist as having denture problems, but they were identified as having other types of dental pain in the dental examination.

Were problems identified by the dentists also identified by geriatricians? The three participants identified by the dentist as having denture pain were also identified by the outside geriatricians. However, when examining all pain-related conditions identified by the dental examination, six persons were identified as having dental-related pain by the dentist's evaluation that had not been identified by the geriatricians.

Relationship between dental examination findings and MDS ratings

The MDS items for mouth pain and inflamed gums yielded only one participant with mouth pain and none with inflamed gums. A dentist rated this one resident as having a mild level of pain associated with dentures.

Relationship between level of cognitive impairment and pain assessed by dentists

With regard to the presence of pain as assessed by a dentist during an examination, there was no significant difference in level of cognitive impairment for the seven participants with no pain versus the 11 participants with pain.

Discussion

While findings from several recent studies indicate that nursing home residents have poor oral health, none of those studies addressed the problem of assessment of dental pain. This fact is astounding in itself, in view of the likely effect of such pain on the everyday life experiences of elder residents. Furthermore, the detection of dental or mouth pain is critical because it can be life-threatening, as it interferes with eating^{14,15} and often results in malnutrition.¹⁶ In this study, dentists' assessment of pain was evaluated relative to the other two types of dental pain assessment: MDS evaluation by nursing staff and geriatricians' assessments.

The results of the present study highlight the unmet dental needs of nursing home residents who suffer from dementia. The dental conditions that accounted for pain in most of our participants were broken teeth, cavities, and dentures. Whereas some of the persons had no problems or minor ones, the dentists wrote comments describing major issues for some of the residents, such as: "oral hygiene is deplorable, needs help in daily oral hygiene," "full upper and lower dentures, very loose—needs reline on both dentures," "patient had complete upper denture, lower denture missing," "patient has multiple severely decayed teeth that are sharp and hurt his cheeks and lips—gums are very inflamed, very poor oral hygiene, patient needs panoramic x-ray and multiple extractions."

The study also highlights the difficulties in working with this population. Their inability to understand the importance of the examination and to communicate effectively render them very difficult to examine. The notes written by the dentists included: "patient had enough for today"; "patient's mouth is in constant motion"; and "patient is very debilitated and can't cooperate well, patient doesn't communicate well."

This issue has been studied by investigating strategies of dental examination in cognitively impaired nursing home residents.⁵ During the evaluation of 100 cognitively impaired nursing home residents, a total of 532 examinations were conducted by dentists. Among the most effective factors for successful dental assessment were establishing rapport with the residents, organizing a quiet environment, and enlisting the help of the primary caregiver.⁵ This study did not contain any analysis or classifications of dental problems.

A comparison of our findings to results of other studies (Table 2) also reveals a large difference in the prevalence of

problems detected during an examination made by dentists, as compared to detection by the MDS assessment made by nursing staff who are inexperienced in assessing dental pain. For example, in a study of MDS oral health assessment of 466 residents by nurses, only 0.2 percent of residents were identified with mouth pain, 3.0 percent with broken or decayed teeth, 0.9 percent with gingival problems, and 3.2 percent with oral debris.¹⁷ Surprisingly, the results of one regression analysis revealed an inverse association between the number of annual dental visits and the presence of any MDS dental “triggers.”¹⁷ In contrast, dentists’ examinations of dental problems in 156 elders living in nursing homes indicated that 41 percent of the residents had denture problems, 25.6 percent had periodontitis, and 5.1 percent experienced gingival problems.¹⁸ The dentists’ findings are more likely to reflect the actual rates of dental problems in elderly nursing home residents and highlight the

underreporting derived from the MDS assessment.¹⁹ Our results concur with these findings.

While most of the cited studies did not deal with pain related to dental problems, that issue was the primary focus of our study. We found the MDS dental pain rating to be inadequate, with only one participant rated as having any problem. In contrast, a dentist verified each of the geriatricians’ reports of dental pain, and the geriatricians captured nearly half of those identified by a dentist. This suggests that there may be no substitute for dental evaluations by medical professionals, but that the rate of detection of dental pain by the staff probably can be improved through training. In fact, the dentists’ notes suggest that training needs to address not only dental assessment, but also improving dental hygiene, which is crucial for improving the quality of life of nursing home residents.

The difficulties in conducting the examination render

Table 2. Dental problems: Comparison of physician versus MDS assessment

Dental problem	Percent of residents with dental problem				
	Dentists’ assessment (our study) N = 21	Clinicians under direction of dentists’ assessment (Kambhu et al.) ¹⁹ N = 48	Dentists’ assessment (Kandelman et al.) ¹⁸ N = 156	MDS assessment (Thai et al.) ¹⁷ N = 466	MDS assessment (our study) N = 21
Broken teeth	39	18 (or lost)		3.0 (& decayed)	4.8 (& loose)
Fractured teeth	28	25 (retained roots)			
Cavities	28				
Cervical caries	22	56.3 (cariou teeth)			
Periodontal disease	44	4.2	25.6		
Gingivitis	39		5.1	0.9	
Dentures	50		41	52 (prosthesis)	57.1
Chewing				21.3	28.6
Swallowing				17.5	14.3
Mouth pain				0.2	9.5
Oral debris				3.2	4.8
Retained root tips	11	11			

all rates established as underestimates. However, these same difficulties may also affect the feasibility of intervention in this group. This study is limited by its small number of participants and use of only one nursing home. The choice of the nursing home probably suggests that results in other nursing homes would be similar or worse, since this is a facility with five full-time geriatricians and good medical and nursing care.

Oral problems may be the cause of eating problems and weight loss,²⁰ a common event in later stages of dementia. Therefore, assessment and treatment of oral disorders in the moderate to severely impaired dementia patient would seem to be a high priority for this population, but generally would be a source of frustration and anger for families and caretakers for many reasons, including the following:

- Oral hygiene is difficult or impossible for someone else to do if the patient is not cooperative;
- Assessment may require chemical restraint (even to the point of general anesthesia), which is not practical on a daily basis;
- Assessment is highly dependent on the patient response—an answer to the question, “Does this hurt?”—and not just the caretaker’s view;
- Treatment may be lengthy, uncomfortable, and require cooperation of the patient;
- Treatment of the pain by analgesics instead of addressing the source of the pain is not appropriate for most oral problems;
- There is no payment under Medicare for dental care (and limited payment under Medicaid); and
- There is no financial support for staffing to perform daily oral hygiene in the dementia population.

This problem and need will increase in the future. In previous eras, most extremely elderly people were edentulous (toothless), and the most common intervention was surgical removal of a tooth stump, a one-time treatment. Future frail elders will increasingly have significant numbers of teeth in their mouths and will require effective methods of care, even if they have dementia. Although this is primarily a clinical study, public policy issues clearly play a major role in dictating the current state of affairs. Reimbursement for dental care and dentures is generally unavailable. To guarantee that nursing home residents receive the needed dental treatment, policies of reimbursement for such services must be re-evaluated.

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