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Aggression in Persons with Dementia: Use of Nursing Theory to Guide Clinical Practice

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Abstract

With approximately four million people in the United States today diagnosed with dementia, one of the most devastating problems faced by caregivers and patients is dealing with aggressive behavior. Aggression occurs in half of persons diagnosed with dementia and is associated with more rapid cognitive decline, increased risk of abuse, and caregiver burden. This paper uses the Need-driven Dementia-compromised Behavior (NDB) model to explain aggression and discusses therapeutic approaches to care that combines non-pharmacological and pharmacological interventions targeting both the management of aggression crisis and preventing its future recurrence. A clinical algorithm guided by the NDB model is provided for practitioners.

Keywords

Aggression; Aggression Crisis Management; Dementia; Need-driven Dementia-compromised Behavior; Non-pharmacological Interventions; Pharmacological Interventions

Introduction

There are approximately four million people in the United States today who are diagnosed with dementia. Current estimates indicate that these numbers will approach fourteen million by the year 2050, making dementia a major public health concern in the 21st century 1. Dementia affects memory, attention, language, and judgment, and these symptoms are referred to as the cognitive symptoms of dementia. Some of the most challenging and devastating problems caregivers and clinicians face, however, are the non-cognitive symptoms of dementia that more than 90% of persons with dementia experience over the course of the illness 2- 3. Non-cognitive symptoms include a heterogeneous range of psychological reactions, psychiatric symptoms, and behaviors, of which aggression is of

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major concern to caregivers 4· 5. Aggression is defined as any physical or verbal behavior that has the effect of harming or repelling others, and includes behaviors such as hitting, kicking, and screaming 6. Aggression occurs in half of persons diagnosed with dementia and is associated with more rapid cognitive decline, increased risk of abuse, and caregiver burden 4· 7· 8. Additionally, aggression results in earlier nursing home placement and contributes significantly to the costs of long-term care 9· 10.

The current management of aggression is, at best, moderately successful, even in controlled trials 11· 12. The reasons for this limited effectiveness are the nonlinear interactions between risk factors for aggression, various factors that trigger the behaviors, and the focus on pharmacological interventions during crisis to the exclusion of preventative interventions 13· 14. Currently, there is no miracle pill that manages aggression, and there is no fixed approach to every person who exhibits aggression. Because aggression is so common in persons with dementia and carries a high risk for poor health outcomes, it is essential that caregivers and clinicians understand best approaches to intervention that weigh the benefits and risks of using non-pharmacological interventions to prevent aggression and at the same time initiate pharmacological and non-pharmacological interventions during crisis.

In this paper we describe a clinical algorithm, guided by a nursing model, for the care of persons in nursing homes who exhibit aggression and who have moderate to severe cognitive impairments; stages of dementia when aggression is most likely to be exhibited. We begin with a discussion of the Need-driven Dementia-compromised Behavior model that conceptualizes aggression within a nursing perspective and considers the range of factors that are associated with the behaviors in nursing home settings 15. We then review a template for identifying aggressive behaviors, their triggers, and general approaches to intervention. We present evidence for non-pharmacological and pharmacological interventions and review the most frequently prescribed drugs for aggression, antipsychotic medication.

Conceptualization of Aggression

Several conceptual frameworks have been developed that address aggressive behavior in persons with dementia; two of the most well-known are the Need-driven Dementia-compromised Behavior (NDB) model and the Progressively Lowered Stress Threshold (PLST) model. Both frameworks are based on the larger notion of person-environment fit and assist caregivers in identification of causes of aggression, understanding the meaning of aggression, and selection of interventions for the behavior 16. We use the NDB model as a guiding framework for this paper because it was developed specifically for nursing home residents and has been tested in that setting.

In the NDB model aggressive behaviors are conceptualized as a response to unmet physical and psychosocial needs and the support available from the environment. Unlike cognitively intact individuals, persons with dementia cannot express their needs in language that is understandable to others. In the NDB model, behavioral symptoms arise from the interaction of relatively stable background factors that place persons with dementia at risk for behaviors and more changeable proximal factors that precipitate behaviors in at risk-people. The former include neurological pathology, language ability, physical health status, functional ability, and pre-morbid personality; and the latter include physiological need states, psychological need states, and quality of the physical and social environment. In this model, aggression is seen as the individual's way of communicating, for example, pain, social isolation or boredom, or the presence of untreated medical conditions. Effective care demands that caregivers first identify and address the unmet need(s) that come from both

sets of factors rather than control the behavior by extinguishing the call for help with sedating drugs.

The consensus statement on improving mental health care in nursing homes by the American Geriatrics Society and the American Association for Geriatric Psychiatry 17 and the recent position statements of the American Association for Geriatric Psychiatry 18 and the Centres Memoire de Ressources et de Recherche of Nice and Toulouse 19 endorse an approach that begins by identifying the specific behavior exhibited, followed by use of non-pharmacological therapies as a first line of treatment. Pharmacological interventions are reserved for situations in which needs cannot be identified, and the aggression poses a significant danger to the person or others.

Template for Addressing Aggression

Prevention of aggression begins with the identification of persons at high risk for the behavior, and NDB background factors are helpful in this process. Research has shown that residents with language difficulties 20 more severe cognitive deficits 21 and a pre-morbid personality characterized by non-agreeableness 22 are at greater risk of aggression. Residents with this profile should receive care aimed at prevention. However, there are times when even the best care is not successful in preventing an episode of aggression.

As a first step in successful response to aggression the clinician needs to assess the impact on safety: the person's, caregiver's and others. If this safety is in jeopardy, immediate steps are taken to prevent harm, such as removing other residents from the situation and decreasing environmental stimuli for the aggressive resident. Should the aggressive behavior persist and/or escalate then crisis management should be initiated which involves short term pharmacological interventions which will be discussed in detail later in this paper. At the same time, the clinician should initiate the process of profiling the behavior. This process includes defining the behavior and identifying associated factors. The specific behavior that is being exhibited is clearly identified to ensure a well-defined target for treatment, as some instances of aggression may be symptomatic of delirium²³ 24. There are a number of reliable instruments that can be used to make this differential assessment, such as the Cohen-Mansfield Agitation Inventory (CMAI) 25, the Neuropsychiatric Inventory (NPI) 26, the Behavioral Pathology in Alzheimer's Disease Scale (BEHAVE-AD) 27 or the Confusion Assessment Method (CAM) 28, and clinicians are encouraged to learn more about the use of these tools in their practice.

Once aggression is identified, possible causes (unmet needs) or triggers should be considered. The clinician might consider the following NDB proximal factors as possible causes of aggression: constipation, pain, hunger, thirst, sleep disorders, environmental factors (light, noise, crowding), or frustration due to insufficient assistance with basic activities of daily living (ADLs) 15· 29. Behavioral logs are often helpful for identifying triggers in the physical or social environmental and/or psychological need states. Behavioral logs systematically document behaviors, the time of their occurrence, and the factors associated with their manifestation. They assist in the identification of behavioral triggers. Finally, the aggression profile data are shared with all who are involved in the care of the person with dementia so that the appropriate interventions are implemented to manage the crisis and prevent further recurrence.

There are two complementary, and sometimes competing, paradigms on interventions for aggression: non-pharmacological interventions which attempt to be preventative by meeting identified need states, and pharmacological interventions which attempt to control the behavior when needs cannot be identified and there is urgency in the clinical situation. The evidence for these approaches is reviewed below.

Evidence for Non-pharmacological Interventions

In the NDB model, physiological need states, psychological need states, and quality of the physical and social environment can precipitate or trigger aggression. The literature on non-pharmacological interventions for these triggers is somewhat large, and these approaches are generally ethically sound 30. The scientific rigor needed to support their implementation in practice is, however, often modest. Integrated reviews, cited below, unanimously call for more rigorous research to support the efficacy of non-pharmacological interventions for aggression. Compared to pharmacological therapies there has been much less research funding for the development of these interventions. In the following section we present examples of nursing interventions that reduce aggression by targeting unmet needs and environmental triggers and refer the reader to recent integrated reviews that expand on a discussion of their efficacy.

Physiological need states that precipitate aggression often arise from inadequate/inappropriate assistance with activities of daily living (ADL): feeding, bathing, elimination, dressing, and sleep. A recent review of this area concludes that there is a paucity of scientific evidence to support specific interventions, but the promotion of independence in ADLs is likely to reduce aggression 31. We do know that there is an association between poor food intake, weight loss, and behaviors in persons with dementia 31–33. Interventions that show promise for reducing/preventing aggression during feeding include locating the dining area near residents' rooms to eliminate the disruption that occurs with transfer to distant dining rooms 34, and the use of calming music during meal times 35, 36. Aggression is less frequent when towel bathing is used in place of showers 37 and when nature sounds and pictures are introduced during bathing 38. Few studies address interventions that reduce aggression by promoting continence, but making bathrooms readily available 39 and scheduled toileting 40 improve urinary continence. Observations during dressing indicate that staff performs this function in the majority of cases 41 despite the benefit of interventions that promote independence in dressing 42. Both sleep and day-time aggression improves in nursing home residents when simple environmental manipulations such as light and sound reduction are implemented at night 43, 44.

The evidence for behavioral interventions that reduce/prevent aggression by addressing psychosocial need states is more developed than that for physiological need states. Boredom and/or over-stimulation can precipitate aggression, as well as the quality of interpersonal interaction during direct personal care.

Recreational activity programs are designed to promote quality of life by providing an appropriate level of stimulation using meaningful activities 45, 46. A systematic review of recreational activities 47 found good evidence for the effectiveness of music therapy, Snoezelen, a relaxation technique popular in European countries, and some types of sensory stimulation during the intervention itself. Little evidence supports the use of reminiscence therapy, reality orientation, validation therapy, Montessori activities, or simulated presence. Other research offers some support for use of pet therapy 48, exercise 49, and bright light therapy 50.

Interventions that teach caregivers how to interact with persons with dementia during direct care and how to address behavioral issues show efficacy for reducing aggression 51, 52. Aggressive behaviors aimed at caretakers such as nursing assistants is not uncommon and most often present during times of intimate care 53–55. Although nursing assistants are adept at identifying the presence of aggression, they are less likely to recognize the triggers of aggression nor are they skilled at using techniques to minimize aggression once it has occurred 54. Research indicates that residents are less likely to exhibit aggression when

caregivers use techniques such as approaching frontally, or to the side within the resident's visual field, and when using a relaxed demeanor and a smile 56.

There are several themes that underlie the evidence on psychosocial interventions for aggression. First, these interventions are short-lived and need to be provided on a continuous basis to prevent aggression from occurring. Outcomes such as decreased use of psychotropic medications and caregiver satisfaction are realized when continuous activity programming is instituted in the nursing home or community 57. Second, greater efficacy is realized when activity interventions are individualized along the lines of resident interest and functional ability 58 and are balanced throughout the day with periods of rest 59. Third, successful implementation of these interventions requires collaboration with the interdisciplinary team, including nursing, recreational therapy and the primary care physician 60. Following one year of care management by an interdisciplinary team led by an Advanced Practice Nurse using standard protocols to treat behavioral symptoms, the intervention group had significantly fewer behaviors without an increase in antipsychotic medications.

The literature offers a fair amount of guidance on the design of physical environments to prevent aggression, but not all recommendations have or need empirical research to justify their use. For example, environments that support autonomy and home-like atmospheres can be thought of as a "right" that needs no empirical validation 61. A recent review of therapeutic environments recommends attention to ambience, adequate lighting levels, noise reduction, and ease of navigation to bathrooms, kitchens, dining rooms and outdoor spaces to prevent/reduce aggression 39. Attention to the social environment is also important: smaller units with less crowding are associated with less aggression 62 and more interaction between staff and residents 63.

The literature supports that a variety of non-pharmacological approaches show promise for improving quality of life for persons with dementia because they meet identified physical and/or psychosocial needs without the adverse events commonly associated with pharmacological interventions. Despite their promise and clinical guidelines for their use, these interventions are infrequently prescribed for the management of aggression 7. There is an urgent need for more rigorous research to support the efficacy of non-pharmacological interventions for practice, and the identification of strategies that increase the use of these cost effective and humane methods for preventing aggression in the clinical area.

Evidence for Pharmacological Interventions

The traditional pharmacological management of aggression includes cholinesterase inhibitors (ChEIs), memantine, anticonvulsants, selective serotonin reuptake inhibitors (SSRIs), typical and atypical antipsychotics 2. Various systematic reviews of the literature have investigated the efficacy and safety of these medications 12, 64–68. These reviews detected a possible benefit of using ChEIs and memantine in preventing aggression crisis but not in treating it 67, 68. In addition, these reviews found lack of evidence to support the use of either anticonvulsants or SSRIs in managing aggression crisis or preventing its recurrence 12, 64. In cases where aggressive behavior demands immediate intervention due to safety concerns for the resident or others, short term sedation for less than twenty four hours is recommended 2. Short-acting benzodiazepines such as lorazepam and oxazepam are preferred as they are more easily metabolized 69.

Of the drug classes mentioned, however, antipsychotics are most frequently used for treatment and prevention of aggression and have been subjected to the most scrutiny 12. Systematic reviews indicated that antipsychotics may lead to a statistically significant effect size in treating aggression crisis and preventing its recurrence but that the clinical relevance of their effects was minimal while the adverse effects associated with treatment were high

12, 65, 66. In other words, the risk/benefit ratio of using antipsychotics is very close to one. In response to aggression crisis, after all other interventions have failed; the short term judicious use of antipsychotics may have some merit, however.

Most Frequently Prescribed Antipsychotics

The antipsychotic drugs that have been subjected to the most rigorous scrutiny in random controlled trials are haloperidol, risperidone, olanzapine, and quetiapine. Haloperidol is a high potency typical antipsychotic agent, while the rest are referred to as atypicals. It has been reported that haloperidol, olanzapine, quetiapine, and risperidone are equally effective in managing aggression, and some evidence supports the greater efficacy of olanzapine and risperidone for behavioral symptom relief 12.

Typical agents have lost favor in recent years due to the high incidence of adverse events, which can lead to falls and fractures that are much more detrimental in frail elders than in younger age groups 70, 71. At least one study has documented an increased risk of death with their use in older persons compared to use of the newer atypical agents 72.

Atypical antipsychotics have become a mainstay of pharmaceutical intervention for aggression, ostensibly due to their more favorable adverse event profiles; however, their use is not without risks in older persons with dementia 11. Research findings of an association between use of atypical antipsychotic drugs and risk of death has prompted the FDA to issue a “black box” warning for use of these drugs in persons with dementia 73. There is evidence of an increased risk of cerebral vascular incidents (transient ischemic attacks and strokes) in patients prescribed risperidone and olanzapine, though this finding may be explained by coexisting cardiac problems 74. Also the growing concern for weight gain, hyperglycemia, and the potential for type II diabetes has prompted the FDA to issue label warnings on all atypical antipsychotic drugs 75.

Extreme caution should be exercised when prescribing any antipsychotics to patients with Lewy Body Dementia (LBD), due to a greater risk of adverse events in this population 76. Additionally persons with dementia who are treated with antipsychotics often experience an added decline in cognitive function due to their anticholinergic effects 77. However, a recent study revealed no significant cognitive decline when atypical agents were used in treating persons with Alzheimer’s disease 78. Table 1 summarizes the adverse event potentials of these antipsychotic agents.

Cost is another factor that may determine the type of antipsychotic prescribed. While haloperidol ranges in price from approximately \$20.00 to \$60.00 per month, the atypical antipsychotics can cost up to approximately \$300.00 per month depending on medication and dosage 79, 80.

The ultimate decision for the time limited use of antipsychotics lies in the interplay of the following variables: The patient’s presentation with a clear and present danger to the self or others; the failure of non-pharmacological interventions; and the assessment of the risk/benefit profile of the specific drug. When the decision is made in favor of medication use, it is wise to consider the following seven guidelines. One, “start low go slow” and “keep it simple” 81. These are prudent words considering the propensity towards overmedication in persons with dementia manifesting aggression 82. Two, gradually titrate in initial dose increments, every four to seven days 83. Three, in the absence of adverse events, allow two to four weeks for therapeutic effects to manifest. Four, after that time, without obvious benefit, the medication should be changed or discontinued 84. Five, give one-third to one-half of the dose that would be prescribed to younger adults 85. Six, reduce medications gradually at six-month intervals and reassess the risk/benefit profile at this time. Seven, with

the abatement of aggression, discontinue the medication, as evidence suggests that termination of antipsychotic treatment does not result in recurrence of behaviors 86.

Understandably, it is not uncommon that these drugs are prescribed in response to frustration and helplessness on the parts of both caretakers and loved ones alike. However, when used discriminately, there may be some benefit from their limited use.

To date, persons with dementia who exhibit aggression can be managed most effectively when clinicians employ a multifaceted approach based on the evidence for the use of both non pharmaceutical and pharmaceutical interventions. Figure 1 is an algorithm that can be used by practicing nurses to guide care of aggressive residents. By specifically defining target behaviors, determining the risk level, and identifying the causal triggers, clinicians can initiate the safest and, thereby, most therapeutic interventions for the management of aggression in persons with dementia.

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Figure 1. Clinical algorithm for management of aggression in patients with moderate to severe dementia.

Adverse Event Potential with Most Commonly Used Antipsychotics^{1, 2}

Table 1

Drug	Anticholinergic effects	Cerebral vascular incidents	Confusion/ change in mental status	EPS	Falls	Death risk	Metabolic disorders	Orthostatic hypotension	Sedation	Syncope
Haloperidol	+	+	-	+++	+	+	-	+	+	+
Olanzapine	+++	+	++	-	+	+	+	+	++	+
Quetiapine	+	+	-	+	+	+	+	+	++	+
Risperidone ^{3, 4}	+	+	+	++	+	+	+	+	++	+

¹One, two, or three plus signs (+) represent mild, moderate, and severe event potential, respectively; a minus sign (-) signifies minimal potential..

²Based on Lee et al. (2004); Llorente and Urrutia (2006); McShane et al. (1997); Molsinger et al. (2003); Schneider et al. (2006); Sink et al. (2005); Boustani(2007)

³No EPS noted with dose of 1mg or less (Street et al., 2000).

⁴Sedation only with doses greater than 1 mg per day (Lee et al., 2004).