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Original Study

Implementing Diabetes Care Guidelines in Long Term Care

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A B S T R A C T

Objective: The objectives of this article are to (1) describe the outcomes of a diabetes care program in a long term care facility dedicated to diabetes excellence and (2) compare the relevant outcome variables of research published between 2007 and 2012 with the results found in the studied facility.
Design: Three year retrospective chart review of the facility's residents with comparison to extant literature.
Participants: A total of 224 resident charts within the studied facility were reviewed. Residents with a diagnosis of diabetes, or who were on diabetes medications, or whose fasting blood sugars exceeded 126 mg/dL on 2 occasions, and whose length of stay exceeded 6 months, were tracked for adherence to diabetes guidelines (n = 48). Participant outcomes from relevant studies in the literature were compared to these 48 participants' outcomes.
Intervention: All levels of staff in the studied facility were educated in general diabetes care. A nurse practitioner was contracted to provide medical care for all diabetic residents (with primary care provider approval). A scorecard for adherence to diabetes guidelines was completed by the nurse practitioner. Over a 3 year period following the education program and scorecard implementation, a chart review of all residents was completed by a consulting diabetes educator/nurse practitioner/nurse faculty member and 6 undergraduate nursing students.
Results: In general, the nursing home in the present study compared favorably with other relevant studies, demonstrating lower A1C levels, tracking blood sugars more regularly, monitoring blood pres sure and lipids more regularly, having a greater percentage of patients on lipid lowering medications among those in need, more appropriate use of sliding scale insulin, greater adherence to recommen dations regarding diet, and had more patients who fit criteria on preventive anticoagulation.
Discussion: The results for the studied facility were very similar, often better, when compared with the most current nursing home literature. Areas of weakness provided focused strategic planning for the facility. Regrettably, the research is sparse, and evidence supporting guideline adherence data is often missing, making data comparison difficult. This model of care, linking health care agencies with academia, could offer a supportive and affordable method for identifying responses to evidence based care guidelines.
Conclusion: This narrative review points to the need for continued work in the application of evidence based guidelines in long term care, specifically in the area of interventions that must be adjusted to the needs of the nursing home population, with increased awareness in maintaining or improving quality of life.

Established acute care diabetes guidelines have been in place for almost 50 years. The World Health Organization published its first guidelines in 1965.[1] In the past 10 years, focus has shifted from general diabetes care to specific populations, including the elderly and residents of long term care facilities. During that time, 3 groups, the American Medical Directors Association (AMDA),[1] the American Diabetes Association (ADA),[2] and the American Geriatrics Society (AGS),[3] have emerged as expert organizations in the care of the frail elderly, recommending specific adjustment to the acute care guidelines; only AMDA has further delineated the guidelines to the nursing home population. The recurring themes for less stringent diabetes management in the elderly and nursing home residents include life expectancy of fewer than 5 years, hypoglycemic unawareness or frequent episodes of hypoglycemia, and a high burden of comorbidities.

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The recommended frequency for blood glucose monitoring varies and has become much more individualized. When hypoglycemia is frequent, and the resident is on rapid or short acting insulin, blood glucose testing may be performed 4 times a day, as in the general diabetic population. However, if the person is on oral medications, with infrequent hypoglycemia, the glucose testing may be performed 2 to 3 days per week. In establishing the target for the A1C, life expectancy of fewer than 5 years may warrant a level as high as 8%; targets of 7% or lower may apply only to those with a life expectancy longer than 5 years.[1] Dietary recommendations are not specified by ADA[2] or AGS[3]; AMDA[1] suggests a regular diet, with emphasis on consistent carbohydrate intake and consistent timing. Hypertension goals are more closely monitored and all 3 groups, at the time of the study, supported maintaining a target blood pressure of 130/80; the AGS[3] clearly stated that this target should be maintained only if tolerated. All 3 groups recommend angiotensin converting enzyme (ACE) inhibitors, with close monitoring of renal function. The ADA[2] recommends angiotensin receptor blockers (ARBs) if ACE inhibitors are not tolerated. Annual urine microalbumin testing is recommended by the AMDA[1] and AGS[3]; the ADA[2] suggests individualizing this guideline.

Cardiovascular guidelines are addressed differently by each group: AMDA recommends the use of aspirin, clopidogrel, or dypridamole daily (unless contraindicated); AGS recommends aspirin daily (unless contraindicated); and the ADA recommends the use of aspirin only if life expectancy is longer than 5 years. Hyperlipidemia guidelines are consistent with general guidelines for AMDA and AGS, with a recommendation to control low density lipoprotein cholesterol (LDL C) at less than 100, high density lipoprotein cholesterol (HDL C) at greater than 40, and triglycerides at less than 150, all recommending statins. The AMDA suggests glucose control before addition of the statins. The ADA recommends treating hyperlipidemia only if the older person's life expectancy is longer than 5 years.[1–3]

Barriers identified in using clinical practice guidelines in the long term care facility include reluctance to use checklists/replacing clinical judgment, limited resources, communication gaps, and privacy issues related to nursing assistants having access to clinical information.[4] Other issues surrounding the guidelines are related to confusion in interpreting them and the conflicting recommendations from the recognized expert groups.

Although knowledge in the prevention and treatment of diabetes in the general population is increasing, there is currently a dearth of research examining the management of diabetes in long term care, which may be a result of the discrepancies in diabetes management guidelines among governing organizations, as noted previously. Consequently, understanding and interpreting adherence rates to evidence based guidelines in long term care facilities are lacking.

The purpose of this article is to describe a long term care model built on best evidence available, and dedicated to excellence in diabetes care. The integral, all inclusive theory that guided this all staff educational program was that any staff member who had contact with the resident in any capacity should be prepared to recognize and report any untoward event. A nurse practitioner was contracted and dedicated to the care of all residents with diabetes. It was theorized that all activities improving diabetes outcomes would extend beyond the diabetic population, and would improve vigilance and care of the entire nursing home population. The model is a collaborative, interdisciplinary approach, involving a nurse practitioner, primary care physicians, a consulting certified diabetes educator, and a consulting endocrinologist. This article spans 3 major areas: (1) results of the chart review and data relevant to care of the resident with diabetes in the studied facility, as they compare to relevant published research; (2) impact and significance of diabetes mellitus (DM), its treatment, and control, when managed using established protocols from the AMDA,[1] ADA,[2] and the AGS[3]; and (3) the discussion/summary of the relevant data in the care of long term care residents with DM.

Methods

This quasi experimental study spans a 3 year period, from 2009 to 2011, where all resident charts (n 224) were retrospectively reviewed. Inclusion criteria for detailed review were a diagnosis of diabetes, or use of diabetes medications, or 2 fasting blood glucose levels higher than 126 mg/dL and a minimum of a 6 month stay within the facility. During that time period of 3 years, there were 126 residents meeting the criteria for a 6 month stay; of those, 48 had a diagnosis of diabetes, took diabetes medications, or had 2 fasting blood glucose levels higher than 126 mg/dL. The entire staff, including dietary, maintenance, housekeeping, direct care, and administrative staff, were offered and reimbursed their usual compensation rate for up to 7 hours of classes in diabetes care. General aspects of diabetes management were covered, both in classes (where attendance was mandatory), as well as self taught modules. Administrative nursing personnel were offered additional education, participation in round table discussions (with diabetes educator), and certification in diabetes care. Personnel were reimbursed for time spent in completing the diabetes self paced modules, as well as the round table discussions and certification process. More detail of the education program methods may be obtained from the authors, on request.

A scorecard covering diabetes guidelines (Appendix 1) was placed on the chart of residents with diabetes, and tracked for adherence to diabetes guidelines; if the sheet could not be tracked, the chart was reviewed for guidelines criteria achievement. The main focus areas were A1Cs; blood pressure (BP) readings; use of sliding scale, aspirin (or other anticoagulant agents), ACE inhibitors, or ARBs; medications; vaccination compliance; presence of infection, wounds, and/or pressure ulcers; and markers for kidney function, including microalbuminuria, glomerular filtration rate (GFR), and blood urea nitrogen (BUN)/creatinine levels.

A consulting certified diabetes educator, who is also an advanced practice nurse (family nurse practitioner, board certified), and a university faculty member conducted the chart review. This nurse practitioner was assisted in chart review by 6 undergraduate nursing students. Institutional review board approval was not obtained because of the institution's ethics committee decision that this was a quality control initiative. Anonymity of all residents was preserved. All investigators completed the National Institutes of Health (NIH) Office of Extramural Research "Protecting Human Research Participants" certification. Standards designated by AMDA,[1] ADA,[2] and AGS[3] were tracked in the medical records.

Demographic data and provider care were tracked. In the National Nursing Home Survey 2004 (summarized in 2007), 1500 facilities were randomly selected from 16,100 nursing homes.[5] Of those nursing homes, facilities willing to participate in the study represented 1.5 million residents. Their demographic data showed that 12.5% were African American, 85.5% Caucasian, and 2% other; 71.2% were women. For age distribution, 88.3% of the residents were 65 years and older; 45.2% were 85 years and older. The survey also indicated that nondiabetic residents used an average of 8.4 medications, whereas the residents with DM used 10.3. The studied facility demonstrated a resident population somewhat different, with 27.4% African American, 70.4% female, and 74.5% older than 65 years and 21.5% older than 85. The average use of medications for residents with diabetes was significantly different at 14.7.

Data were gathered from a review of long term care literature (published between 2007 and 2012) pertinent to control of diabetes/adherence to recommended diabetes guidelines. The data obtained