

CASE STUDY 3: OPTIMIZING OUTCOMES: ROLE OF THE PHARMACIST

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Patient Presentation

Chief Complaint: “I have become the absent-minded professor.”

History/Physical Findings: SWB is a 59-year-old woman who presents to her primary care physician for her yearly physical with her younger sister who is visiting for the week. Her sister reports that SWB’s “forgetfulness” became noticeable approximately 10 months ago. SWB was first misplacing items, eventually causing her to become late for her weekly trip with the mountain biking club. According to other bike club members, SWB began to use incorrect hand signals when riding in traffic, and eventually stopped using them altogether. SWB notes that she hasn’t felt up to the weekly ride for the past couple of months and would rather spend a quiet afternoon at home.

During conversations SWB repeatedly asks questions about events and times, commenting that, “I wasn’t able to clearly hear you before.” Her sister also reports that SWB has difficulty following directions, and had great difficulty driving back to the beachfront condominium where they had been vacationing for at least one week. SWB was quite upset about her forgetfulness and responded defensively, “I have never vacationed here before this trip, and you have every year for the past 10 years—of course I didn’t know my way around as well as you did!”

Postmenopausal History: Postmenopausal at approximately 45 years of age; osteoporosis as confirmed by bone density scans since 1995; no previous history of mental illness.

SWB's mother died at age 89 of complications related to CHF, type 2 diabetes, and multi-infarct dementia (diagnosis not confirmed by autopsy) with onset by age 70. Her father died at age 80 of an MI and also had a history of peptic ulcer disease with gastrectomy and type 2 diabetes.

SWB lives alone, has been widowed 10 years (husband died of lung cancer). She is a retired junior high school history teacher with over 25 years of experience. Her daughter manages theater productions in New York City, 5 hours away, and a stepson lives several hours away in upstate New York.

Medications: Fosamax® 10 mg qd; Premarin® .625 mg qd; Depo-Provera® 2.5 mg qd; ginkgo biloba 120 mg tid; vitamin E 400 IU qd; women's One-a-Day® multivitamin.

Review of Systems (ROS): No known allergies; chronic insomnia; bone pain after exercise. General appearance: consistent with age. Vital signs: BP 127/75, HR 82 bpm, RR 20, T 98.2 F, Wt 138 lbs, Ht 5' 5". Skin: normal texture and color. HEENT: WNL; HMs intact. Neck/LN: neck supple without thyromegaly or lymphadenopathy. Lungs/thorax: clear, normal breath sounds. Breasts: no masses or tenderness. CV: RRR, no murmurs or bruits. Abdomen: soft, NTND. Genital/rectal: normal. MS/Ext: no CCE, normal ROM.

Neurologic Exam: Motor, sensory, CNs, cerebellar, and gait normal. Folstein MMSE score 17/30. Oriented to season and month, but not to the correct date and day of the week. Fair registration but somewhat impaired when attempting to complete serial 7s. Did not complete serial 7s correctly, impaired attention and short-term memory. Able to recall one of three items after 5 minutes. Able to correctly draw a clock face with the current time. SWB stated repeatedly throughout the examination, "I just don't know why I'm so preoccupied today."

Laboratory Assessment: (Samples taken during the morning of her physical examination.)

Chemistry panel: Na 137 mEq/L, K 3.9 mEq/L, Cl 100 mEq/L, CO₂ 28 mEq/L, BUN 7 mg/dL, SCr 0.8 mg/dL, Glu 98 mg/dL.

Complete blood count: Hgb 14 g/dL, Hct 39%, RBC 4.0 x 10⁶/mm³, Plts 300 x 10³/mm³, WBC 6.2 x 10³/mm³, Neutrophils 67%, Lymphocytes 27%, Monocytes 6%.

Liver function tests: AST 33 U/L, ALT 30 U/L, Alk Phos 79 U/L, GGT 18 U/L, LDH 92 U/L, T. Bilirubin 0.9 mg/dL, D. Bili 0.4 mg/dL, T. Prot 8.0 g/dL, Alb 4.2 g/dL, T. Chol 200 mg/dL, Trig 104 mg/dL, Ca 9.3 mg/dL, Phos 4.2 mg/dL.

Thyroid function test: TSH 2.8 µU/mL, T₄ 6.3 µg/dL, Uric Acid 5.8 mg/dL, B₁₂ 107 pg/mL, Folate 5.9 ng/mL.

Urinalysis: Clear, specific gravity 1.020, pH 7.7, glucose, protein, ketone and occult blood were all negative.

CT Scan: Mild, generalized cerebral atrophy.

ASSESSMENT

Possible AD early onset—mild Stage 4 on the Global Deterioration Scale (GDS), mild behavioral symptoms present (denial, general defensiveness), but negative for psychosis or depression.

CLINICAL COURSE

Once SWB's daughter was contacted; SWB and her family met with the primary care physician and discussed the diagnosis of possible AD. SWB and her family were quite upset and in a state of denial during the first meeting. The physician suggested meeting again in several weeks when the patient and family felt ready to discuss the issue again.

FOLLOW-UP EVALUATION DURING CLINICAL COURSE

The physician was contacted several weeks later by SWB's sister to arrange another meeting. During this meeting, the physician and family discussed the probable diagnosis of AD and its pharmacologic and nonpharmacologic treatments. Since SWB currently lives alone, the family plans to help her relocate so that her sister will be her main caregiver. The physician and family also discussed the fluctuating course of AD and their expectations of pharmacotherapy with cholinesterase inhibitors (e.g., donepezil 5 mg) and the possibility of additional medications for behavioral sequelae later in the course of the illness. The physician also encouraged SWB and her caregivers to establish a relationship with their community pharmacist in order to monitor her pharmacotherapy for adverse effects and drug-drug interactions with her current medications. Later that afternoon SWB's pharmacist informed her sister that the pharmacy has an interactive disease-state management program for patients with AD and their families. The pharmacist also referred SWB's sister to additional community resources for respite services and support group (Haley 1997).

MEDICATIONS

After SWB was enrolled in the AD management program at her local pharmacy, the physician approved an increase in her vitamin E dosage to 1000 IU twice daily. SWB was also instructed to continue her current medication regimen, since there are no drug-drug interactions or unnecessary medications. Additionally, the estrogen replacement therapy in her current regimen may be beneficial in delaying the progression of AD. Since SWB does not take any antithrombotic medications, the ginkgo biloba is not causing any pharmacodynamic interactions. However, no large-scale clinical data are available to indicate that ginkgo biloba is an effective treatment for dementia, since it has not been proven to have efficacy greater than that of placebo (LeBars et al 1997). However, a large multi-centered study sponsored by the National Institute of Health is under way to assess the efficacy of ginkgo biloba in

dementia. SWB has chosen to continue with the ginkgo biloba regimen, will start donepezil 5 mg for 3 months, and her caregiver is to monitor efficacy and for any adverse events. The donepezil dosage may be increased to 10 mg daily if there are no adverse events.

The pharmacy provides monthly telephone and mail refill reminders on all of SWB's medications and provides the caregiver with medication information sheets, pill boxes, a daily symptom diary, household safety information sheets and the "Top 10 Basic Daily Care Principles" sheets (e.g., keeping the requests and demands of the patient simple). The pharmacy's Web site has a link for its AD management program that takes the user to a page offering links to Web resources for patients with AD and caregivers, including the Alzheimer's Disease Association, Center for Aging, American Association of Retired Persons, and the American Bar Association. The AD program also notifies the caregiver and patient about local educational programs and support group meetings in a monthly newsletter. Enrollment of the patient and caregiver in the AD program gives the pharmacist permission to place their names on an additional mailing list. The updated mailing list is sent only to Alzheimer's support groups so that the caregiver and patient are continuously updated on available patient and caregiver resources.

DISCUSSION

Patient and caregiver education remain the primary approach for the treatment of AD. Unfortunately, denial on the part of the patient, such as SWB, and rationalization on the part of the family and caregivers are common and present the largest barriers to AD education. The patient and caregivers must be prepared to face the realization that AD eventually affects all facets of life, and acceptance of this is essential for AD education to be effective. For the family and caregivers of the patient with AD, education should enable them to answer the following questions: What is AD? What should we expect? What are the treatment options for AD? What can I do?

The clinician should provide education and support regarding the patient's independence in performing activities of daily living. In order to compensate for the progression of cognitive deficits, the life of a patient with AD must become more structured. Basic care principles for the patient include: keeping the requests and demands of the patient simple, avoiding complex tasks, avoiding confrontation, remaining supportive if the patient becomes upset, maintaining a consistent environment, providing frequent reminders and orientation cues, and recognizing declines in cognitive capacity and adjusting expectations for patient performance. In regard to the patient's independence in conducting activities of daily living (ADL), guidance is needed for the use of household appliances and cooking, household repairs and tools, and especially driving. In order to prevent rummaging through household items, locks may need to be installed on cabinets and doors (Haley 1997). Supportive services from the Center on Aging may be available for the patient. These services include chore/odd job services, business and social workers to file insurance claims, as well as a friendly visitor and telephone reassurance services. In the early stages of AD, the patient will need frequent reminders regarding personal hygiene and eventually, in the later stages of AD, full assistance in completing these activities. If the patient should awaken in the middle of the night to go to the bathroom, a night-light or a bedside commode may prevent confusion and wandering. Health-related supportive services such as home health care, respite care, skilled nursing care, adult day care, and rehabilitative services such as occupational therapy may assist the AD patient and caregiver in maintenance of personal hygiene and ADL. In the treatment of psychiatric and behavioral disturbances other nonpharmacological options include: selective positive reinforcement, family recreation, music therapy, and maintenance of good sleep hygiene.

When the patient can no longer make decisions regarding life matters including health care decisions, the clinician should encourage the family to address legal and financial matters, including designation of a durable power of attorney.

Eventually, the caregiver will need to face critical questions with respect to assisted living or a long-term care facility. Behavioral disturbances and incontinence are the two primary reasons for placement in long-term care facilities, secondary problems of AD but difficult for the caregiver to manage in the home. Clinician support and references to social services are important in assisting the caregiver, since this is the most difficult decision the caregiver will have to make.

The caregivers of those with AD are often called the hidden victims of this disease. Caregivers often suffer high levels of burden and psychological distress. The risk of depression in caregivers can be two to three times higher and can persist after placement in long-term care facilities or even after death of the patient. Symptoms of stress in families caring for a patient with AD include feeling overwhelmed, misunderstood, angry, isolated, resentful, fearful, guilty, sad, and bereaved. On average, caregivers spend 69 to 100 hours per week caring for the patient, the equivalent of two full-time jobs. As a result, this may change the caregivers' "sense of self" as the burden spills into all aspects of their life (Haley 1997). A pharmacist, acting as the disease-state manager, may help the family access support services that in turn may reinforce the caregiver's ability to maintain full-time employment. Essentially, it is important for the clinician to understand how seriously the lives of caregivers may be affected, how much help they may need, and what kind of help is available. Psychosocial/education counseling and therapy, support groups, respite care, and service supplementation are all interventions that can be made to support the caregiver.

Caregiver resources include the Alzheimer's Association at www.alz.org, Alzheimer's Disease Education and Referral Center at www.alzheimers.org/adear, the Center on Aging, American Association of Retired Persons (800-424-3410), and the American Bar Association Commission on Legal Problems of the Elderly (202-662-8690).

In the role of pharmacotherapeutic counselor to patients with AD and their caregivers, the pharmacist's disease-state management goals include optimal pharmacotherapeutic management of cognitive and behavioral sequelae, minimizing inappropriate polypharmacy, and enhancing patient and family adherence. Caregivers must realize that cholinesterase inhibitors (ChEIs) are not a cure for AD, but may improve cognitive and behavioral symptoms, slow symptom progression, or cause a plateau in symptom progression. ChEIs have also been shown to reduce the psychological impact of AD and caregiver burden. Although the incidence of nausea, diarrhea, and vomiting is lower with the newer ChEIs, the caregiver and patient should be aware that they may occur.

Pharmacologic treatment options such as vitamin E, estrogen replacement therapy for women (Schneider et al 1996), and NSAIDs (Stewart et al 1997) may prevent or delay the progression of AD and may be used adjunctively but not as a substitute for ChEI. Secondary goals of pharmacologic therapy include long-term amelioration of associated behavioral and psychiatric sequelae. A thorough behavioral assessment and plan with careful examination of environmental factors should be conducted before initiating drug therapy for behavioral symptoms. Psychotropic medications, such as antidepressants and antipsychotics, are utilized as adjuvant agents in treating depression (Teri 1998), paranoia, delusions, and agitation that are secondary to AD (Rabins et al 1997). Psychotropic medications may have negative effects on cognitive functioning; therefore, pharmacotherapy for behavioral symptoms should be self-limited, and medication tapering and discontinuation attempted in patients with stable symptoms.

Unfortunately, inappropriate polypharmacotherapy may decrease medication compliance, increase the risk of adverse drug reactions and drug interactions, and increase the financial burden of the caregiver. For polypharmacy prevention and management, the pharmacist may assist the clinician with the choice and utilization of ChEIs and adjuvant therapy for AD. Pharmacotherapy among multiple physicians may be coordinated by the pharmacist, and this coordination may help prevent drug-drug interactions and unnecessary medications.

Community pharmacists may also intervene and prevent provider-related causes of polypharmacy, such as the use of automatic refills without adequate follow-up, miscommunication of medication instructions, or inadequate monitoring of medication usage.

CONCLUSIONS

The pharmacist has an important role, both as a disease-state manager and pharmacotherapeutic counselor in the care of the Alzheimer's family. The pharmacist's function as a member of the AD treatment team is to determine appropriate pharmacotherapy, minimize inappropriate polypharmacy, enhance patient and family adherence, and assist in the ongoing management of the patient's drug therapy while appropriately referring caregivers to resources for support services.

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