

Cost Effectiveness and Quality of Life Considerations in the Treatment of Patients with Overactive Bladder

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Abstract

This article summarizes the quality of life (QOL), cost of illness, and cost-effectiveness considerations in the treatment and management of patients with overactive bladder (OAB). Most cost studies have focused primarily on urinary incontinence, which is only one possible symptom of OAB. Prevalence rates of urge and mixed incontinence in the United States ranged from 3% to 8% and 5% to 37%, respectively. The highest prevalence was found in geriatric and psychogeriatric populations, where 40% and 90%, respectively, were classified as incontinent. In patients with OAB, all aspects of QOL can be compromised including physical, social, occupational, domestic, and sexual activities, and associated costs can be substantial. Oxybutynin has been the mainstay of pharmacotherapy for OAB but its more frequent side effects (including dry mouth) may deter patients from full compliance with treatment. Tolterodine, a newer antimuscarinic drug, has proven safe and effective in the treatment of OAB, with fewer side effects and better tolerability than existing agents. Cost effectiveness reports are reviewed. Further research on OAB is needed to characterize the disease process and identify risk factors.

(*Am J Manag Care* 2001;7:S62-S75)

Overactive bladder (OAB) is an important clinical condition, characterized by chronic, troubling urinary symptoms including increased frequency of micturition (>8 micturitions per day) and urgency (a strong desire to pass urine) that may or may not include urge incontinence (an involuntary loss of urine).¹ These symptoms cannot be explained by local pathologic or metabolic factors, and this is an important distinction from older terminology, because OAB can now be defined on the basis of symptomology.² OAB is caused by uncomfortable, involuntary, and unpredictable contractions of the detrusor muscle during the filling phase of the bladder.³ Clinical interest in the condition has increased substantially in the past decade. OAB is estimated to affect more than 17 million Americans,⁴ outnumbering the number of people with osteoporosis (10 million) and Alzheimer's disease (4 million) combined.⁵⁻⁷ Although it is most common in the elderly and women,⁸ OAB can affect individuals of all age groups.

The consequences of OAB are detrimental to the physical and mental health of those who are affected. Even when symptoms are mild, they affect social, sexual, interpersonal, and professional function.⁹ OAB can force patients to alter their lifestyles to accommodate numerous visits to the bathroom. It can also increase the

burden on the caregivers of individuals with OAB who are elderly or incapacitated. Despite their impaired quality of life (QOL), the majority of patients do not seek treatment for their condition.¹⁰ They are often too embarrassed to discuss their bladder control problems with caregivers or mistakenly believe it is a natural function of aging. Others may not be aware that effective therapy exists or feel their condition is not severe enough to require treatment.⁹ Also, many primary care physicians do not ask about lower urinary tract problems.¹¹ The combination of patient embarrassment and misconceptions with the passive approach to the disease taken by many physicians may be preventing many patients with this condition from leading more independent lives. A better understanding of the disease and disease processes among health-care providers is vital to ensuring that effective, well-tolerated treatment is made available to patients.

Prevalence of Overactive Bladder

As a standard definition for OAB has only recently been established, its prevalence is still unclear. Until recently, most studies assessing the prevalence of bladder control problems focused on urinary incontinence (UI) rather than OAB. Although the term UI includes urge, stress, mixed, and overflow incontinence, only urge and mixed incontinence are included within the definition of OAB. In addition to urge or mixed incontinence, OAB includes symptoms of increased micturition frequency and urgency. The prevalence of urge and mixed incontinence in the United States is estimated to range from 3% to 8% and 5% to 37%, respectively.¹¹⁻¹⁴ However, the studies from which these data were collected did not measure symptoms of frequency and urgency in addition to urge incontinence, thus the true prevalence of OAB in the United States is likely to be much higher.

Prevalence studies have found that more women report UI than men.^{15,16} A postal survey of the general population in the United Kingdom (15 to 65 years of age) established that the prevalence of UI was 8.5% in women and 1.6% in men.¹⁵ The prevalence of urge and mixed incontinence among both men and women increases significantly with age.^{13,17,18} In general, the highest rates of UI are found in the geriatric and psychogeriatric populations, where in excess of 40% and 90%, respectively, are incontinent.¹⁹ This is in accordance with several studies conducted in long-term care facilities, where the prevalence of UI has been estimated to be 50% or higher.²⁰⁻²⁶ A considerable institutional effect is seen in the elderly; 1 study found that 85% of elderly nursing home residents were incontinent compared with only 29% of independent elderly individuals living at home.²⁷ UI is often the primary driver of institutionalization of the elderly because of the increased burden of care.²⁸ In another study, 40% of the caregivers of noninstitutionalized adults considered UI to be a problem.²⁹ The high prevalence of UI documented by these studies and the associated burden on caregivers will continue to rise as the average age of the population increases.

The National Overactive Bladder Evaluation (NOBLE) Program is an ongoing series of studies designed to provide information on the prevalence and impact of OAB symptoms in the United States.^{30,31} The majority of past prevalence studies have focused only on incontinence, overlooking the symptoms of urgency, frequency, and nocturia in the absence of incontinence. The few studies that have encompassed these latter symptoms vary considerably in estimates of prevalence because of differences in symptom criteria, the lack of clinical validation, and the lack of detail in data regarding dysfunctional behaviors and coping strategies. As part of

the NOBLE program, 1 group of researchers reported the results of an OAB survey of prevalence variations in a community sample.^{30,31}

The objective was to examine how variation in symptom definition influences prevalence estimates of OAB. Data were obtained from a US sample of 351 adults regarding usual fluid intake and symptoms of frequency, nocturia, urgency, urge and stress incontinence, and coping strategies used during the previous 4-week period. OAB was defined using criteria from previous studies to examine how much of the variation in prevalence estimates of OAB are explained by the case definition. The majority of respondents were female (65%). Prevalence was influenced by the definition of the number of micturitions and by fluid intake. When defined as >8 micturitions per day, prevalence was 14%. This percentage decreased as the number of micturitions per day increased (11% with >9 micturitions per day, 6.5% with >10 micturitions per day, 5% with >11 micturitions per day). Individuals varied substantially in fluid intake. Adjustment for the effect of fluid intake on micturitions also resulted in substantial drops in prevalence.

Prevalence of urgency was 40% as measured by an affirmative response to at least 1 of 3 screening questions about urgency. The screening questions were as follows: 1) Were symptoms explained by stress incontinence? 2) Did you have urine loss more than once in the past 4 weeks? 3) Have you had symptoms for more than 3 months? Prevalence of urgency was 6.8% when participants claimed to have had at least 1 episode of urgency/week and urgency symptoms for more than 3 months.

Prevalence of urge incontinence was 18% as measured by a positive response to at least 1 of the 3 screening questions, and it was 5.4% when participants claimed to have 1 of the following: symptoms not explained by

stress incontinence, a loss of urine more than once in the past 4 weeks, and having symptoms for more than 3 months. The conclusions of this research were that the prevalence of OAB varies substantially depending on the case definition used. These data suggest that much of the variation in prevalence reported in previous studies is likely to be explained by variation in the case definition used.^{30,31}

Quality of Life

All aspects of QOL, including physical, social, psychological, occupational, domestic, and sexual functioning, can be impaired by OAB. Affected individuals may adopt various coping mechanisms to disguise their problems.^{16,30} Common coping strategies include limiting fluid intake, avoiding physical activities, and reducing social interactions. In the long term, many individuals develop more complex behavioral coping strategies such as toilet mapping (immediately searching for a lavatory when in a new place) to avoid incontinence episodes.⁹ The psychological toll of UI can be extremely severe, causing affected individuals to experience depression, low self-esteem, apathy, guilt, denial, a feeling they are a burden to their caregivers, and a fear that they smell of urine.³² UI, urgency, and frequency may also reduce productivity at work and cause a decline in domestic tasks and avoidance of sexual activity. A study of American women with urge incontinence found that those still in the workforce were concerned about job performance as a result of their symptoms. Many women younger than 70 years of age expressed feelings of low self-esteem and unattractiveness and reported having problems with dating and sexual activity.³² One report indicated that 40% of adult women with UI avoid sexual activity because they fear urine leakage.³³

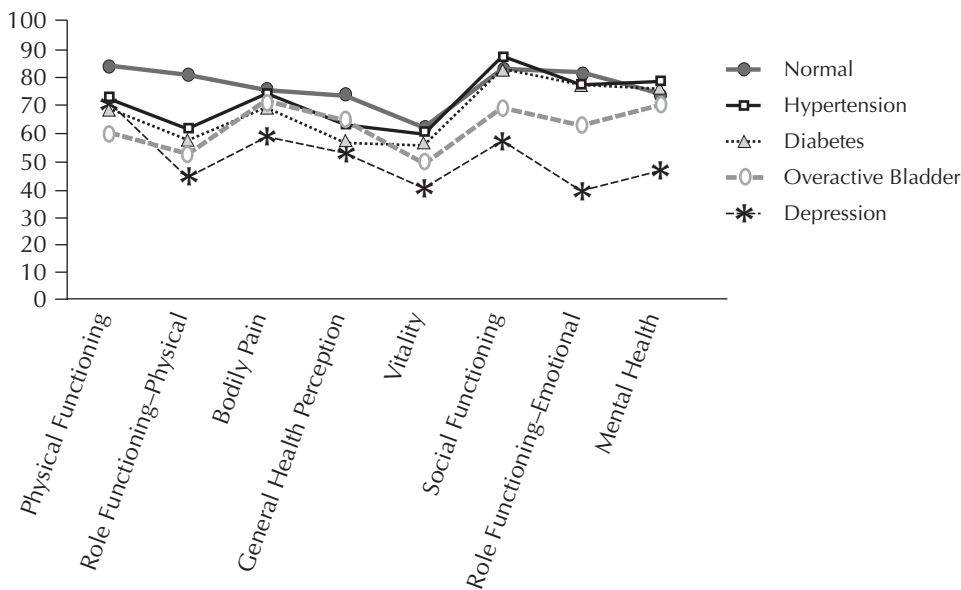
The negative impact of OAB on QOL can be seen in detail from scores

on the Medical Outcomes Study Short Form-36 (SF-36) instrument, a generic QOL questionnaire. Individuals with OAB, both incontinent and continent, have been compared relative to the general population as well as to patients with diabetes, hypertension, and depression. As measured by the SF-36, the QOL of those with OAB is impaired when compared with the general population.³⁴⁻³⁶ Of the 8 domains measured in the SF-36, OAB patients scored significantly lower in 6 of the 8 domains compared with the general population; only patients with depression scored consistently lower than those with OAB (**Figure 1**).^{35,36} In fact, the QOL of OAB patients was similar whether they suffered from incontinence or only frequency/urgency (OAB-dry).³⁴ Many individuals with OAB and UI have difficulty talking about their problem because

of embarrassment or shame and feel isolated or responsible for their symptoms. Some also fear being thought of as inadequate by others.⁹

Most QOL studies in patients with bladder control problems have focused on female populations. The urge and mixed incontinence symptoms of OAB have a profound impact on the QOL of women compared with those who experience stress incontinence only.³⁷ This observation may be attributed to the greater anxiety caused by the unpredictability of urge symptoms and greater volumes of urine passed than that associated with stress incontinence. Although few studies have been conducted, UI also adversely affects the QOL in men. In 1 US study, 26% of men with moderate to severe UI after radical prostatectomy had severely limited their physical activities.³⁸ Another

Figure 1. Results of SF-36: Quality of Life of OAB Patients Compared with Patients Who Have Other Diseases



SF-36 = Short Form-36; OAB = overactive bladder.
Source: References 35, 36.

study of British men and women with UI found that 36% of both sexes believed the disorder had affected their lifestyle a "great deal" or "a fair amount." Behavioral changes induced by their incontinence included drinking less (35%), mapping public toilets (33%), going out less often (15%), and restricting certain physical activities such as weightlifting.¹⁶

Pharmacotherapy with antimuscarinic drugs is the mainstay of treatment for OAB. Since the 1960s, oxybutynin has been the standard for OAB therapy, usually at a dose of 5 mg given up to 3 times daily. Although the efficacy of oxybutynin has been well documented in clinical trials,³⁹ it appears to lack selectivity for the bladder over other tissue types, resulting in more frequent and often troublesome side effects. Common side effects associated with oxybutynin include dry mouth, constipation, blurred vision, dryness of the eyes, palpitations, drowsiness, dizziness, and esophageal reflux. Approximately 50% to 70% of patients treated with oxybutynin experience 1 or more of these side effects, which may result in problems with compliance.³⁹ In 1 study, 82% of patients treated with antimuscarinic drugs discontinued treatment within 6 months.⁴⁰ Another recent study of a small number of women treated with oxybutynin found that compliance decreased from 91% at 3 months to 18% at 1 year.⁴¹ In addition, oxybutynin is associated with cognitive impairment in older adults.⁴² As the elderly are most frequently affected by OAB and incontinence, they have a greater potential to become cognitively impaired by drug therapy if they are not closely monitored. This problem is compounded by polypharmacy issues that are already present among the elderly. A recent study included oxybutynin among other drugs as potentially inappropriate medication for use in the elderly.⁴³

A new, extended-release formulation of oxybutynin (5, 10, and 15 mg) has recently become available for once-daily treatment of OAB. Although it has demonstrated equivalent efficacy to the existing formulation of oxybutynin^{44,45} and is more convenient for patients to take, there has been no significant reduction in side effects.^{46,47}

In 1998, tolterodine, an antimuscarinic drug that is more selective than oxybutynin for the muscarinic receptors of bladder smooth muscle than those in the salivary glands, was approved for treatment of OAB.⁴⁸ In controlled clinical studies in adults with OAB, tolterodine at the normal clinical dosage (2 mg bid) has been shown to be equally effective to oxybutynin (5 mg tid) in reducing patient symptoms. However, it is noted to have significantly fewer side effects.^{49,50} Tolterodine has been shown to cause significantly less dry mouth (about half), and the severity of the dry mouth that does occur is significantly milder than with oxybutynin. Tolterodine also causes one-half to two-thirds fewer gastrointestinal problems than oxybutynin.⁵⁰ In the controlled clinical studies comparing tolterodine and oxybutynin, 3 to 4 times as many oxybutynin patients reduced their dose because of the side effects and 2 to 3 times as many oxybutynin patients discontinued medication because of the side effects.^{50,51} Unlike oxybutynin, tolterodine has not been shown to cause significant central nervous system effects, as shown with quantitative electroencephalogram.^{42,52} In addition, tolterodine at normal doses appears to have less of an effect on visual accommodation compared with oxybutynin.⁵³ In contrast to experience with oxybutynin, studies show that tolterodine is well tolerated during long-term treatment, with higher rates of patient compliance and continued therapeutic efficacy.⁵⁴ A new long-acting formulation of tolterodine (2 and 4

mg) has recently been approved for use in OAB. The clinical trial data demonstrate additional efficacy and tolerability versus the immediate-release formulation.⁵⁵ As with the extended-release formulation of oxybutynin, tolterodine given once daily is also expected to increase patient compliance.

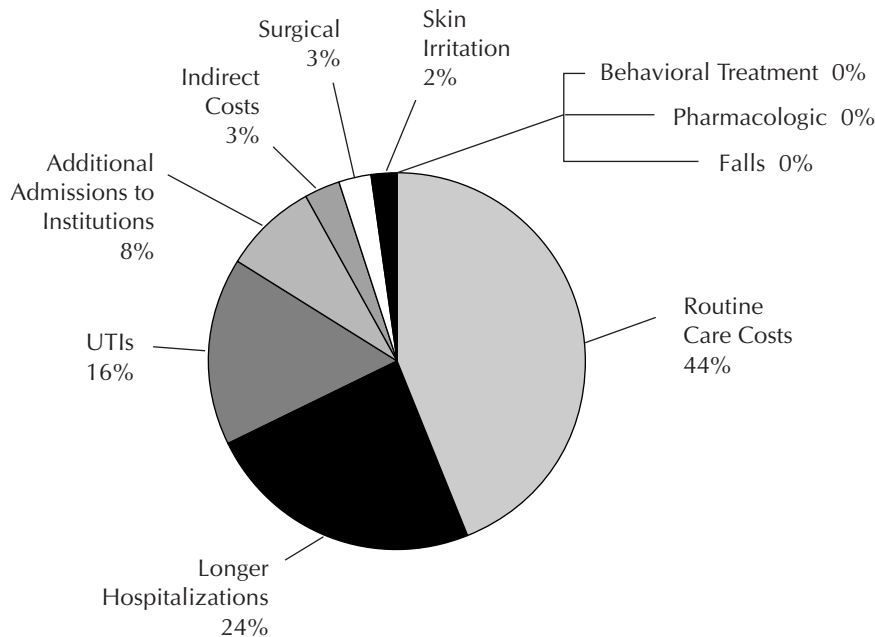
Other drugs currently available in the United States for the treatment of OAB include the smooth muscle relaxant flavoxate, which has few side effects and is inexpensive but has questionable clinical efficacy.^{56,57} This lack of efficacy has resulted in the description of flavoxate as being the most expensive placebo. In addition to antimuscarinic drugs, tricyclic antidepressants are sometimes used in the pharmacotherapeutic treatment of OAB.⁵⁸ The anticholinergic properties of these agents may cause con-

stipation, blurred vision, urinary retention, worsening of cognitive function, and dry mouth. These adverse effects are particularly troublesome to older patients; however, they are another option for patients diagnosed with OAB.⁵⁸

Cost of Illness and Cost Effectiveness of Treatment

Not only should new therapies be aimed at improving the QOL of individuals with OAB, but they should also be geared toward reducing associated costs. The cost of UI to society comprises diagnostic and treatment costs (laboratory, diagnostic, and surgical procedures and pharmacologic therapy); routine care costs (physician visits); consequence costs (treatment for urinary tract infections or skin irritation from incontinence); and indirect costs (lost productivity). The high prevalence of UI in the gen-

Figure 2. Societal Cost of Urinary Incontinence in the United States



UTIs = urinary tract infections.
Source: Reference 59.

eral population and the institutionalized elderly, in particular, results in high costs to treat the disease and its symptoms. A 1995 study of the economic impact of UI in individuals 65 years of age and older in the United States estimated the societal cost to be \$26.3 billion, or \$3565 per patient. The direct costs alone, including diagnostic and treatment costs, routine care, and consequence costs, were estimated to represent \$25.6 billion of the total costs,⁵⁹ greatly exceeding the \$14 billion in direct medical costs spent on the treatment of osteoporosis.⁶ The cost of UI is expensive because of the many diverse areas of care that are embraced by effective management, of which the costs of routine care and longer hospitalizations are the greatest part (Figure 2).⁵⁹ The cost of this care is rising; estimates have increased from \$8.2 billion in 1984 to \$16.4 billion in 1993 to the current \$26.3 billion estimate.⁵⁹⁻⁶¹ This observed increase may be partly attributed to the aging population. In the NOBLE Program, a cost-of-illness analysis is also under way to identify the OAB-specific burden, in addition to the costs associated with UI.

Comorbidities associated with OAB are an important consideration. A 5% random sampling of the 1996 to 1997 California Medicaid Program (Medi-Cal) claims data showed that 22.5% and 8% of the OAB population received treatment for urinary tract and skin infections, respectively.⁶² After OAB was diagnosed, the number of services received for urinary tract and skin infections decreased by 40% and 60%, respectively, and was associated with potential cost savings (Figure 3).⁶² Assuming a 22.5% population incidence rate for urinary tract infections at an average cost of \$48.50, a potential cost savings of \$3 million per year would be realized through the reduction of urinary tract infections after the diagnosis of OAB in 97,000 patients. Assuming a population incidence rate of 8%, corresponding cost savings for a reduction in skin conditions would be \$300,000 per year. Other data derived from the Medi-Cal claims database show that patients who received and continued pharmacotherapy for OAB required 2.8 and 2.0 fewer services for urinary tract and skin infections, respectively, compared with those in whom therapy was discontinued.⁶² These reductions in services translate into

Figure 3. Costs Related to UTIs and Skin Infections in a Medi-Cal Patient Population

Number of Patients	×	Population Incidence	×	Reduction in Number of Services*	×	Average Cost per Service	=	Potential Cost Savings
97,000		22.5%		2.8		\$48.50		\$3.0 million (UTIs)
97,000		8.0%		2.0		\$19.50		\$300,000 (Skin conditions)

*Difference in number of services before and after diagnosis: UTIs = 6.6 services prior to diagnosis vs 3.8 after diagnosis; skin conditions = 3.3 services prior to diagnosis vs 1.3 after diagnosis.

UTIs = urinary tract infections.

Source: Reference 62.

corresponding potential cost savings of \$15.30 and \$1.56, respectively, per patient during a 6-month period (or \$2.55 and \$0.26, respectively, per patient per month).

Using information derived from Illinois Medicaid claims data, calculated cost savings in reductions of medications and services for urinary tract and skin infections are approximately \$200 per 2-year period during which a patient remains on pharmacotherapy for OAB (Table).⁶² These figures do not account for incontinence supplies or prescription costs, suggesting that the total costs are actually higher. Thus, these data strongly support an association between compliance with pharmacotherapy for OAB and overall cost savings based on fewer services needed for associated comorbidities.

In 1998, a US managed care claims study of the direct medical care resources and costs associated with OAB treatment found an average cost of \$462 per patient per month.⁶³ Additional studies conducted in nursing homes and long-term care facilities have demonstrated the cost of caring for residents with UI is high. Estimated daily costs for nursing home care varied from less than \$2 per day up to \$28 per day, depending on the populations evaluated, costs of

labor and supplies, management strategies, and whether costs of adverse events were included in the estimations.^{22,23,60,64-66} Additional OAB costs include an increased risk of falls that can lead to fractures in patients with urge incontinence symptoms.⁶⁷ As with most chronic diseases, an increased risk of depression has been seen in patients with OAB.⁶⁸ A comprehensive picture of comorbidities is required to understand the increased physical, mental, and economic burdens associated with untreated OAB.

Arikian et al⁶⁹ conducted an analysis to evaluate the cost effectiveness of once-daily controlled-release oxybutynin and twice-daily tolterodine compared with oxybutynin immediate release. This study also estimated the potential cost savings to a health plan budget resulting from increased utilization of the most cost-effective treatment. The design was a decision-tree model based on clinical trial data and expert panel estimates with a 6-month time horizon conducted from a payer perspective. The primary outcome measure used in the analysis was treatment success, with success defined as zero incontinence episodes per week. A secondary outcome measure was the expected number of continent days. In their model, they found that controlled-release oxybu-

Table. Lower Costs Associated with UTIs and Skin Infections When Patients Remain on Therapy for OAB

Total Cost Comparison (1.5 Years): With and Without Drug Treatment for OAB

Group*	Total UTI Rx Costs	Total Skin Rx Costs	Total UTI Medical Service Costs	Total Skin Medical Service Costs	Total Payments/Patient
1	\$ 19,341	\$ 753	\$ 47,101	\$ 742	\$ 124
2	\$ 4485	\$ 478	\$ 30,511	\$ 621	\$ 141
3	\$ 43,481	\$ 3304	\$ 58,802	\$ 8388	\$ 323

*Group 1: Maintained on Rx/Pads (at least 3 scripts); Group 2: Pads/No Rx; Group 3: Rx/No Pads
OAB = overactive bladder; Rx = prescription; UTI = urinary tract infection.

Source: Reference 62.

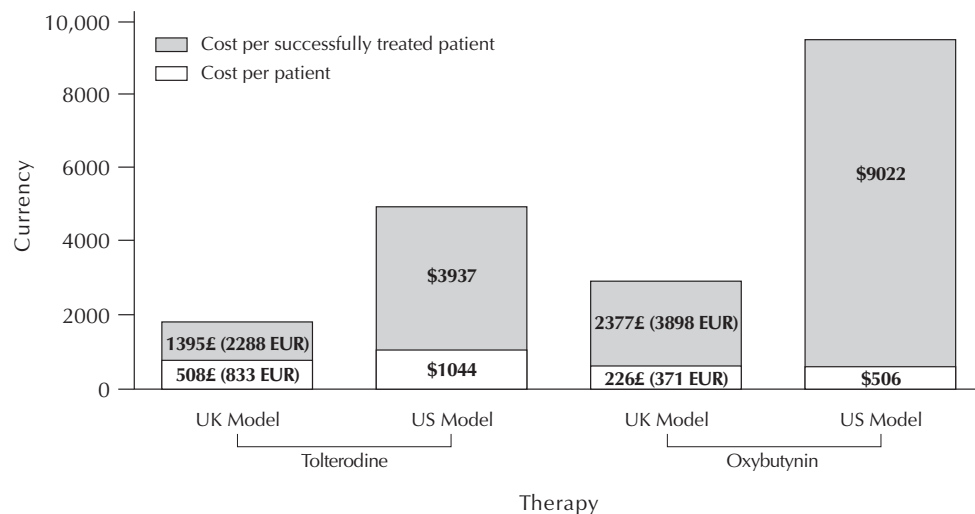
tyinin was the most cost-effective treatment as measured by expected cost per success and expected cost per continent days. Controlled-release, once-daily oxybutynin yielded the highest expected success rate and the highest number of expected continent days. The expected cost of treatment with controlled-release oxybutynin was lower than the cost of twice-daily tolterodine and equivalent to immediate-release oxybutynin. Increased utilization of controlled-release oxybutynin results in an estimated savings of \$0.007 to \$0.026 per patient per month for a hypothetical health maintenance organization.

A critique of the Arikian study has been presented by Schonfeld et al⁷⁰ and states that the efficacy measurement used in the model was not adequate and that patients were only included if they had already responded to oxybutynin; it was not an

intent-to-treat design. A lower price of controlled-release oxybutynin was represented in the model because of normal dosage per day issues and the model did not include the newer once-daily formulation of tolterodine.

A study of 348 women diagnosed with OAB was conducted in the United Kingdom.⁷¹ This study found that compliance rates with oxybutynin in clinical practice were low. Dry mouth occurred in approximately 50% of the patients, contributing to an overall discontinuation rate of up to 27% of patients in clinical trials. The occurrence of side effects was reported as the reason for discontinuation of therapy by 39.8% of women. The lack of efficacy did not seem to play a major role because 71.9% of the women considered the drug to be effective. Tolterodine 2 mg bid demonstrated a lower rate of dry mouth and discontinuation because of dry mouth than oxybutynin 5 mg tid.⁷¹

Figure 4. Cost-Effectiveness Model Comparing the United States and the United Kingdom



Source: Bentkover JD, Chapple C, Corey R, Hill S, Stewart EJ. Adapting a US cost-offset economic model for overactive bladder for the European marketplace. Presented at the Third Annual European Conference of the International Society for Pharmacoeconomics and Outcomes Research; November 5-7, 2000; Antwerp, Belgium. Published with permission of JD Bentkover.

Bentkover and colleagues⁷² examined an OAB economic model for the United States and the United Kingdom (Figure 4). A cost-offset economic model was developed in the United States to estimate the cost effectiveness of tolterodine and oxybutynin. The economic model was compared with the UK market by changing the medical treatment algorithm and collecting costs based on the UK-specific data. The percentage of successfully treated patients was derived from the clinical efficacy data adjusted by the annual persistency data. In the US model, the average total cost per patient for 12 months of treatment with oxybutynin was \$506 (£226 in UK model) and \$1044 (£508 in UK model) for tolterodine. The percentage of successfully treated patients after 1 year was 9.5% for oxybutynin and 36.4% for tolterodine. The average cost effectiveness, expressed as cost per successfully treated patient, was \$9022 (£2377 in UK model) for oxybutynin and \$3937 (£1395 in UK model) for tolterodine. Although the efficacy of oxybutynin and tolterodine has often been measured as equal, the persistency is more than 3 times higher with tolterodine. Even though the cost of therapy with tolterodine was higher than oxybutynin, the cost effectiveness of tolterodine was considered superior. These results were similar to the US-based model but were modified by the different treatment approach to OAB in the United Kingdom, where, for example, incontinence supplies such as pads are paid for by the National Health Service.

A cost-effectiveness study found that patients taking tolterodine reported limited symptoms compared with untreated patients, leading to a 23% reduction in patient costs for UI protective pads.⁷³ Subsequent cost-utility analysis estimated the incremental cost per quality-adjusted life-year gained with tolterodine at \$28,032. This ratio is within the gen-

erally acceptable ranges for cost-effective therapy.^{74,75}

Capri and coworkers⁷⁶ measured the willingness to pay (WTP) for a reduction in the number of micturitions and urinary leakages of OAB patients with urge incontinence. A questionnaire was administered to 388 patients identified in 6 regions in Italy. This questionnaire was divided into 3 sections: socioeconomic characteristics and severity of symptoms; health-related QOL and a close-ended contingent valuation question about the prices of a drug; and the reduction of symptoms on a monthly basis. The answers were analyzed by regression analysis, both with a univariate and a multivariate logistic model. A stepwise procedure was used to select the variables affecting the probability of a “yes” answer to the WTP question. The final regression model included the price, sex, income, and vitality as significant independent variables. The mean WTP per month, based on the final logistic model, was Lit 229.000 (US \$115) for men and Lit 153.000 (US \$77) for women; the median WTP was Lit 220.000 (US \$110) for men and Lit 132.000 (US \$66) for women. The study concluded that patients with incontinence problems were willing to pay amounts that were higher than the cost of any drug therapy available for a reduction in the number of micturitions and leakages. In addition, the study indicated that vitality was the highest correlated factor in health-related QOL parameters.

Another treatment option that is used for many patients diagnosed with OAB is behavioral therapy (eg, bladder training). Behavioral therapy has been shown to be highly effective (80% cure rate); however, noncompliance outside the clinical trial setting creates uncertainty about its long-term efficacy.⁷¹ Some patients comply better with pharmacotherapy than behavioral modifications unless they experience adverse effects or are pre-

scribed a complicated regimen. Patients who perceive an improvement in their QOL as a result of therapy are more likely to comply.⁷¹

Discussion

Although OAB has varying degrees of severity, all disruptions to the normal function and well-being of patients must be taken seriously. For some patients, alterations in their behavior to compensate for their symptoms are acceptable. Others experience severe physical or emotional problems and may avoid work or other activities they enjoy because of a fear of not being in control of bodily functions and concerns about smelling of urine. In extreme cases, affected individuals may become reclusive when they are afraid of what others may think or say if their condition is discovered. All symptoms of OAB are debilitating and even in their mildest form warrant active therapeutic intervention. Few patients actually ask for help and this may be partly explained by the perception that urinary problems are a taboo subject.

As the average age of the population increases, the size of the population affected by these issues will continue to grow. The necessity of appropriate and effective interventions to help patients will also increase subsequently. Pharmacists should be aware of individuals with OAB and offer counseling, as they are frequently the first point of contact for many of these patients. Individuals with OAB should be encouraged to feel comfortable discussing problems with their health practitioners so that treatments can be prescribed that are best for their particular circumstances. The educational role that practitioners can play is particularly important to nursing home staff and independent caregivers who seek information about treatment options. Practitioners at all levels should strive to increase their understand-

ing of the prevalence, QOL, outcomes management, and cost-effectiveness issues surrounding OAB.

Having established a diagnosis of OAB, many practitioners will prescribe an antimuscarinic agent such as oxybutynin or tolterodine to help the patient lead a more active and normal life. Health professionals should take the time to further educate patients about their treatments and reinforce the need for compliance with long-term therapy, the key to successful management of this chronic condition. The poor tolerability of traditional antimuscarinic agents has previously been a limitation to the degree that patient cooperation with his or her treatment can be expected. Recent developments in drug treatment options for OAB have provided effective antimuscarinic agents that are better tolerated and consequently have improved the prospects for long-term patient compliance. With the availability of treatment alternatives, health professionals can help ensure that patients with the troublesome symptoms of OAB receive the appropriate treatment and do not suffer in silence.

All practitioners can play an important role in improving the cost effectiveness of treatments by monitoring patient response and compliance. The chronic nature of OAB requires long-term therapy to maintain symptom relief. Prescribed treatments must be well tolerated to ensure successful and cost-effective disease management.

Conclusion

In managing patients with OAB, practitioners must be aware that this condition has a tremendous impact on all aspects of the patient's QOL and that many patients are hesitant to discuss their symptoms. Until recently, the mainstay of treatment for patients with OAB was oxybutynin, but the frequency of side effects interfered with patient compli-

ance. Tolterodine is an antimuscarinic agent that has been proven safe and effective with fewer side effects and better tolerability than existing agents. Cost effectiveness of treatment is closely linked to success of the therapeutic agent being used. Long-term therapy is needed to manage this chronic condition that affects both emotional and physical aspects of the patients' lives.

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