

Development of a hospice formulary for psychotropic medications

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(RECEIVED February 20, 2007; ACCEPTED May 4, 2007)

ABSTRACT

Objective: The authors describe the concept of hospice formulary as is utilized at the hospice service of a university medical center.

Method: A periodic review of hospice formulary, focusing on psychotropic medications and delirium prevention, was accomplished in 2006. This effort represents a multidisciplinary effort among hospice nursing, internal medicine, and psychiatry.

Results: An updated formulary adopting contemporary psychopharmacologic best practices was produced and implemented along with targeted in-service training to nurse clinicians.

Significance of results: The modern hospice formulary offers opportunities to offer state-of-the-art psychopharmacological care and minimization of delirium through judicious use of psychopharmacological treatments for the psychiatric comorbidities common in terminally ill patients.

KEYWORDS: Hospice, Formulary, Psychotropic medications, Delirium, Depression

INTRODUCTION

A concise list of medications targeted at common symptoms is a useful tool for health care providers who seek to alleviate a broad range of patient concerns. It allows individuals to make faster decisions about pharmacologic treatment for common disease symptoms that may be outside of their realm of expertise. It provides autonomy for nurses, physician assistants, and nurse practitioners to administer agreed upon amounts of known medications under a physician's supervision. If regularly updated and reviewed, it can provide physicians from different disciplines an opportunity for dialogue and education about common symptoms and their first line treatments.

The University of California, Davis Medical Center (hereinafter UCDMC) Hospice Program is one such program that benefits enormously from the use of such formularies. The Hospice Program works to palliate the symptoms of over 70 patients with terminal illnesses each month. Twelve to 15 hospice nurses administer care through home visits and phone calls. They are supervised by a physician as needed by phone and meet weekly with the medical director. The program utilizes standardized medication formularies targeted at common end-of-life symptoms such as pain, delirium, and depression, which empowers nurses to make therapeutic decisions at the point of care. The resultant nurse autonomy allows for more rapid alleviation of patient discomfort and increases direct patient contact time.

Many hospice patients encounter a diverse symptom complex including pain, constipation, nausea, cough, anorexia, and dyspnea. Psychiatric symptoms

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are also prevalent in terminal illness, including anxiety, delirium, terminal agitation, insomnia, and fatigue (Portenoy et al., 1994; Vogl et al., 1999; Akechi et al., 2004). With a finite number of medications presented in suggested dosing regimens, nurses are able to relieve patients' symptoms during a home visit when the clinical concern arises by referencing a simple chart. This provides a point of care tool for nurses so that they may quickly assess the patients' concerns and formulate recommendations to present to the supervising physician for review. This efficiency translates into more time for patient contact and care.

Although a hospice program is especially well suited for such a formulary due to the frequent repetition of specific symptom sets, the model can easily be applied to other disciplines where a particular patient population is likely to experience a specific subset of concerns. Examples include internal medicine and surgical patients experiencing depression and delirium during long hospital stays or psychiatric patients experiencing diabetes and hypercholesterolemia secondary to antipsychotic use.

However, busy treatment teams become accustomed to the status quo, and formulary renovation often falls by the wayside, with newer medications and emerging evidence eluding incorporation. Here we present a methodology for an interdisciplinary renovation of a hospice formulary, the before and after products, and the outreach and education program designed to facilitate its implementation. Although our project focused on psychotropic medications in a hospice formulary, this model can be easily applied to other formularies and other specialties.

The work is not done once the formulary has been submitted and implemented in the field. The constantly emerging new evidence and new medications mandates a level of dynamism in formularies that may be difficult to maintain. Specialty consultation can facilitate integration of new information and summarization of new findings relevant to the formulary. Such coordination of communication is difficult to orchestrate on a busy medical service, but it is integral to maintaining the efficacy of the formulary as well as providing an opportunity for physicians from different services to collaborate. Quality hospice care that incorporates treatments for a diverse symptom set during a sensitive time mandates ongoing multidisciplinary contributions.

METHOD

The UCDMC hospice formulary had not been revised since 2001 and had never been reviewed in conjunction with a psychiatrist. Numerous areas of potential

improvement were identified, specifically in the section devoted to psychiatric symptoms in hospice patients. Depression, agitation, and insomnia are extremely common in patients facing their final days or months, perhaps the rule rather than the exception (Portenoy et al., 1994; Vogl et al., 1999; Akechi et al., 2004). Treatment of these conditions is often complicated by the fact that many medications targeted at primary symptoms also cause delirium, another already prevalent and distressing symptom (Morita et al., 2003; Friedlander et al., 2004). The formulary as it existed did not specify which medications were delirium-inducing and even, paradoxically, included potentially delirium-inducing medications in the section for the treatment of delirium (Meagher, 2001; Samuels & Evers, 2002; Gaudreau & Gagnon, 2005). In addition, many newer groups of medications are now available to target multiple symptoms common to such patients, for example, depression *and* insomnia or agitation *and* delirium, potentially reducing polypharmacy as well as cost. The brevity of the original psychotropic medication section did not allow for such subtleties. There was an overt lack of any of the newer medications, including second generation "atypical" antipsychotics, nonbenzodiazepine hypnotics, and newer antidepressants that target multiple receptor types.

A fourth-year medical student pursuing a residency in psychiatry was serendipitously assigned to evaluate and renovate the psychotropic medication section of the hospice formulary while on a clinical hospice rotation. Together with the Director of the Psychosomatic Medicine Service and the Medical Director of the Hospice Program, a more expansive and updated section for these medications was developed.

RESULTS

A reference list long enough to include many different choices of antidepressants, antipsychotics, anxiolytics, and hypnotics was developed originally to provide more options for more difficult or more specific symptoms based on theories of neurotransmitter action (Table 1).

Then, a secondary list was distilled from the original that was more appropriate as a quick reference for hospice nurses in the field, including only a few choices for each symptom, but diversifying options based on secondary symptoms and medical contraindications. The focus was on targeting not only the chief symptom, for example, depression, but also a secondary symptom that further categorized the primary. Often the choice of medication to treat depression is based on further characterization of

Table 1. *Psychiatric medication formulary*

Symptoms	Medications	Medication class	Comments	Kinetics
ANXIETY				
Prone to delirium	zolpidem eszopiclone zaleplon	Benzodiazepine receptor agonists	May cause less confusion then benzodiazepines	1 h onset 7 h duration Rapid onset Rapid onset
Prone to delirium, needing sedation	haloperidol quetiapine risperidone olanzapine	Antipsychotics Atypical antipsychotics	Available in IM risperidone and olanzapine are available in dissolving tablet	Rapid onset Rapid onset
Prone to delirium, liquid diet only	olanzapine risperidone	Atypical antipsychotics	olanzapine is available in IM risperidone is available in PO solution	Rapid onset
Prone to delirium, for longer term therapy	bupirone venlafaxine fluoxetine	Other Antidepressants SSRIs	Slow onset, minimal sedation Slow onset, minimal sedation	≥ 1 m for effect ≥ 1 m for effect
Prone to delirium, for longer term therapy with liver problems Delirium absent	citalopram escitalopram sertraline alprazolam midazolam lorazepam temazepam clonazepam diazepam	SSRIs Benzodiazepines Benzodiazepines Benzodiazepines	Slow onset, minimal sedation Fast-acting Mid-acting Long-acting	≥ 1 m for effect t _{1/2} = 11 h t _{1/2} = 3 h t _{1/2} = 13 h t _{1/2} = 11 h t _{1/2} = 35 h t _{1/2} = 35 h
Delirium absent & NPO	phenobarbital pentobarbital	Barbiturates Barbiturates	Suppository available	
DEPRESSION				
For long-term therapy	fluoxetine	SSRIs	Minimal sedation	≥ 1 m for effect
For long-term therapy with liver problems With pain and/or low energy With pain and/or agitation With anorexia and/or insomnia NPO	citalopram escitalopram sertraline venlafaxine bupropion duloxetine amitriptyline mirtazapine selegiline	SSRIs Other antidepressants Other antidepressants Other antidepressants Other antidepressants	Minimal sedation Transdermal patch available	≥ 1 m for effect ≥ 1 m for effect ≥ 1 m for effect ≥ 1 m for effect
With low energy	methylphenidate ^{a,b} modafinil			
INSOMNIA				
With depression or nausea With depression, delirium absent Delirium prone	mirtazapine amitriptyline trazodone zolpidem eszopiclone zaleplon	Other antidepressants Other antidepressants Benzodiazepine receptor agonists	May cause less confusion then benzodiazepines	1 h onset 7 h duration t _{1/2} = 11 h t _{1/2} = 3 h t _{1/2} = 11 h t _{1/2} = 35 h t _{1/2} = 35 h
Delirium absent	alprazolam midazolam lorazepam temazepam clonazepam diazepam	Benzodiazepines Benzodiazepines Benzodiazepines	Fast-acting Mid-acting Long-acting	t _{1/2} = 11 h t _{1/2} = 3 h t _{1/2} = 13 h t _{1/2} = 11 h t _{1/2} = 35 h t _{1/2} = 35 h
Delirium absent	diphenhydramine	Antihistamines		

Continued

Table 1. Continued

Symptoms	Medications	Medication class	Comments	Kinetics
DELIRIUM				
Needing sedation	haloperidol quetiapine ^{c,d} risperidone ^{c,d} olanzapine	Antipsychotics Atypical antipsychotics	Available in IM risperidone and olanzapine are available in dissolving tablet	Rapid onset Rapid onset
Liquid diet only	olanzapine ^{c,d,e} risperidone	Atypical antipsychotics	olanzapine is available in IM risperidone is available in PO solution	Rapid onset
<i>Avoid in delirium</i>	<i>amitriptyline^f trazodone diphenhydramine^f</i>	<i>Benzodiazepines Barbiturates</i>		
TERMINAL AGITATION				
Delirium absent	alprazolam ^g midazolam ^g lorazepam temazepam clonazepam diazepam	Benzodiazepines Benzodiazepines Benzodiazepines	Fast-acting Mid-acting Long-acting	t1/2 = 11 h t1/2 = 3 h t1/2 = 13 h t1/2 = 11 h t1/2 = 35 h t1/2 = 35 h
Delirium absent & NPO Delirium prone Delirium prone or needing sedation	phenobarbital pentobarbital haloperidol ^g quetiapine ^g risperidone ^g olanzapine	Barbiturates Barbiturates Antipsychotics Atypical antipsychotics	Suppository available Available in IM risperidone and olanzapine are available in dissolving tablet	Rapid onset Rapid onset
Delirium prone or liquid diet only	olanzapine ^g risperidone	Atypical antipsychotics	olanzapine is available in IM risperidone is available in PO solution	Rapid onset

^aMacleod, 1998.

^bRozans et al., 2002.

^cBoettger and Breitbart, 2005.

^dTune, 2002.

^eSkrobik et al., 2004.

^fTune, 2001.

^gKehl, 2004.























such depression as agitated or as anergic. Antipsychotic choice can be driven by level of sedation desired, and treatment of insomnia may differ accordingly with propensity for delirium. As much as possible, choices are supported by evidence in the literature; when this was not possible, they are supported by a consensus of clinical experience. The shorter list was originally designed for quick reference by nurses making home visits for hospice patients. However, because it addresses common psychiatric symptoms, it is also germane to family and internal medicine physicians managing the medically ill in a hospital setting. (Table 2)

DISCUSSION

After a formulary is updated and improved, the next step is to increase awareness of the changes and ensure that they can be implemented in a manner




useful to hospice nurses in the field, residents on the ward, or any practitioner providing preliminary care for psychosomatic symptoms. The goal is to educate care providers about new medications in the formulary, including their indications, uses, and side-effect profiles. A brief case-based seminar was developed that discussed the different medications with a focus on avoiding ones that induce delirium. Slightly different audience-appropriate versions of the in-service were designed for the hospice nurses, the psychiatry interns on the psychosomatic medicine service, and the internal medicine and family practice interns. Because the complete hospice formulary is targeted specifically at hospice caregivers, pocket cards of just the psychiatry formulary section were created and disseminated to residents for quick reference on the in-patient service. Feedback on the process was solicited in the form of follow-up surveys on changes in treatment practices among providers.

Table 2. Psychiatric medication formulary, the short list

Symptom	Secondary Symptom	Medication	Dosage	Delirium inducing?	IM/IV form?	Disintegrating tablets?	Oral solution?	Caution in pt with:
Delirium/ psychosis		haloperidol	0.5–2 mg po qd-bid					QTc > 450 ms ^c
	Needing sedation	risperidone ^{a,b}	0.5–2 mg po qd, or split doses bid					QTc > 450 ms ^c
	Needing more sedation <i>Avoid in delirium:</i>	olanzapine ^{a,b,d} <i>amitriptyline^f trazodone diphenhydramine^f citalopram escitalopram</i>	2.5 mg bid <i>benzodiazepines barbiturates</i>					DM ^e
Depression	Chronic or neuropathic pain/low energy	venlafaxine XR	37.5–150 mg po qd					
	Neuropathic pain/agitation	amitriptyline	25–50 mg po qhs					
	Anorexia > lethargy	mirtazapine	15–45 po qhs					
Insomnia	Lethargy > anorexia	methylphenidate ^{g,h}	10–30 po qd-bid					
	Insomnia	mirtazapine	15–45 po qhs					
	Depression/nausea	mirtazapine trazodone	15–45 po qhs 50–150 po qhs					
Terminal agitation	Anxiety	diazepam	2.5–10 mg po/sl q6 h prn					
		lorazepam	0.5–2 mg po/sol q4 h prn					
	Needing sedation	risperidone ⁱ	1–2 mg po qd					QTc > 450 ms ^c
Terminal agitation	Needing more sedation	olanzapine ⁱ	2.5 mg bid					DM ^e
		lorazepam ⁱ	0.5–2 mg po/sol q4 h prn					

Continued

Table 2. *Continued*

Symptom	Secondary Symptom	Medication	Dosage	Delirium inducing?	IM/IV form?	Disintegrating tablets?	Oral solution?	Caution in pt with:
		diazepam ⁱ	2.5–10 mg po/sol q6 h prn					
		haloperidol ⁱ	0.5–2 mg po qd-bid					QTc > 450 ms ^c

Delirium is a common side effect of many medications; monitor patients closely for signs.

^aBoettgerand Breitbart, 2005.

^bTune, 2002.

^cRisperidone and haloperidol are associated with prolonged QTc and possible torsades de pointes risk (Glassman & Bigger, 2001).

^dSkrobik et al., 2004.

^eOlanzapine is relatively contraindicated in patients with known diabetes (Newcomer & Haupt, 2006).

^fTune, 2001.

^gMacleod, 1998.

^hRozans et al., 2002.

ⁱKehl, 2004.

“The really, really short list”

Anxiety: risperidone

Depression: mirtazapine

Insomnia: mirtazapine

Delirium: risperidone

Terminal agitation: risperidone

Although a hospice formulary renovation may directly benefit the hospice nurses by allowing more autonomy in the field and great efficiency in patient care, a continually evolving, easy-to-reference formulary benefits caregivers in many different specialties. Any physician or other practitioner in a primary care setting who is frequently faced with a limited symptom set outside his or her specialty would have use for such a tool. This particular approach is especially tailored to managing psychiatric symptoms, as many providers have limited training in the field and are faced with high numbers of patients with psychiatric concerns. However, this model of interdisciplinary formulary development, renovation, and education can be applied to common uncomplicated symptoms from different specialties.

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