Patient Safety Tip of the Week

May 10, 2016

Medical Problems in Behavioral Health

Behavioral health units, whether they are stand alone facilities or part of general hospitals, are prone to many adverse events due to medical rather than psychiatric conditions. There are a variety of factors predisposing to such events and barriers to preventing them.

What should be done during "**medical clearance**" in the emergency room prior to admission to behavioral health units has long been debated. Most now agree that the medical history and physical should direct the need for laboratory or imaging studies and that there really is no standard battery of tests that should be done. Most testing is unnecessary and wasteful and delays admission to behavioral health. Traditionally, the main goal of the "medical clearance" is to be sure that the patient's behavioral health presentation is not the result of an underlying medical condition. But equally important should be identification of medical problems that are likely to complicate management during a behavioral health admission.

As above, "routine" lab testing is seldom of value as part of the medical clearance. Even drug toxicology screening is of limited benefit. Such drug screening is more likely to identify recent use of drugs rather than identify drugs contributing to the current behavioral health condition. However, we'd like to highlight one problem that may be becoming more troubling. The ever increasing use of **long-acting and/or delayed release formulations of opioids** raises specific concerns. We've seen patients who have taken such drugs and been alert in the ER with low levels of drug in their urine screen yet become obtunded due to opioid intoxication the following day due to the delayed absorption of these drugs.

Falls

Falls are probably one of the more frequent adverse events on behavioral health units. In our Patient Safety Tips of the Week for January 15, 2013 "Falls on Inpatient Psychiatry" we noted that falls are disproportionately more frequent on behavioral health units compared to med-surg units. In that column and in our December 3, 2013 Patient Safety Tip of the Week "Reducing Harm from Falls on Inpatient Psychiatry" we noted also that injuries from falls are also more likely with falls on psychiatric/behavioral health units.

One reason for more falls is likely that patients are more active on behavioral health units. But the other big reason is related to the medications used in behavioral health. Most importantly, they are on a variety of medications that may increase the fall risk (antipsychotics, antidepressants, sedative/hypnotics, and others). Some may be confused or agitated. Others may have impaired gait or balance, sometimes as a result of extrapyramidal side effects of their medications. Many of the medications cause orthostatic hypotension. The elderly patient on the behavioral health unit is especially at risk for falls with injury. Another factor is that sometimes behavioral health units restrict use of canes or other devices that could assist ambulation because such might also be used as weapons.

Because more traditionally used fall risk assessment tools have not been particularly applicable to psychiatric inpatients, Edmonson and colleagues (Edmonson 2011) have developed their own fall risk assessment tool for psychiatric inpatients. They identified 9 categories of fall risk factors from the literature, then determined how frequent those occurred in records of psychiatric inpatients who fell, resulting in a weighted tool for predicting falls in this population. They then administered this tool, the Edmonson Psychiatric Fall Risk Assessment Tool (EPFRAT), and a more traditional fall risk assessment tool (the Morse Fall Scale) simultaneously to an inpatient psychiatric population and found the EPFRAT had a higher sensitivity in predicting falls and comparable specificity.

Just like on med-surg units, fall risk is a dynamic risk and may change during the course of a behavioral health stay. For example, extrapyramidal side effects may gradually evolve after certain drugs have been started so patients should be examined daily to identify the occurrence of extrapyramidal side effects and the fall prevention strategies modified appropriately as they occur.

We refer you back to that Patient Safety Tips of the Week for January 15, 2013 "Falls on Inpatient Psychiatry" for a whole host of recommendations we have regarding prevention of falls on behavioral health units.

Seizures

Seizures are not uncommon on behavioral health units. Many of the drugs used may lower the seizure threshold, particularly in patients with a previous history of seizures. Withdrawal syndromes are a major concern, too (keeping in mind that substance abuse a common comorbidity in behavioral health patients) and seizures may be part of those syndromes. While seizures from alcohol withdrawal typically occur early after abstinence, withdrawal from cessation of drugs like benzodiazepines typically occur much later. And in patients with pre-existing seizure disorders who have been on anticonvulsant therapy it is important to recognize they may have been poorly adherent to their regimen. You should check their serum anticonvulsant levels (if they are on anticonvulsants that have therapeutic ranges) and make dosage adjustments as appropriate.

Most importantly, staff need to be trained in what to do when a seizure does occur. That includes ensuring the patient does not injure him/herself during the seizure and knowing how to get help in determining the cause of the seizure and any subsequent management steps. They also need to consider how other patients on the unit might react to seeing a seizure (and especially prevent those patients from inadvertently injuring a patient in attempt to help).

Cardiovascular Events

Cardiovascular events may also occur on behavioral health units. We noted orthostatic hypotension as a cause for falls. **Orthostatic hypotension** may also cause syncopal episodes. A whole host of drugs used in behavioral health, particularly certain antidepressants and antipsychotic drugs, may cause orthostatic hypotension. We won't repeat our usual harangue about how to properly assess for orthostatic hypotension but if you really want to know go back to our Patient Safety Tip of the Week for January 15, 2013 "Falls on Inpatient Psychiatry".

Torsade de Pointes is a form of ventricular tachycardia, often fatal, in which the QRS complexes become "twisted" (changing in amplitude and morphology) and is best known for its occurrence in patients with **long QT intervals**. In our June 29, 2010 Patient Safety Tip of the Week "Torsade de Pointes: Are Your Patients At Risk?" we discussed the risks of this potentially fatal syndrome in hospitalized patients. Though cases of the long QT interval syndrome (LQTS) may be congenital, many are acquired and due to a variety of drugs that we prescribe. And many of those drugs may be used in behavioral health settings. Perhaps the best known are haloperidol and methadone but a variety of antipsychotic drugs and antidepressants may prolong the QT interval (see our February 5, 2013 Patient Safety Tip of the Week "Antidepressants and QT Interval Prolongation"). For a full list of drugs that commonly cause prolongation of the QT interval and may lead to Torsade de Pointes, go to the CredibleMeds™ website. So if one of these drugs will be prescribed for a behavioral health patient they should have a baseline electrocardiogram and then a followup one to see if the QT interval has been prolonged to dangerous levels.

DVT

Deep venous thrombosis (DVT) is relatively rare on behavioral health units. Yet every year state incident reporting systems receive reports of DVT or even fatal pulmonary embolism in patients on behavioral health units. This most often occurs in patients with severe behavioral health problems that leave them bedridden. We've seen DVT in one patient who had laid in bed at home several weeks prior to admission. Therefore, it is essential that every patient admitted to behavioral health units received an assessment for DVT risk factors just as if they had been admitted to a med/surg unit.

Extrapyramidal Syndromes

A major category of medications typically used on inpatient psychiatric units are antipsychotic drugs that may have **extrapyramidal side effects**. These may affect gait,

balance, and reaction times to increase the risk of falls. When these drugs are started the patient should be examined daily to identify the occurrence of extrapyramidal side effects and the fall prevention strategies modified appropriately as they occur.

Anticholinergic Side Effects

Many of the drugs used in behavioral health have **anticholinergic side effects**. Dry mouth is the most common symptom but dry eyes, mydriasis, constipation, and others may occur. Probably the most significant anticholinergic effect would be **urinary retention**.

Eye Care

Simple **eye care** is often overlooked on behavioral health inpatients. One study (Aye 2015) examined eye care in 54 involuntarily-held psychiatric patients in a county hospital. Their average length of stay was 12 days. 63% claimed to wear either glasses or contact lenses. One patient who wore contact lenses developed eye irritation that necessitated use of antibiotic eye drops. Another contact lens wearer removed her contact lenses because of irritation and lack of contact lens solution and went 16 days with impaired vision. Only a third of patients who wore glasses had them with them during the hospitalization. The authors also note that impaired vision may contribute to or exacerbate psychosis. They note that emergency physicians and inpatient psychiatrists seldom ask even the most basic questions about vision and eye care. To that we'll add that many of the medications used on behavioral health units also have prominent anticholinergic side effects, potentially worsening drying of the eyes and further predisposing to irritation from contact lenses.

Oral Health/Dental Hygiene

Oral health and dental hygiene are often problematic in patients with behavioral health issues (DeHert 2011). DeHert and colleagues noted the following factors which influence oral health: type, severity, and stage of mental illness; mood, motivation and self-esteem; lack of perception of oral health problems; habits, lifestyle (e.g., smoking), and ability to sustain self-care and dental attendance; socio-economic factors; effects of medication (dry mouth, carbohydrate craving); and attitudes and knowledge of dental health teams concerning mental health problems. They conclude that facilitating access to dental care and addressing modifiable factors such as smoking and medication side effects are extremely important in this population.

Metabolic Syndrome

Weight gain, metabolic syndrome, glucose intolerance and frank diabetes mellitus may be seen as side effects of several medications used in behavioral health, most notably the atypical antipsychotics. These are more of a concern in the long-term management of behavioral health patients rather than acute problems seen during a hospitalization.

Nevertheless, recognition of these side effects and ensuring appropriate followup is important.

Medical Emergencies

Medical emergencies like the neuroleptic malignant syndrome and serotonin syndrome are rare but potentially life-threatening and need prompt recognition and treatment. **Neuroleptic malignant syndrome (NMS)** is characterized by fever, muscular rigidity, altered mental status, and autonomic dysfunction. NMS usually occurs shortly after the initiation of neuroleptic treatment (4-14 days) or after dose increases. Serum CPK is often elevated and rhabdomyolysis and myoglobinuria may be present. It may progress to renal failure, respiratory failure and death. In addition to cessation of the offending neuroleptic agent, treatment is mostly supportive. Several drugs have been tried as treatments but evidence for their effectiveness is limited (Tse 2015).

The **serotonin syndrome** is another potentially life-threatening condition with some similarities to the neuroleptic malignant syndrome. It also may have signs of autonomic instability (tachycardia, hypertension, dilated pupils, diaphoresis, piloerection), fever, and muscle rigidity. Other muscular phenomena are twitching, myoclonus, clonus, hyperreflexia, shivering, and loss of coordination. Seizures, unconsciousness and arrhythmia occur in severe cases. It is associated with serotoninergic medications, such as selective serotonin reuptake inhibitors (SSRIs), and usually evolves more rapidly than NMS. Diagnosis is clinical and lab tests are not diagnostic. Treatment consists of cessation of the offending agent(s) and supportive care. Benzodiazepines are often used for sedation. Symptoms and signs usually disappear within a day of cessation of the offending agent(s) though they may last longer if the half-life of the offending agent is longer. Those cases associated with monoamine oxidase inhibitors tend to be more severe. Drugs that have serotonin antagonism (eg. cyproheptadine) have been used in some cases but evidence of efficacy is limited.

Barriers/Challenges/Models of Care

Barriers to care of comorbid medical conditions are common on behavioral health units (Frost 2006). Psychiatrists often do not do medically-oriented history and physicals on their patients because it might interfere with the therapeutic relationship. In some facilities, a different psychiatrist might do that portion of the H&P. But let's be frank – most psychiatrists have a limited ability to deal with comorbid medical problems in their patients. Therefore, behavioral health units typically have a medical person (often a nurse practitioner) attend to the comorbid medical conditions on their patients. But all the healthcare workers on behavioral health units may be uncomfortable with the medical conditions. Nurses may have not worked on med/surg units for many years. Many behavioral health units lack rooms or equipment that are needed for medical evaluation. Such equipment and supplies (eg. supplies a surgeon or other physician might need to perform simple wound care) may have to be kept locked securely on behavioral health

units. And we often see consultants who are uncomfortable or even fearful when dealing with behavioral health patients.

Getting an adequate medical history may also be more difficult because of limited patient cooperation and difficulty reaching family or others who might be secondary sources of medical information. Behavioral health patients are also more likely to be non-adherent to medication regimens and non-compliant with other medical interventions. In addition, they often have not had the preventive health services that would have been recommended.

Frost (Frost 2006) also points out that some free-standing behavioral health units may have limited lab, radiology, and pharmacy resources available for handling the medical problems in behavioral health patients.

There are several potential **models of care** for handling medical problems on behavioral health units:

- the nurse practitioner model mentioned above
- the embedded hospitalist model
- the medical consultant model
- the med/psych unit
- the geriatric psychiatry unit

Many behavioral health units, particularly those at smaller hospitals, utilize nurse practitioners who work in conjunction with an internist or hospitalist. The **nurse practitioner** is embedded on the behavioral health unit and addresses all the medical issues. They perform the history and physical on the patient and enter the non-behavioral health orders. Over time the nurse practitioner develops a good feeling for the nuances of medical issues in the behavioral health patient and this model does provide continuity. Larger hospitals may use a **dedicated internist** in the same fashion.

A 2012 article in Today's Hospitalist (Darves 2012) discussed models in which medical **hospitalists** collaborated with psychiatrists in managing patients on behavioral health units. It noted some that successfully reduced large numbers of inappropriate studies ordered on such units. But it also noted the many challenges for the hospitalists. They had to be aware of the potential drug-drug interactions or contraindications of drugs they might encounter with patients on certain psychotropic medications, especially MAO inhibitors. This may necessitate order sets that are different from those used elsewhere in the hospital. Hospitalists also had to learn to deal with patients who were under watch for suicide or elopement, or housed in locked locations and rounding hospitalists may need a psych nurse as chaperone when encountering psychiatric patients. So close coordination with nursing staff was needed to determine when precautions were in order. One problem we have seen with the hospitalist model is that most hospitalists tend to work in blocks (for example, 5 days on then 5 days off or some other similar scheduling format). Particularly since the length of stay on behavioral health units is longer than that on med-surg units, that may lead to issues with continuity of care.

Both the nurse practitioner model and the hospitalist models do require some coordination. While the nurse practitioner or hospitalist needs to participate in the multidisciplinary team discussions on each patient many recognize it may not be good use of their time or the time of the behavioral health workers to be present for the entire session. So typically the behavioral health staff and the medical staff will allocate portions of the team meetings to be most efficient.

The **consultant model** works best for certain conditions. **Diabetes care**, in particular, is often less than optimal on behavioral health units. Behavioral health patients often cannot readily identify the insulin regimens they were on at home and access to family or caregivers at home may be limited. One study of psychiatric inpatients in the UK (Kan 2016) found that patients with severe mental illness and diabetes are not receiving standard care in glucose monitoring or appropriate access to specialist diabetes services when admitted to a psychiatric unit. Hyperglycemia events are poorly managed, suggesting an urgent need to raise awareness of diabetes management among clinical teams. They also found that capacity to consent for diabetes treatment needs to be addressed. Care is also complicated in that the patients may be poorly compliant with their medications and diet. We recommend that any diabetic patient who is taking insulin be followed by a medical consultant while they are inpatients on a behavioral health unit.

Another condition where the consultant model may be needed is **pregnancy**. Pregnancy and behavioral health hospitalization raises both challenges and opportunities. An older study (Miller 1990) found in a group of pregnant psychiatric patients admitted to a psychiatric service a high rate of involuntary admission, homelessness, and substance abuse, and identified many risk factors associated with noncompliance with ongoing prenatal care. They concluded that brief psychiatric hospitalization can be an important aspect in improving obstetric outcome by providing an opportunity to collect obstetric information and promote ongoing prenatal care.

In 2009 the American Psychiatric Association (APA) and the American College of Obstetricians and Gynecologists (ACOG) issued a joint report on the management of depression during pregnancy (Yonkers 2009). It addresses numerous issues related to depression and pregnancy and notes that research is hampered by:

- psychiatric condition
- Confounding factors that influence birth outcomes (eg, poor prenatal care and drug/alcohol/nicotine use) were often not controlled
- Pregnancy complications (eg, nausea, preeclampsia) occur at a higher rate in depressed than nondepressed women

Close collaboration between ob/gyn physicians and behavioral health staff is obviously important in trying to get optimal outcomes in both mothers and infants.

Med/psych units are another option. These are primarily medical units that are staffed with physicians and nurses well trained in dealing with behavioral health patients. Here the psychiatrist would be embedded in a fashion similar to how the medical physician was embedded in the behavioral health units above. In effect the patient has co-attendings: a psychiatrist and an internist. Unfortunately, this unit is usually substantially

more expensive to operate and the staffing and expertise are usually available only in larger general hospitals or teaching hospitals.

An offshoot of the med/psych unit is the **geriatric psychiatry unit**. Geriatric patients, because of their likely greater prevalence of comorbid medical conditions, are particularly at risk on behavioral health units. Therefore, specialized geriatric psychiatry units that are co-staffed by psychiatrists and geriatricians and nurses with a strong background in handling medical problems are recommended for such patients.

Some medical conditions are more serious and demand that the patient be cared for on a med-surg floor or an ICU. Also, patients taking drug overdoses typically are admitted first to a medical service and then transferred to the behavioral health unit once medically improved and stable. But such patients on med-surg units or ICU's may present special problems. Windows in such units are typically not designed to be "jump" proof and behavioral health patients may jump from the windows (see our April 12, 2016 Patient Safety Tip of the Week "Falls from Hospital Windows"). Similarly, med-surg units and ICU's are not designed for suicide prevention and patients there have easy access to "loopable" items and other items that can be used for suicide. Therefore, "**sitters**" are typically needed to provide 1:1 observation and supervision of behavioral health patients on these medical units. Unfortunately, such "sitters" often receive inadequate training in dealing with the behavioral health patient. Moreover, "sitting" is a boring task and we've seen patients harm themselves even in the presence of "sitters".

We also need to be cognizant that **the hospital may be only source of attention to medical care** that many of these patients will be exposed to. We know how difficult it often is just arranging for post-discharge behavioral health care in these patients. It is equally difficult **ensuring they get adequate followup for their medical problems**.

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