the Remedi Pulse

MEDICATION MONITORING

Remedi SeniorCare EDUCATION Rx

A CLINICAL AND REGULATORY UPDATE FROM REMEDI SENIORCARE

SEPTEMBER 2015

Just Tell Me What Test to Draw

with William Vaughan, BSN, RN

Avoiding Deficiencies Related to the Monitoring of Medications

When I set my car's cruise control to 65 mph (ok, more likely 68 mph), I can't then read a book, nod off to sleep or otherwise separate myself from the act of driving. The same holds true when long-term care staff administer medications to residents. No matter how stable the resident's condition or how safe a medication is perceived to be, to maintain the resident's health, as well as the "regulatory health" of the facility, the process of actively monitoring medications must take place. In fact, CMS at F329 defines a drug as unnecessary if it's administered without adequate monitoring. And no, the term "adequate" is not defined in the regulation!

As a former surveyor, I'm frequently asked regulatory related questions, such as "how often must an INR be obtained?" or "must facilities use a behavioral flow sheet?" or "if a resident refuses bloodwork to monitor his CBC can I still administer Clozaril?" My typical answer, which often frustrates the person asking the question, is "it depends." Federal regulations DO NOT contain concrete answers to these questions or to those that arise in most clinical situations. Rather, the survey process empowers facilities to develop approaches, which meet the intent of the regulation, in this case, to monitor medications in a way that meets the needs of each resident.

Medication monitoring is a team sport that requires the active engagement of multiple disciplines. Compliance is best achieved when facilities develop approaches based on the following principles (readers familiar with my previous *Pulse* newsletter articles will recognize a consistent theme here):

Medication monitoring is a team sport that requires the active engagement of multiple disciplines.

EVIDENCE

There are numerous evidenced based resources, clinical practice guidelines, and published standards, which facilities can and should rely upon when determining

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FOR MORE INFORMATION
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Please do not hesitate to contact your Remedi Consultant Pharmacist or Account Manager if you have any questions or concerns.

Laboratory Monitoring Related to Drug Therapy

Prepared by: Alexis Sappenfield, Pharm.D., Clinical Consultant Pharmacist

Clinical laboratory tests are a key component of diagnosis, prognostic assessment, and evaluation of therapeutic outcomes. Laboratory tests may be used for assessing metabolic function, monitoring specific disease states, or therapeutic drug monitoring.

Laboratory tests for assessing metabolic function, as shown in Table 1, include electrolyte tests, renal function tests, liver function tests, albumin levels, and complete blood cell counts. (Note: Signs and symptoms listed in Table 1 are not all inclusive.)

TABLE 1

LAB	REASON	SYMPTOMS WHEN ELEVATED	SYMPTOMS WHEN LOW
Sodium, serum	Electrolyte	Intense thirst, lethargy, muscle spasm, seizures	Weakness, confusion, hypotension, headache, seizures
Potassium, serum	Electrolyte	Muscle weakness, EKG changes	Malaise, confusion, muscle cramps, hyptoension, EKG changes
Magnesium, serum	Electrolyte	Weakness, decreased respirations, hypotension, decreased reflexes, arrhythmias	Weakness, muscle cramps, tremor, tetany, arrhythmias
Blood Urea Nitrogen (BUN)	Assessment of renal function	Azotemia, renal impairment, dehydration, heart failure	-----
Serum Creatinine (Cr)	Assessment of renal function	Associated with signs and symptoms of drug toxicities	-----
Liver Function Tests (AST, ALT, Alk Phos)	Assessment of liver function	Jaundice, GI bleeding, hypoglycemia, renal failure, coagulopathy, hepatitis, encephalopathy	-----
Albumin	Measurement of nutritional status	Rare: Usually associated with shock, dehydration	Malnutrition, liver failure, potential for drug toxicity
Red Blood Cells (RBC)	Evaluate anemias	Erythrocytosis, hypoxia, polycythemia vera	Fatigue, pallor, dyspnea, tachycardia, palpitation
Hemoglobin (Hb)	Measure of oxygen transport	-----	Fatigue, poor appetite, coldness, depression
Hematocrit (HCT)	Measures % of RBCs in plasma	-----	Fatigue, poor appetite, coldness, depression
White Blood Cells (WBC)	Measures leukocytes, immune response	Infection, fever, weakness, aches, leukemia	Leukopenia, neutropenia, more susceptible to infection
Platelets	Responsible for clot formation	Thrombocythemia (Thrombocytosis)	Thrombocytopenia, easy bruising, hemorrhage

Additionally, medications that are used to treat diseases require monitoring of the drug level concentrations, as well as monitoring for prevention of adverse effects associated with the drug therapy. In general, Table 2 references common medications seen in the long-term care setting and overall recommendations for monitoring.

These tables are examples of routine medications and lab tests seen in the geriatric population and are not complete references. Additional information with more complete lists of medications and lab tests along with required monitoring are available from:

https://labtestsonline.org. Accessed 25Aug2015.
The National Institutes for Health: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2597281/table/T2/. Accessed 25Aug2015.
The Pharmacist's Letter: http://www.mysccg.com/generalDocuments/Lab%20Work%20Pharmacist%20Letter.pdf. Accessed 25Aug2015.

TABLE 2

MEDICATION	LABORATORY MONITORING PARAMETER	FREQUENCY
Acetaminophen, at dosage > 3 grams/day	Serum LFTs	Every 6 months
Allopurinol	Uric acid levels and renal function	Periodically
Amiodarone	Serum LFT and thyroid-stimulating hormone (TSH) level	Check ALT at baseline and every 6 months; TSH every 6 months
Angiotensin-converting enzyme (ACE) Inhibitors	Serum potassium level, BUN, Creatinine	Within 1 week of initiation or dose change, then every 6 months
Antidiabetic agents (insulin, all oral hypoglycemic)	Fasting serum glucose, HbA1c, electrolytes, renal function. *Pioglitazone, rosiglitazone: also monitor LFTs periodically. *Metformin requires close monitoring of renal function	Every 3-6 months when stable
Antihyperlipidemic Agents (e.g., ezetimibe, fibrates, fish oil, niacin, statins)	Fasting lipid profile, LFTs, CMP *Consider creatine kinase levels	At baseline, and annually, or if signs/ symptoms of liver injury occur
Antipsychotics	Fasting lipid profile, fasting serum glucose or HbA1c	At baseline, 3 months after initiation, then annually
Ciprofloxacin, and other fluoroquinolones (e.g., levofloxacin)	*Blood glucose levels in patients with diabetes *INR in patients taking warfarin	*Check glucose levels daily *INR every 2-3 days
Clopidogrel	CBC or platelet count	Periodically
Clozapine	*Fasting blood glucose, Fasting lipid profile *WBC, absolute neutrophil count (ANC)	*Baseline, 3 months after start of therapy, and then yearly *WBC and ANC at baseline, every 7 days for first 6 months, then every 14 days for next 6 months, then monthly
Darbepoetin alfa, epoetin alfa	*CBC *Iron	*Hemoglobin at baseline, twice a week for 2-6 weeks after start, then once a month * Iron at baseline
Digoxin	BUN and serum creatinine levels, trough serum digoxin level	Every 6 - 12 months
Diuretics (e.g., furosemide, hydrochlorothiazide, spironolactone)	Serum sodium and potassium levels	Every 3 months
Lithium	*Electrolytes, renal function, thyroid function *Serum lithium level *CBC	*Baseline and then every 6-12 months *Serum lithium level 2 times/week until stable, then every 3 months, and if symptomatic *CBC at baseline, and if symptomatic
Methotrexate	CBC, renal function, LFT	All at baseline; CBC monthly, renal function every 2 months, LFT every 3 months
NSAIDS	CBC and serum creatinine	Every 6 months
Phenytoin	Trough serum drug levels, albumin level	Every 3 months, if stable
Thyroid Medications (e.g., levothyroxine, triiodothyronine, propylthiouracil)	TSH	Every 6 months, if stable
Warfarin	INR	Depends on resident condition and previous lab values. (Minimum of monthly)
Valproic acid	*LFT *CBC *Ammonia level *Serum drug level	*LFT at baseline, then every 6 months *CBC at baseline, then every 3-6 months; special attention to platelet levels *Ammonia levels-periodically unless change in condition or signs/symptoms of depression/ confusion *Serum drug level - Every 6 months for behavior indication - Every 3 months for seizure indication

Nurse of the Month

HANNAH-LOUISE THOMPSON, LPN
Roland Park Place, Baltimore, MD

CONGRATULATIONS to Hannah-Louise Thompson, LPN, at Roland Park Place in Baltimore, MD, for being chosen as the Remedi "Nurse of the Month." Hannah was nominated by Tanya C. Allen, RN, BS, C-LTCDON, Director of Health Services. "Hannah has been a nurse for nine years and for the past seven, she has been the Charge Nurse for the health care center at Roland Park Place. She is a member of the facility customer service project and the infection control committee and works to ensure the facility's compliance with state and federal regulations. Hannah possesses excellent clinical skills and uses good clinical judgment when providing care to her residents. The families all love her and are appreciative of the care she provides to their loved ones. As a great employee and team player, she helped train the other nurses during our eMAR conversion and often helps them with troubleshooting eMAR issues. Hannah also assists the other nurses on the floor as well as the Geriatric Nursing Assistants (GNAs) without being asked; she sees a need and she responds. She did an exceptional job with covering a three week vacation for the Clinical Coordinator and assisting with responsibilities, such as leading care plan meetings, fall investigations, infections control rounds, facility-wide wound-rounds, and assisting with day to day routines. Hannah normally works four days a week but expanded to five days while acting as Clinical Coordinator. She has two children and recently became engaged to be married. I really appreciate her commitment and dedication to this assignment, and I am very thankful for the support of her family. Hannah is a pleasure to work with and she is a wonderful asset to the Roland Park Place team. She truly deserves of this award; for this nurse ROCKS!!!"

Email your Nurse of the Month nomination(s) by the 30th of the month to Rebecca.Ogden@RemediRx.com. Nurses Rock!!

Survey Solutions

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how medications are monitored. Some examples of resources that provide recommendations for medication monitoring:

- The American College of Chest Physicians' guidelines on antithrombotic therapy
- The Society for Post-Acute and Long-term Care Medicine's (formerly AMDA) guidelines on heart failure
- The American Geriatrics Society's guidelines on the management of diabetes mellitus in older adults .

Regarding the Clozaril question on page 1, a facility that sought clarification through the Clozaril National Registry would be demonstrating a sound and evidence based approach to care and ultimately compliance with F329.

RISK/BENEFIT

As with most interventions, a thoughtful risk/benefit analysis should be conducted when considering approaches to monitor medications. For example, does disrupting a resident's sleep at 2 a.m. to obtain a blood pressure provide any real value to the management of his hypertension? How about the practice of monitoring a resident's blood glucose by QID finger sticks to achieve tight diabetic control? Long-term care facilities should strive to maximize the benefit to the resident while minimizing risks when monitoring medications.

RESIDENT CENTERED CARE

The approaches implemented by staff to monitor medications should be consistent with the resident's overall goals of care. An elderly resident, who is terminally ill and has prioritized comfort as her primary goal of care, will likely require a different approach to medication monitoring than a younger resident, who is in the facility for short-term rehab. A facility's efforts to involve residents and/or their surrogate decision-makers in the development of a process to monitor their medications can strongly influence a surveyor's perspective regarding compliance with F329.

Ultimately, facilities that provide care consistent with the above principles increase the likelihood of better resident outcomes and better survey results.

COMING NEXT MONTH

Why more is not always better when it comes to the monitoring of medications.

Note: Bill was a surveyor with the Maryland State Survey Agency from 1988 until 2001. He became Chief Nurse of the agency in 2001 and remained in that position until joining Remedi SeniorCare in 2013.