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Inside

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ED nurses: New heart failure guidelines give exciting options for treatment

You'll be using new drugs and diagnostic tests

A 74-year-old female patient arrives at your emergency department (ED) complaining of fatigue and shortness of breath, with a history of myocardial infarction, hypertension, atrial fibrillation, and congestive heart failure. Her medication list includes warfarin, lanoxin, metoprolol, and enalapril.

You place the patient on oxygen, attach her to a cardiac monitor, and perform pulse oximetry. The physician orders a chest X-ray, a 12-lead electrocardiogram, cardiac and metabolic lab panels, and a serum brain natriuretic peptide (BNP).

The above scenario illustrates two important new approaches given in updated guidelines for the evaluation and management of chronic heart failure, published jointly by the Bethesda, MD-based American College of Cardiology and the Dallas-based American Heart Association. They are the use of beta-blockers for heart failure and the use of BNP, a relatively new diagnostic test.

"The guidelines address a number of issues that will affect the practice of emergency nursing," according to **Pat Manion**, RN, MS, CCRN, CEN, trauma coordinator at Genesys Regional Medical Center in Grand Blanc, MI. "These include patient assessment, pharmacologic management, and discharge instructions." **(See Orders for Patients with Heart Failure, inserted in this issue.)**

EXECUTIVE SUMMARY

New heart failure guidelines recommend use of angiotensin-converting enzyme inhibitors, beta-blockers, serum brain natriuretic peptide testing (BNP), and impedance cardiography.

- BNP levels can distinguish heart failure from other conditions with similar symptoms.
- Nesiritide is a new drug that can have a dramatic effect on a heart failure patient's symptoms.
- Antiarrhythmics and calcium channel blockers are contraindicated.

Here are current approaches for heart failure addressed in the guidelines:

• Increased use of angiotensin-converting enzyme (ACE) inhibitors and beta-blockers.

For years, beta-blockers were contraindicated in patients with heart failure, Manion notes.

"The rationale was that because beta-blockers have a negative inotropic effect on the heart, the resulting decrease in the force of contractions would further decrease the cardiac output and make the heart failure worse," she says.

However, the body's response to the decreased cardiac output or heart failure is tachycardia, vasoconstriction, and activation of the renin-angiotensin-aldosterone system, Manion explains.

While beneficial in the short term, these compensatory measures can lead to ventricular hypertrophy, arrhythmias, fluid retention, and cellular death, she explains. "Beta-blockers can lessen the symptoms of heart failure, improve the patient's sense of well-being, and decrease the risk of rehospitalization and death," she says.

ACE inhibitors and beta-blockers seem to run contrary to what initial treatment should be for a typical heart failure patient, who is short of breath and hypotensive and has fluid retention, says **Darlene Matsuoka**, RN, BSN, CEN, CCRN, ED clinical nurse educator at Harborview Medical Center in Seattle.

ACE inhibitors are antihypertensive agents, and beta-blockers decrease heart rate and stroke volume, she explains. By using the ACE inhibitors, cardiac work is lessened by decreasing the systemic vascular resistance to pump against; the beta-blockers fight the sympathetic nervous system response, says Matsuoka.

"The challenge is to balance the medications given," she says.

• Use of BNP as a diagnostic test.

Brain natriuretic peptide is a biologic marker secreted by the heart in response to acute heart failure, says Manion. This lab test can be used in differentiating the dyspnea due to heart failure, from dyspnea caused by other conditions, she says.

"BNP testing is going to be used much more frequently, so ED nurses really need to know about this," stresses **Sonja D. Brune**, RN, MSN, CCRN, CEN, CCNS, cardiovascular clinical nurse specialist at the Central Cardiovascular Institute of San Antonio.

Once you understand what the numbers mean, you can differentiate heart failure from other conditions that can mimic it, such as chronic obstructive pulmonary disease, pneumonia, and edema from other causes, she explains.

The test also helps in the patient's prognosis, because if the BNP level is extremely high, that level correlates with a higher mortality rate, Brune notes. "Likewise, the BNP levels correlate well with the severity of disease — the higher the level, the more severe the disease," she says.

• Use of the term "heart failure."

Heart failure is a syndrome that affects the heart's ability to fill with or to eject blood, with the primary symptoms of dyspnea, fatigue, and fluid retention, says Manion. "However, a patient may not have all three symptoms at the same time," she notes.

The patient may have pulmonary congestion and edema with little dyspnea and fatigue, or dyspnea and fatigue with little evidence of fluid retention, she says.

Manion points to the guidelines, which state that "both abnormalities can impair the functional capacity and quality of life of affected individuals, but they do not necessarily dominate the clinical picture at the same time."

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Editorial Questions

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THOMSON
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Do you know the 4 'pillars' of heart failure management?

The four "pharmacologic pillars" of heart failure management are diuretics, beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, and lanoxin, according to **Pat Manion**, RN, MS, CCRN, CEN, trauma coordinator at Genesys Regional Medical Center in Grand Blanc, MI. Here, she explains the role of each:

1. Diuretics interfere with the sodium and water retention that can lead to fluid overload in this patient.

2. Beta-blockers mitigate the effects of the sympathetic nervous system on the heart, controlling heart rate, decreasing the occurrence of arrhythmias, and controlling hypertension.

3. ACE inhibitors control hypertension and modify myocardial remodeling.

4. Lanoxin reduces the sympathetic output of the central nervous system and reduces renal tubular re-absorption of sodium. ■

What to tell patients to prevent heart failure

New guidelines for the evaluation and management of chronic heart failure from the American College of Cardiology and the American Heart Association reflect a new emphasis on prevention, says **Pat Manion**, RN, MS, CCRN, CEN, trauma coordinator at Genesys Regional Medical Center in Grand Blanc, MI.

She says you should include the following points in your discharge teaching:

• Emphasize the importance of patients weighing themselves at the same time every day. "A weight gain of 3-5 pounds in one week should trigger a phone call to their doctor," says Manion.

• Explain that postural hypotension related to the angiotensin-converting enzyme (ACE) inhibitors and beta-blockers may occur. Inform patients about the possibility of weakness or dizziness when moving from a lying to a sitting, or a sitting to a standing position, Manion says.

"Instruct them to change positions slowly, and sit for a few moments before standing when getting out of bed," she says.

• Instruct patients to follow a moderate sodium restriction (2 g-3 g), and read labels to determine sodium content.

• Encourage yearly immunization with pneumococcal and flu shots.

• Encourage patients to discuss an exercise program with their physicians.

"A consistent, structured exercise program can improve exercise tolerance," says Manion.

Warn patients not to take a nonsteroidal anti-inflammatory agent, as these drugs can worsen sodium retention and vasoconstriction and can hinder the efficacy and enhance the toxicity of diuretics and ACE inhibitors. ■

For this reason, Manion says the term "heart failure" is more accurate than "congestive heart failure."

• Emphasis on drugs to avoid.

In addition to nonsteroidal anti-inflammatory agents, the heart failure patient should avoid the following, says Manion:

— ***Antiarrhythmics.*** These can depress myocardial contractility and possibly cause arrhythmias, she explains.

"Amiodarone is the only antiarrhythmic that does not adversely affect survival," she adds.

— *Calcium channel blockers.* These drugs can worsen myocardial functioning, Manion says.

• The use of nesiritide.

The use of this drug in the ED will increase dramatically, Brune predicts. "We use it without hesitation," she reports. "At first, a lot of people were nervous because it is a completely new drug, and there is a concern about hypotension." **(For more information on nesiritide, see "New drug should revolutionize CHF treatment," *ED Nursing,* May 2002, p. 88.)**

However, the drug can have dramatic effect on a heart failure patient's symptoms, she notes. Brune's facility uses the standard dosing, which is a 2-mcg/kg bolus over one minute, followed by a 0.01-mcg/kg/min infusion for approximately 48 hours.

"You get an immediate drop in the pulmonary wedge pressure within 15 minutes," she says. "The symptomatic relief occurs far quicker than the diuresis because the patient starts vasodilating."

You can use the drug for patients with renal deficiency and in the presence of arrhythmias, Brune adds. "It is not going to make either one worse," she says.

If an acute myocardial infarction patient also is in heart failure, that patient will not be able to lie down because he or she is short of breath, and the drug can help in this scenario, she says.

"As long as they've got a blood pressure that will support the use of nesiritide, they can lay down long enough for you to do the cath," says Brune.

• The use of impedance cardiography.

This diagnostic test evaluates the patient's cardiac output and the systemic vascular resistance, and it

SOURCES/RESOURCES

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The *Guidelines for the Evaluation and Management of Chronic Heart Failure in the Adult* are available on the American College of Cardiology web site (www.acc.org) Click on "Clinical Statements/Guidelines," "Practice Guidelines: Evaluation and Management of Heart Failure." Single copies of the guidelines (Publication number 71-0216), which were published in the December 2001 issue of the *Journal of the American College of Cardiology* and the Dec. 11, 2001, issue of *Circulation*, are available for $5 each. To order, contact:

- **American College of Cardiology**, Educational Services, 9111 Old Georgetown Road, Bethesda, MD 20814-1699. Telephone: (800) 253-4636 or (301) 897-5400. E-mail: resource@acc.org.

helps you determine whether the patient's low output state is related to hypovolemia or significant increased afterload, says Brune.

The patient can have a low cardiac output for several different reasons in the presence of heart failure: They could be dehydrated and volume depleted, they could be very clamped down, or a combination of the two, she explains.

You won't necessarily see the high systemic vascular resistance on the physical exam, but it will show up on the impedance cardiography, she notes.

The thoracic fluid content can help assess for volume overload, but she cautions that a single level is not conclusive and that you must look for trends. "I think one of the biggest mistakes clinicians have made is putting too much credence on that," she says. ■

Here's the latest on the smallpox vaccine

Make plans, hold meetings, educate staff

If you've been worrying about staff quarantines and whether smallpox vaccination will be mandatory, you can breathe a sign of relief. Neither would be required, based on new recommendations for smallpox vaccine from the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices.

The updated guidelines have jump-started the planning process in many EDs.

"We are struggling with many of these issues, both citywide and specific to the hospital," reports **Ann Stangby**, RN, CEM, emergency response planner at San Francisco General Hospital and member of the city's bioterrorism working group.

Making concrete plans to vaccinate ED staff is a daunting task, Stangby says. "It is a very complex issue to try to operationalize," she says. "The guidelines may be there, but making it work is a much more difficult issue to tackle."

Susan Smith, RN, base hospital nurse coordinator at Sharp Memorial Hospital in San Diego, says that her main goal is to learn more about the realities of the smallpox threat.

"We need to ensure we can respond effectively if our services are needed treating this dreadful disease," she says. "But first, we have to get a better sense of what we're up against."

Here are the panel's key recommendations:

• Special quarantines would not be required.

The fact that quarantines would not be required was a major relief for ED nurses, who already are grappling with the nursing shortage and feared that mandatory quarantines would effectively bring operations to a halt.

"Furloughs would not have been acceptable," says **Kathy Hendershot**, RN, MSN, CS, director of clinical operations for the ED at Methodist Hospital in Indianapolis. "It would be very difficult to stagger work schedules, but we would space the vaccinations,"

• Fifteen or more ED staff members per hospital would receive the vaccine.

The panel recommends that each hospital identify a group of health care workers to be vaccinated and trained in managing patients who present to the ED

EXECUTIVE SUMMARY

New recommendations for smallpox vaccine of health care workers address key concerns, and you'll need to actively prepare for this scenario.

- Quarantines and time off would not be required for vaccinated staff.
- The program would be voluntary.
- Bandages would be used to prevent vaccinated staff from exposing immunocompromised individuals.

with suspected smallpox.

These Smallpox Health Care teams would include ED staff, intensive care unit staff, general medical unit staff, medical house staff, infectious disease specialists, and respiratory therapists. The panel estimates that the team would consist of 40-45 or more individuals, with 15 or more ED nurses and physicians.

However, Hendershot's goal is to have all ED staff vaccinated if possible. "I would need about 75% or better of our staff vaccinated to make this thing work and still run an ED," she says.

Fifteen vaccinated staff members would not be nearly enough for her ED, Hendershot says. "That's not enough people to cover a six-hour shift here," she says.

• Immunocompromised patients will be protected from vaccinated staff with the use of bandages.

Stangby is not convinced this strategy will be effective. "Typically, dressings do fall off and have to be changed," she says.

She is concerned about liability and risk management issues for this scenario, she says. "What happens if my site causes vaccinia in someone else?" she asks. "I am also concerned about persons who are vaccinated who then develop side effects. Is this covered under workmen's comp?"

• The vaccine program would be voluntary.

Staff who should not receive the vaccine must be clearly identified, Stangby says. "Again, if a health care worker volunteers to get the vaccine, then becomes ill, will the hospital cover their time off?" she asks.

You also must identify individuals who will be giving the vaccine if there is a need for mass immunization, she notes. "This will take a large number of staff," she says.

Here is what some ED nurses are doing to prepare:

— Working with agencies in the community.

Hendershot's ED is working closely with local agencies, including the state and county departments of health, state and city emergency medical services coordinators, several area hospitals, and Indiana Poison Control to plan for the vaccination, with input from the hospital's infectious disease physicians and physician leaders from the local board of health.

— Sharing the new recommendations with staff.

"I have put together a special team of nurses and medics who are working on this project," reports Hendershot. "We have been anxious to get these recommendations from the CDC, and we will be communicating them to our staff."

Smallpox is "the hot topic" in the ED and at county disaster preparedness meetings, Smith reports. However, until she has more information regarding vaccination plans from the federal government, she says her facility's primary focus is educating the ED staff on the signs and symptoms of smallpox infection.

"Increasing awareness is key to early detection and subsequent isolation, and isolation is the best way to stop the spread of this disease and prevent an epidemic," she says.

— Explaining the risks of the vaccine.

A survey is being conducted with ED staff that asks if they would receive the vaccine should it become

SOURCES/RESOURCE

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The updated recommendations from the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices can be accessed at the CDC's Public Health Emergency Preparedness & Response web site (www.bt.cdc.gov). Click on "Smallpox" and "Oct. 2002 ACIP Vaccination Recommendations."

available, Smith reports. The potential complications are being discussed with each staff member. (For more information on potential complications of the vaccine, go to www.bt.cdc.gov and click on "New Smallpox Vaccination & Adverse Events Training Module," which is free.)

The hospital's infectious disease physicians will explain the risks of vaccination at staff meetings and will include information on how to minimize exposure after vaccination, such as providing a barrier guard of the vaccine site until scab formation, changing dressings, and hand washing between all patients, Hendershot says.

"I do not think I will have problems with people not wanting the vaccine," she says. ■

GUEST COLUMN

7 ways to improve care of psychiatric patients

By **Ilze Sturis**, MS, RN, CS
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Ideally, caring for a patient with a presenting problem that is psychiatric in nature can be a positive, rewarding experience. However, problems with a patient who has a psychiatric condition can become multifaceted.

The origin of some of these problems may be a result of a patient being brought against his or her will to the emergency department (ED). A patient with a prior history of schizophrenia could be acutely agitated and psychotic. The patient could arrive via ambulance or the police department. An employer or a concerned family member may have brought a depressed, suicidal patient to the ED. The patient who is actively psychotic could be misperceiving the environment and behaving in a threatening manner out of fear.

Here are ways to improve care of psychiatric patients in the ED:

1. Don't overlook the quiet patients.

Quiet, withdrawn patients suffering from depression and suicidal ideation can be overlooked easily. These patients may appear to be adhering to the initial requests for vital signs and not in need of any emergent intervention.

Their self-esteem may be so low that they don't believe that they should be "bothered with"' and that "others need your help more than I do."

Obviously, this type of patient can be as high risk as the one who is actively verbalizing threats toward self and others.

2. Ask why the patient has come to the ED now.

The role of the triage nurse is paramount in the psychiatric patient. It is important to remember that coming to the ED is an unusual event. Attempt to discern from the patient, "Why now?"[1]

Asking the patients whether they are suicidal is another important triage question.[2] Many patients will feel a sense of relief to be able to share this information with a professional. This information also is important to share with the physician if the same patients state that they would like to leave before their evaluations are complete.

If patients state they are suicidal with a plan, ask whether they have the means to act on their suicidal ideation. For example, if a patient states he or she would like to overdose, ask whether he or she has the pills with them.

Depending on your hospital policy, you may need to have security present if you have to search the patient's belongings for any dangerous items.

As there are many potentially dangerous objects in the ED itself, including scissors, needles, and oxygen tanks, the patient may be to be placed in a "safe" room that contains minimal potential items that could be used as weapons. This patient would require ongoing monitoring and observation.

3. Use medications appropriately.

Ideally, the patient would be willing to take an oral medication for acute agitation. This should be offered to the patient prior to involuntary medication if possible.

There are several new medications available for the treatment of the acutely agitated, psychotic patient. These include a rapidly dissolving tablet form of olanzepine, risperidone (available in a pill or liquid form), and ziprasidone (available both in pill and injectable form.)

Refer to the *Physician's Desk Reference* (Thomson Healthcare, Montvale, NJ) or package inserts for use and potential contraindications of these newer medications.

At times, the administration of involuntary medication may be administered more safely after a patient has been placed in restraints. **(See related story on restraint use, p. 23.)**

At this time, use guidelines from the Joint Commission on Accreditation of Healthcare Organizations for

proper monitoring and observation of the patient.

4. Rule out underlying medical causes.

A proper medical evaluation beginning with vital signs and baseline laboratory studies also can be safely commenced in patients that are agitated and out-of-control, once they are restrained. An underlying medical cause for the patient's psychiatric presentation needs to be ruled out to determine the proper intervention.

5. Enlist family members' help.

Family members are critical in the evaluation and care of the psychiatric patient. They may possess invaluable information regarding the patient's medical and psychiatric history. Family members also may be able to identify potential life stressors precipitating the ED visit.

6. Reduce liability risks.

It is important to know state laws and mental health codes as they pertain to involuntarily detainment and hospitalization of patients. In many hospitals, risk managers are available 24 hours a day and can be called upon in this type of emergent situation. This department also may be available to do ongoing inservices as needed.

7. Make the patient comfortable.

In an effort to de-escalate a potentially volatile situation, remember that basic comfort measures can go a long way to develop rapport. Offering the patient coffee, ice water, or a meal tray can work effectively with some less agitated patients. Keeping patients and family updated on estimated wait times also is helpful.

Building a therapeutic alliance with the patient and family can be the best intervention for all involved and lead to the best outcomes.

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Here are ways to make restraint use safer

If you are considering restraining a patient, you always should have a key priority in mind: that individual's right to quality care, stresses **Fidela S.J. Blank**, RN, MN, MBA, research coordinator for the emergency department (ED) at Baystate Medical Center in Springfield, MA.

"When dealing with out-of-control patients, you should do everything possible to preserve their dignity as human beings," she emphasizes.

EXECUTIVE SUMMARY

When a patient needs to be restrained, individual needs must be considered.

- Isolation may increase or decrease agitation, so observe a patient to determine whether isolation is a better option.
- Distract agitated patients by engaging them in conversation.
- Add classic films to your department's video collection to distract agitated adult patients.

Education is critical

Here are ways to promote safer use of restraints:

• Give staff extensive education.

Members of the ED staff at Blank's facility receive ongoing education on the criteria for the use of seclusion and restraints. "This contributed tremendously to improving care of secluded and restrained patients," she says.

The ED's seclusion and restraint policies and procedures are included in the annual skills update, adds Blank, and direct-care staff also take a nonviolence crisis intervention class.

• Use a rehearsed team approach.

Blank says that the following occurs when a patient needs to be restrained: There are always at least four team members involved, each team member is assigned an extremity to restrain, and a single team leader makes all the decisions and speaks to the patient.

"Nobody else on the team is allowed to talk to the patient," she says. "This way, the patient is not overwhelmed by a lot of people talking at the same time."

The team leader calmly talks to the patient and explains why the restraint is necessary, Blank says. "When the caregivers are calm and confident in their role, there is a de-escalating effect on the patient."

• Consider placing agitated patients in a quiet area.

Place an agitated patient in a quiet room before he or she gets out of control, with a staff member observing closely, Blank advises.

"We are lucky to have the luxury of three psychiatric rooms in the ED," she says.

This is not considered seclusion by the definition of the Joint Commission on Accreditation of Healthcare Organizations because the patient voluntarily agrees to be placed in a separate room, Blank explains.

"Most of the time, this is all the patient needs," she says. "Often, this alone prevents the need for further intervention."

Exposure to noise and people will worsen the agitation of some patients, says **Kathleen Emde**, RN, MN, CCRN, CEN, trauma service coordinator at Overlake Hospital Medical Center in Bellevue, WA. However, Emde cautions that others become more agitated in isolation.

For this reason, assessing the specific patient's needs is key, she says. "If the patient will be most comfortable in isolation, then use that strategy," she says. "If they will benefit from being in the ED and are not being disruptive to other patients and families, then perhaps a different setting with an assigned caregiver will be more beneficial."

Assess and examine alternatives

• Use appropriate alternatives when possible.

The alternatives to restraint will vary, depending on your assessment of the patient's behavior, Emde says. **(For more information on this topic, see "Try these alternatives to using restraints," *ED Nursing*, December 2000, p. 23.)**

While some patients may benefit from close observation, interaction, and distraction techniques, patients who are an immediate threat to themselves or others will require immobilization with restraints, she adds. Here are two alternatives to consider:

— Assigning a sitter to observe the patient closely, with intervention if there is increased agitation.

"Anxious or agitated patients may not require restraints, if there is a person available to observe and interact with them," says Emde.

For example, an elderly patient with Alzheimer's disease, who might be impulsive and disoriented, may be restrained to ensure that the patient does not wander or fall while in the ED, says Emde. She suggests that assigning a staff member to interact with the patient using conversation and distraction techniques is a better option.

Although Emde acknowledges that some patients are too agitated or confused to be able to interact meaningfully, she says this can work wonders at times.

"I ask them about their lives, such as, 'Where did you grow up?' This leads to a discussion of youth," she says. "This is helpful in the case of elders who may have short-term memory loss, but relatively intact long-term memory."

Discuss hobbies to catch their attention, Emde suggests. "If they are or were avid fishermen, you can talk about that," she says. "People seem to like to talk about their children or grandchildren, such as what they are studying in school."

— Using distractions.

Have materials available to distract patients, such as videos, music, and toys, Emde says. "We have toy boxes intended for our pediatric patients, but they contain toys that are intriguing to people of all ages," she says. These include plastic Slinkies, tubes with gel inside, and colorful balls with rubber spikes. "We just give the patient a few, and see what they like," says Emde.

Most EDs have an assortment of child-friendly movies, but add some classic films that appeal to an older generation, Emde suggests. "Of course, you'll want to avoid violent or upsetting content, but there are plenty to choose from," she says. ■

SOURCES

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Don't miss clues in vital signs of elderly patients

When a 75-year-old woman came to an emergency department (ED) complaining of severe headache, her blood pressure was taken with the wrong size cuff.

"She measured a much higher blood pressure than actual and was treated for a hypertensive emergency with vasodilators," says **Karen Hayes**, PhD, ARNP, professor at the school of nursing at Wichita (KS) State University. "This lowered the blood pressure quickly and only exacerbated her headache, which was benign."

In addition, the woman spent the night in the hospital

EXECUTIVE SUMMARY

When measuring vital signs in elderly patients, there are important differences to consider.
- Multiple blood pressure checks are needed to confirm hypertension, and blood pressure should be checked with the patient sitting and standing.
- Elders with fever should have auditory canal or rectal temps taken.
- Check orthostatics when the patient is in a room and can lie down for several minutes before standing.

as she was too weak to go home until her blood pressure returned to normal, says Hayes.

The above example shows the importance of accurately measuring vital signs in older patients, says Hayes. Here are some items to consider:

• Blood pressure checks.

Elderly patients can benefit from antihypertensive drug therapy, so it's especially important that your reading be accurate, Hayes says. Systolic hypertension is especially prevalent and dangerous in the elderly and should be treated even if the diastolic is below 90 mm Hg, she says.

"Multiple blood pressures are necessary before confirming hypertension in the elderly, whose blood pressure is often labile," says Hayes. She cautions that the following can make readings inaccurate:

— The patient's position.

You should monitor blood pressure both standing and seated, to avoid inaccurate readings due to postural hypotension, Hayes says.

— The size of the blood pressure cuff.

These factors can greatly affect the accuracy of blood pressure readings, says Hayes. She explains that if the cuff is too small or too large, the measurements will be inaccurate.

"As a general rule, the inflatable part of the cuff needs to be at least as long as the widest measurement around the upper arm," she says.

— **Movement by the patient.**

Be sure the patient does not move or talk while you are measuring the blood pressure, Hayes advises.

"Be aware that the blood pressure readings may be 10-to 20-mm Hg different between the right arm and your left arm," she says. However, if the difference is more than 20 mm, it should be reported, she says.

— The time of day.

Blood pressure readings vary throughout the day, notes Hayes. "They usually are highest in the morning, decrease throughout the day, and are lowest in the evening," she points out.

• Pulse.

The patient's pulse should be taken for a full minute to assess for irregularity and changes in rate, Hayes says. "Auscultating the heart may be difficult in some elders," she says. "Having the patient lean forward helps to hear heart tones."

She also recommends assessing the pulse in both wrists to assess circulation.

• Temperature.

Oral and axillary temperature readings are acceptable

Here are 12 tips to help prevent falls

Here are interventions and educational strategies for patients who suffer from orthostatic intolerance, such as the elderly or patients on medications that promote orthostasis, suggested by **Nina M. Fielden**, MSN, RN, CEN, an ED clinical nurse specialist at The Cleveland Clinic Foundation:

• Have your patient change position gradually from supine to dangling to standing, then walking in place before walking away from the bed.

• Talk to your patients about how they are feeling to detect signs of dizziness. Lie them back down upon signs of insufficient cerebral perfusion.

• Help patients perform leg exercises in bed before sitting up and while sitting on the edge of the bed.

• Elevate the head of the bed 30-45 degrees.

• Encourage your patient to take slow deep breaths and to avoid bearing down, preventing a potential vagal response. Consider laxatives or stool softeners to avoid constipation.

• Keep room temperatures cool.

• Tell patients to consider wearing knee-length elastic stockings.

• Avoid showering, bathing, shaving, or any major task for at least 30 minutes after arising, and avoid hot showers and baths.

• Encourage your patient to drink at least six to eight glasses of water to prevent dehydration and to eat more small meals a day rather than large ones.

• Instruct patients to avoid bending over at the waist to pick up items from the floor or to reach something on a low shelf. Instead, encourage them to bend with the knees and keep the head above the level of the heart.

• Tell patients to consider a bedside commode or urinal if they get up during the night to use the bathroom.

• Instruct your patients on the orthostasis side effects of their medications and alcohol. ■

SOURCES

For more information about assessment of vital signs in elderly patients, contact:

- **Nina M. Fielden**, MSN, RN, CEN, Clinical Nurse Specialist, Emergency Department, Cleveland Clinic Foundation, 9500 Euclid Ave., E19, Cleveland, OH 44195. Telephone: (216) 444-0153. Fax: (216) 444-9734. E-mail: fielden @ccf.org.
- **Karen Hayes**, PhD, ARNP, School of Nursing, Wichita State University, 1845 Fairmount, Wichita, KS 67260.Telephone: (316) 978-5721. E-mail: Karen.Hayes@wichita.edu.

for assessment in patients with normal or low-grade fever, she says.

However, elders with high fever should have auditory canal or rectal temperatures taken, because oral and axillary readings may lag 45 minutes behind.

"For auditory temperatures, be sure the probe is facing the eardrum for accuracy," she says.

• Orthostatics.

Orthostatic hypotension is a common problem in the elderly, who may present with dizziness and syncope, and who fall upon changing position, says **Nina M. Fielden**, MSN, RN, CEN, an ED clinical nurse specialist at The Cleveland Clinic Foundation.

However, ED nurses sometimes forget to do orthostatics on certain patients, such as elderly patients who have a fever, Fielden says. "Many of our elderly suffer from urinary tract infections that they don't know they have, and this can cause confusion as well as dehydration," she says. **(See list of ways to educate patients who suffer from orthostatic intolerance on p. 25.)**

You may be doing the measurement wrong, she cautions. "It is not necessary to go from lying to sitting to standing. It is more effective to go from lying to standing," she says.

As result, Fielden says, this may be difficult to do at triage, and instead, it should be done when the patient is in a room and can lie down for several minutes before standing.

If the patient cannot stand, then dangling at the bedside is an acceptable alternative, Fielden says.

Also, most times, the orthostatic measurement is recorded the minute the patient stands up, Fielden says. "This is not as accurate, as many of us normally have a transient drop in blood pressure when standing," she says.

The true measurement comes if the patient is truly orthostatic after standing for one minute, when the body has a chance to adjust, she explains. The patient must be lying down for several minutes, then standing up for one full minute before the measurement is taken, she says.

The way to accurately measure postural vital signs is to measure supine blood pressure, systolic and diastolic, and pulse rate after the patient has lain flat for two to five minutes, Fielden says.

"If the patient cannot lay completely supine, assist the patient to lie as flat as is comfortable," she says. The patient then should be helped to a standing position or sitting with legs dangling, if unable to stand, with the measurement of postural vital signs after one complete minute, Fielden says.

"It is recommended that the pulse be counted for 30 seconds and doubled, rather than for 15 seconds," notes Fielden.

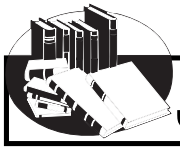
She says the following are positive orthostatic signs:

— a drop of more than 20 to 25 mm Hg in systolic measurement;

— a drop of more than 10 mm Hg of diastolic measurement;

— an increase in pulse rate of over 20 beats.

"If the patient is on a cardiac monitor, note the regularity or irregularity of the heart rate, and the rhythm," says Fielden. ■



JOURNAL REVIEWS

Travers DA, Waller AE, Bowling JM, et al. **Five-level triage system more effective than three-level in tertiary emergency department.** *J Emerg Nurs* 2002; 28:395-400.

According to this study from the University of North Carolina in Chapel Hill, a new five-level ESI

COMING IN FUTURE MONTHS

- ■ Effective strategies for conscious sedation
- ■ Tips to assess pediatric poisonings
- ■ Reduce risks of giving telephone advice
- ■ How to treat complications of sickle cell disease

(Emergency Severity Index) triage system is safer and more reliable than the three-level triage system.

Using a random sample of 360 patients, and excluding records with missing or incomplete triage records, the researchers measured the reliability of three-level (3L) triage ratings. The five-level (5L) triage system then was implemented, and the reliability was measured and compared with the three-level group. The study found that under-triage rates were 28% for the 3L system and 12% for the 5L system. Also, less experienced nurses (defined as having fewer than six years of experience) were more likely to under-triage using the 3L system than the 5L system.

"In this study, the 5L [ESI] system was better than the 3L," the researchers report. "The 5L ESI was more reliable, valid, and stable across nurses than the 3L. The 5L system was also safer with regard to under- and over-triage." **(For more information on this topic, see "Should you use a 5-level triage scale?" *ED Nursing,* May 2001, p. 95.)** ▼

Keahey L, Bulloch B, Becker AB. **Initial oxygen saturation as a predictor of admission in children presenting to the emergency department with acute asthma.** *Ann Emerg Med* 2002; 40:300-307.

Initial oxygen saturation (SaO_2) alone isn't enough to predict whether children presenting to the ED with acute asthma will be admitted, says this multicenter study conducted at Winnepeg Children's Hospital in Manitoba, Canada, Maricopa Medical Center in Phoenix, and Massachusetts General Hospital and Brigham and Women's Hospital, both in Boston.

If initial SaO_2 levels accurately predict the need for

CE objectives

After reading this issue of *ED Nursing*, the CE participant should be able to:

1. Identify clinical, regulatory, or social issues relating to ED nursing. (See *ED nurses: New heart failure guidelines give exciting options for treatment; Here are ways to make restraint use safer; Don't miss clues in vital signs of elderly patients; Journal Reviews* in this issue.)
2. Describe how those issues affect nursing service delivery.
3. Cite practical solutions to problems and integrate information into the ED nurse's daily practices, according to advice from nationally recognized experts. ■

CE*questions*

[To receive CE contact hours for this semester, please answer the questions in the July-December 2002 issues, check your answers against the ones provided at the end of each issue, fill out the enclosed CE survey, and return it in the enclosed envelope. For more information, contact customer service at (800) 688-2421 or customerservice@ahcpub.com.]

21. Which of the following is recommended for management of heart failure, according to new guidelines from the American College of Cardiology and American Heart Association?
A. Avoiding use of beta-blockers
B. Use of angiotensin-converting enzyme inhibitors instead of beta-blockers
C. Increased use of brain natriuretic peptide testing
D. Use of calcium channel blockers

22. Which of the following is recommended for restraint use, according to Kathleen Emde, RN, MN, CCRN, CEN, trauma service coordinator at Overlake Hospital Medical Center?
A. Using protocols for all agitated patients to be placed in isolation
B. When restraint is necessary, having each team member address the patient individually
C. Engaging agitated patients in conversation
D. Having agitated patients remain in the main ED waiting room for close observation

23. Which of the following is recommended for measuring vital signs in elderly patients, according to Nina M. Fielden, MSN, RN, CEN, an ED clinical nurse specialist at The Cleveland Clinic Foundation?
A. Take oral temperatures for elders with high-grade fever
B. Assess the pulse in one wrist only
C. Assess orthostatics at triage
D. Assess orthostatics after the patient has lied down for a few minutes before standing

24. Which of the following is true regarding triage scales, according to a study published in *Journal of Emergency Nursing*?
A. The three-level triage system is safer for pediatric patients.
B. Less experienced nurses were more likely to undertriage with the three-level system than the five-level system.
C. The five-level triage system is less reliable for trauma patients.
D. Nurses under-triaged more often with the five-level system.

Answers: 21. C; 22. C; 23. D; 24. B.

admission, the time spent in the ED could be decreased, note the researchers, but the study found this was not the case.

The researchers looked at 1,040 children with a documented initial SaO_2, and found of these, that 23% (241) were admitted to the hospital. The study found that admission rates did increase as the SaO_2 levels decreased, but the researchers concluded it was not possible to identify a cutoff value to reliably predict which children will require admission and which will be discharged home.

Although children with extremely low levels are more likely to be admitted, this applies to only a small subset of children presenting to the ED with acute asthma. "Initial SaO_2 does reflect one aspect of an asthma exacerbation, but does not reflect other parameters, such as ventilation-perfusion mismatch or the degree of airway obstruction, nor can it predict the child's response to therapy," the researchers wrote. ■

Smallpox vaccinations imminent for hospitals

The Atlanta-based Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP) recently approved a plan that calls for smallpox immunization of 510,000 health care workers. The plan suggests that all hospitals designate a "smallpox care team" that will be immunized. The committee recommends that the team include at least 40 health care workers per hospital, with some hospitals vaccinating 100 or more, including emergency department nurses.

American Health Consultants offers **Imminent Smallpox Vaccinations in Hospitals: Consequences for You and Your Facility**, a 90-minute audio conference Wednesday, Dec. 11, from 2-3:30 p.m., EST. This session is designed to help you and your staff answer serious questions and prepare your facility for the inevitable. How will being vaccinated affect you? How do you protect yourself, patients, and family? What are the logistics of implementing a smallpox care team? How do you deal with vulnerable populations? How do you minimize side effects?

This panel discussion will be led by **William Schaffner**, MD, chairman of the department of preventive medicine at Vanderbilt University Medical Center in Nashville, TN. An epidemiologist who has seen smallpox cases and oversees a volunteer smallpox vaccine study at Vanderbilt, Schaffner began his career in the CDC's Epidemic Intelligence Service. He also is a liaison member of ACIP.

The second speaker, **Jane Siegel**, MD, is a professor of pediatrics at the University of Texas Southwestern Medical Center in Dallas. As a member of the CDC Healthcare Infection Control Practices Advisory Committee, she is on a bioterrorism working group that reviewed the critical issues regarding smallpox vaccine.

The program's third speaker, **Joseph J. Kilpatrick**, RN, NREMT-P, is an adjunct instructor with the Texas A&M University Texas Engineering Extension Service in College Station, where he develops courses and provides training on weapons of mass destruction and emergency medical services (EMS). Trained as an emergency department and flight nurse, Kilpatrick also has worked as an independent nursing contractor.

The cost of the program is $299, which includes 1.5 hours of free CE, CME, and critical care credits. ACEP Category I credit approval for the conference is pending. You can educate your entire facility for one low fee. The facility fee also includes handout material, additional reading and references, as well as a compact disc recording of the program for continued reference and staff education. To register, call customer service at (800) 688-2421. When ordering, please refer to the effort code: **65341**. ■

ORDERS FOR PATIENTS WITH HEART FAILURE

MD: CHECK BOXES, FILL IN WHERE APPLICABLE OR PLEASE DELETE ORDERS WHICH ARE N/A

ED nurse initial what is done in ED:

- ☑ O_2 at 2L/NC prn $Sa0_2 \leq 90\%$
- ☑ Furosemide 40 mg IV STAT
- ☑ ECG
- ☑ CBC, M7, PT, PTT, Mg++, Early Chest Pain Panel
- ☑ CXR

Admit to : ❒ Telemetry ❒ Acute Care

Allergies:

Team:_____Attending:_____
R3:_____pager#_____INTERN_____pager#_____
Diagnosis: _____
Code Status: _____
Condition:
Routine Care:

- ☑ VS (T, HR, RR, BP, Pulse O_2Sat) and pain scale on admission and q4 while awake x 24°, adv. to unit routine as stable
- ☑ Contact HO for: SBP >_____<_____ DBP >_____<_____
  HR >_____<_____ RR >_____<_____
  T >_____<_____ O2Sat < 90% or acute change in O2Sat
- ☑ Daily Weight
- ☑ Strict I&O
- ☑ For chest pain, obtain STAT 12 lead ECG, administer NTG 0.4 mg SL & call HO
- ☑ Implement Heart Failure Patient Education
- ☑ Activity as tolerated

Diagnostic Tests:

- ☑ M7 in AM
- ☑ CXR in AM
- ☑ ECG in AM
- ☑ Fasting Lipid Panel in AM
- ❒ Digoxin Level in AM
- ❒ Late chest pain panel at 3 hrs after admission
- ❒ Late chest pain panel at 6 hrs after admission
- ❒ Echocardiogram to evaluate Systolic and Diastolic Function
- ❒ Other:_____

Fluids:

- ☑ IV Saline lock (flush Q 8° and PRN)
- ❒ IV fluids:_____

Diet:

- ☑ Healthy Heart Diet
- ☑ Sodium Restricted: *(select one)* ☐ 2gm/24 hrs ☐ 3-4gm/24hrs
- ☑ Nutrition Consult (fax to nutrition services)
- ❒ Free H_2O Restriction: _____cc/24hrs
- ❒ Other:_____

MD Signture _____ Date/Time_____ RN Signture _____ Date/Time_____

PT.NO.

NAME

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HEART FAILURE ORDERS, Page 1

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ORDERS FOR PATIENTS WITH HEART FAILURE page 2

Medications:

- ❒ Aspirin EC 81 mg po qd
- ❒ Aspirin EC 325 mg po qd

Diuretics:

- ❒ Furosemide:_____ mg every_____
  - ❒ PO ❒ IV

or

- ❒ Other:_____

Potassium Replacements (KCL) :

- ❒ PO: _____mEq every_____

Beta Blocker:

- ❒ Metoprolol XL : _____mg PO every_____
- ❒ Metoprolol: _____mg PO every_____
- ❒ Carvedolol: _____ mg PO every_____
- ❒ Other:_____

Hold for SBP < 90 or HR < 60 & call HO

Ace Inhibitor (unless contraindicated):

- ❒ Captopril: _____mg PO every_____
- ❒ Lisinopril: _____mg PO every_____
- ❒ Enalapril: _____mg PO every_____
- ❒ Other:_____

Hold for SBP < 90 & call HO

- ❒ Spironolactone 25 mg PO every day
- ❒ Continue Digoxin: _____mg PO every_____

Nitrates:

- ❒ NTG 0.4 mg SL PRN Chest Pain Q 5minutes X3 and call HO

Other Meds:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

- ☑ Discharge Pharmacy Consult

MD Signture _____ Date/Time_____ RN Signture _____ Date/Time_____

PT.NO.

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HEART FAILURE ORDERS, Page 2

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