



IN THIS ISSUE

- You could miss or ignore signs of abuse in trauma patients . . . cover
- Triage nurses catch more MIs with new 80-lead EKG 112
- Find out when seizures are life-threatening for infants. 113
- Learn which medications harm patients with heart attack symptoms 114
- Get an honest answer about whether your patient uses cocaine 116
- Put a stop to adverse outcomes with transdermal patches 116
- You could easily miss these serious gymnastics injuries . . . 117
- Four easy ways to make sure kids tolerate painful procedures 119

Statement of Financial Disclosure:
 Stacey Kusterbeck (Author), Coles McKagen (Associate Publisher), Joy Daughtery Dickinson (Senior Managing Editor), and Darlene Bradley (Nurse Planner) report no consultant, stockholder, speaker's bureau, research, or other financial relationships with companies related to this field of study.

AUGUST 2008
 VOL. 11, NO. 10

Take these steps if your trauma patient was assaulted or abused

Probe further if injuries are suspicious

(Editor's note: This is a three-part series on trauma care in the ED. This story will focus on violence-related trauma, including suspected abuse. Future issues will cover self-inflicted trauma and pediatric trauma cases.)

If a woman came to your ED with a black eye and swollen lip, you would suspect abuse or assault. But what if she had a liver or spleen injury? "Nurses who work in community EDs are very likely to see trauma cases involving violence; however, if they don't know what to look for, it can be easily missed," says **Robin Ketchum**, RN, MSN, nurse practitioner in the Division of Trauma and Critical Care and former emergency nurse at University of California — Irvine Medical Center.

An estimated 308,200 patients were hospitalized in the United States for violence-related trauma in 2005, which is 24,000 more patients than in 2002, according to a new report from the Agency for Healthcare Research and Quality (AHRQ).¹ **Pamela Owens**, PhD, a senior research scientist at AHRQ, says, "Nearly 78% of these hospitalizations [238,855] initially began in the ED, which does not count the ED visits that do not result in hospitalization."

The number of violence-related trauma cases is increasing in EDs, report emergency nurses, and many involve abuse. Ketchum says, "We are seeing an increase in penetrating trauma that is reminiscent of the early 1990s when there was a high amount of gang-related violence in this area."

Additionally, the ED is seeing more assault victims brought by paramedics

EXECUTIVE SUMMARY

Violence-related trauma cases, both self-inflicted acts and assaults, have increased significantly in EDs, according to a new report.

- At triage, ask patients, "Do you feel safe in your home environment?"
- Determine whether the injury matches the patient's story.
- Suspect child abuse if you see bruises with well-defined shapes or bilateral thoracic bruising.

**EDN NOW AVAILABLE ONLINE: www.ahcmedia.com/online.html.
 Call (800) 688-2421 for details.**

as designated traumas, she says. "I suspect the ED is also seeing an increased number of assault victims who are not necessarily classified as trauma patients but, nonetheless, suffered a minor injury as a result of violence," Ketchum says.

Don't underestimate seriousness

Often the patient's complaint is viewed as minor, when in fact it could be of far more significance, but the nurse doesn't probe further, says **Jean M. Marso**, RN, BSN, trauma coordinator at the University of Colorado Hospital in Aurora. If the injury was intentionally inflicted, then your patient is at risk for other violent acts, and you must take steps to intervene, she says.

Triage nurses might easily miss injuries from blunt trauma to the abdomen or flank areas if there isn't

obvious bruising, says Ketchum. Also, a liver or spleen injury can have a delayed presentation. Without a certain level of suspicion, serial abdominal exams or studies such as CT scans may be overlooked, she adds.

"I encourage ED nurses to follow up if their instinct is telling them something isn't right," says Ketchum. "Often, one has to ask a patient several times in different ways before they feel safe to disclose abuse."

For example, you can ask a subtle question such as "Have you ever been concerned about safety for you or your children at home?" or "Are things OK for you at home?" or you can directly ask, "Did someone intentionally do this to hurt you?" or "Is someone abusing you?"

"Be observant to nonverbal clues, such as the patient avoiding eye contact," says Ketchum.

Reference

1. Russo CA, Owens PL, Hambrick MM. Violence-related stays in U.S. hospitals, 2005. *HCUP Statistical Brief*, No. 48, March 2008. Agency for Healthcare Research and Quality, Rockville, MD. ■

When you suspect abuse, ask the right questions

Patients won't reveal abuse unless asked

A simple fall in a healthy person shouldn't result in multiple facial injuries, except if the patient was intoxicated, says **Regina Curry**, RN, an ED nurse at Thomas Jefferson University Hospital in Philadelphia. Instead, patients might break their wrist or skin their knees and hands from trying to break the fall, she says.

However, if no one asks about abuse, your patient isn't likely to volunteer information. **Robin Ketchum**, RN, MSN, nurse practitioner in the Division of Trauma and Critical Care and former emergency nurse at University of California — Irvine Medical Center, says, "Now that I'm on the other end, managing inpatient trauma patients, it's amazing what the patients reveal. When I ask if they told anyone else about it, they respond that no one ever asked them."

However, victims of abuse are "edgy" and might leave without treatment, warns Curry. "I once witnessed an ED nurse saying, 'Why do you put up with him? Where is your sense of pride?' Sure, we all want to say that, but it is the worst thing you can do," she says. "EDs should be a safe haven, period. Leave the counseling for the experts."

Ketchum recommends asking your patient, "Do you feel safe in your home environment?" "I developed

Subscriber Information

Customer Service: (800) 688-2421 or Fax (800) 284-3291. World Wide Web: <http://www.ahcmedia.com>. E-mail: customerservice@ahcmedia.com.

Subscription rates: U.S.A., one year (12 issues), \$299. Add \$17.95 for shipping & handling. Outside U.S., add \$30 per year, total prepaid in U.S. funds. Discounts are available for group subscriptions, multiple copies, site-licenses or electronic distribution. For pricing information, call Tria Kreutzer at 404-262-5482. Missing issues will be fulfilled by customer service free of charge when contacted within 1 month of the missing issue date. Back issues, when available, are \$37 each. (GST registration number R128870672.)

Photocopying: No part of this newsletter may be reproduced in any form or incorporated into any information retrieval system without the written permission of the copyright owner. For reprint permission, please contact AHC Media LLC. Address: P.O. Box 740056, Atlanta, GA 30374. Telephone: (800) 688-2421, ext. 5491, Fax: (800) 284-3291.

ED Nursing® (ISSN# 1096-4304) is published monthly by AHC Media LLC, 3525 Piedmont Road, N.E., Six Piedmont Center, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodicals Postage Paid at Atlanta, GA 30304 and at additional mailing offices.

POSTMASTER: Send address changes to **ED Nursing**®, P.O. Box 740059, Atlanta, GA 30374-9815.

AHC Media LLC is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

This activity has been approved for 10 nursing contact hours using a 60-minute contact hour.

Provider approved by the California Board of Registered Nursing, Provider # 14749, for 10 Contact Hours.

This activity is authorized for nursing contact hours for 24 months following the date of publication.

ED Nursing® is intended for emergency department nurse managers, supervisors, unit managers, and quality assurance personnel.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought for specific situations.

Editor: **Stacey Kusterbeck**

Associate Publisher: **Coles McKagen**

(coles.mckagen@ahcmedia.com).

Senior Managing Editor: **Joy Daugherty Dickinson**

(joy.dickinson@ahcmedia.com).

Senior Production Editor: **Nancy McCreary**.

Copyright © 2008 by AHC Media LLC. **ED Nursing**® is a registered trademark of AHC Media LLC. The trademark **ED Nursing**® is used herein under license. All rights reserved.

Editorial Questions

For questions or comments, call **Joy Daugherty Dickinson** at (229) 551-9195.



that habit several years ago and found most patients were appreciative. On occasion, I was able to provide appropriate resources and referrals," she says.

At University of Colorado in Aurora, ED nurses ask all patients, "Are there situations in your relationship where you have felt afraid?" and "Do you have concerns for your safety at home?"

However, those standard questions might just get asked because they are required, without the degree of seriousness that is needed to elicit a true response if the person is at risk for domestic violence, says **Jean M. Marso**, RN, BSN, the hospital's trauma coordinator.

This is why you need to pay close attention to the person giving the history, says Marso. Is there poor eye contact? Is the patient hesitant to give complete details? Or is there someone else doing the talking or preventing the patient from telling the real story? "If so, intervene during the ED visit. Get the patient alone to ascertain if there is something more," she says. ■

Will your patient be safe after the ED visit?

Once a patient with violence-related traumatic injuries is stable and about to be discharged, you have to consider something equally important: Will he or she be safe after they leave your ED?

"If the victim is known to the assailant, he or she may not be willing to take action to prevent further assaults by getting the police involved," says **Thomas Tryon**, RN, an ED nurse at Thomas Jefferson University Hospital in Philadelphia.

This may be the case, for instance, if a child was assaulted by a classmate, or for victims of domestic violence, child abuse, or elder abuse. "A senior might be hesitant to complain about a care provider when it might mean dislocation from familiar surroundings," he says.

While gunshot and knife wounds must be reported to law enforcement, it's easier to give alternate explanations for blunt trauma injuries. In the case of intimate partner violence, the injuries might clearly indicate abuse, but the patient might not be ready to report this to the authorities, says Tryon.

"Forcing the issue by reporting without the patient's consent may put him or her in a far more dangerous position with their assailant," warns Tryon. "Philadelphia has had a number of homicides where the victim was killed by the person who she obtained a restraining order against."

Offering possible avenues of assistance might be all

SOURCES

For more information on violence-related trauma cases in the ED, contact:

- **Regina Curry**, RN, Emergency Department, Thomas Jefferson University Hospital, Philadelphia. E-mail: reginacurry@usa.net.
- **Robin Ketchum**, MSN, Nurse Practitioner, Division of Trauma and Critical Care, University of California — Irvine Medical Center. Phone: (714) 456-5890. E-mail: rketchum@uci.edu.
- **Jean M. Marso**, RN, BSN, Trauma Coordinator, University of Colorado Hospital, Aurora. Phone: (720) 848-6775. Fax: (720) 848-7374. E-mail: jean.marso@uch.edu.
- **Pamela Owens**, PhD, Senior Research Scientist, Agency for Healthcare Research and Quality, Rockville, MD. Phone: (301) 427-1438. Fax: (301) 427-1430. E-mail: Pamela.Owens@ahrq.hhs.gov.
- **Thomas Tryon**, RN, Thomas Jefferson University Hospital ED, Philadelphia. E-mail: Thomas.D.Tryon@jeffersonhospital.org.

you can do, says Tryon, noting that reporting suspicion of intimate partner violence is not mandated in all states. "Be cautious in assuming you know the full story or what is best for a patient," says Tryon. "Well-intentioned intervention does not always result in the expected outcome." ■

Suspect child abuse if you see these injuries

Here are some examples of suspicious injuries in children, according to **Thomas Tryon**, RN, an ED nurse at Thomas Jefferson University Hospital in Philadelphia:

- a spiral fracture, which might indicate a twisting or pulling force on the extremity instead of a fall;
- bruises with well-defined shapes, which could indicate the use of an object instead of the diffuse bruising often seen with falls;
- distinctive markings caused by shoe prints from kicks, straps, or belt marks;
- bilateral thoracic bruising, which might indicate a child was picked up, squeezed, and shaken;
- defensive wounds on the forearms of older children

accompanying other injuries;

— bruises at various stages of healing, which might indicate repeated beating;

— a burn injury with a line of demarcation where possibly the child's extremity was forced into hot water and held there;

— the presence of a skull fracture in a small child, which reveals that a lot of force must have been applied. "It is hard to fracture a jaw by walking into a door," says Tryon. ■

You'll soon be using new 80-lead EKG to ID MIs

15% more patients are diagnosed

If a patient complains of chest pain, you probably suspect a myocardial infarction (MI) and obtain an immediate electrocardiogram (EKG). But it doesn't show any signs of a heart attack. What do you do next?

"The clinical concern is still there," says **William Brady**, MD, a professor in the Department of Emergency Medicine at University of Virginia Health System in Charlottesville. "It doesn't mean the patient is not having a heart attack. It could mean any number of things."

Currently, only a subset of patients with MIs is diagnosed on or soon after arrival to the ED, because of anatomic limitations of the standard 12-lead EKG, says Brady.

The 12-lead EKG looks at the heart from 12 perspectives. "So we are likely not imaging the entire heart as completely and fully as we should," says Brady. "The 12-lead [EKG] is a great tool, but it hasn't changed in over 50 years. It really hasn't kept pace with other advancements occurring in acute cardiac care."

EXECUTIVE SUMMARY

A new 80-lead electrocardiogram (EKG) system looks at a patient's heart from 80 views and can detect up to 15% more patients with myocardial infarction (MI) than a standard 12-lead electrocardiogram, says a new study. The tool already is being used in some EDs.

- Patients might otherwise be discharged with an MI.
- Nurses can be trained in two hours.
- The EKG can be interpreted in about five minutes.

The hospital's ED is implementing the 80-lead Prime ECG System (manufactured by Columbia, MD-based HeartScape Technologies), which can look at your patient's heart from 80 views instead of just 12. As a result, you may uncover a heart attack of the posterior wall that wasn't seen on the 12-lead EKG, says Brady.

Body surface mapping increases the rate of MI diagnosis in ED patients by up to 15%, according to a recent study.¹ "It gives us the potential to improve our ability to detect a heart attack at an earlier point in time," says Brady, one of the study's authors. "This increased rate of diagnosis at an earlier time in the evaluation process allows for appropriate, time-sensitive therapy to be delivered more expeditiously."

This group of patients otherwise would be discharged with an MI, but with the Prime ECG, their treatment plan changes dramatically, he says. "This puts the person into a time-sensitive group where they need to go to the cath lab or receive a fibrolytic agent within minutes or a couple of hours," says Brady.

When can you expect to be using the 80-lead EKG in your ED? "You may see it as soon tomorrow in some EDs, and in other EDs it may be five to 10 years away," says Brady.

Reference

1. Self WH, Mattu A, Martin M, et al. Body surface mapping in the ED evaluation of the patient with chest pain: Use of the 80-lead electrocardiogram system. *Am J Emerg Med* 2006; 24:87-112. ■

New 80-lead EKG is easy to interpret

Recently, ED nurses at University of Virginia Health System in Charlottesville were given a two-hour in-service on the Prime ECG (manufactured by Columbia, MD-based HeartScape Technologies), reports **William Brady**, MD, a professor in the Department of Emergency Medicine at University of Virginia Health System in Charlottesville.

"It's not difficult in terms of actual performance," he says. "Once someone is comfortable with the technique, it takes about five or six minutes to interpret, compared to about three minutes for a 12-lead [EKG]. You use the same skills. You are just looking at 80 leads vs. 12."

To make interpreting the EKG easier, color maps flag blue areas as ST depression and red areas indicate ST elevation, so you can look for areas of abnormal color, adds Brady.

ED nurses already have used the 80-lead EKG on

SOURCES/RESOURCE

For more information on using the 80-lead electrocardiogram system in the ED, contact:

- **William Brady**, MD, Vice Chair, Department of Emergency Medicine, University of Virginia Health System, Charlottesville. Phone: (434) 924-8485. Fax: (434) 924-2877. E-mail: wb4z@Virginia.edu.
- **Patricia M. Mahone**, RN, Assistant Nurse Manager, Cleveland (OH) Clinic. Phone: (216) 444-0175. E-mail: mahonep@ccf.org.
- **Margaret Neddo**, RN, Clinical Manager, Emergency Services, Delray Medical Center, Delray Beach, FL. Phone: (561) 637-5344. Fax: (561) 495-3445. E-mail: Margaret.Neddo@tenethealth.com.

The Prime ECG system uses 80 data collection points that provide a 360-degree view of the electrical activity of the heart. The disposable vest, which can be used for multiple serial readings on a patient, costs \$200 per patient. The price of the cart is \$45,000. For more information, contact:

- **Paul Curley**, Vice President of Marketing, Heartscape Technologies, Columbia, MD. Phone: (484) 593-0444. E-mail: pcurley@heartscape.com. Web: www.heartscape.com.

two patients, and both had their care and diagnosis changed as a result. “Both were having an MI that wasn’t detected on the 12-lead,” says Brady.

At Cleveland (OH) Clinic, all 65 ED nurses were inserviced on the use of the Prime ECG. Some volunteered for additional training and were given a pre- and post-test to demonstrate competency. **Patricia M. Mahone**, RN, assistant nurse manager of the ED, says, “These ‘superusers’ now troubleshoot on every shift and can run in and do the Prime ECG very quickly. It’s very interesting to do a regular 12-lead [EKG] on someone and then bring the 80-lead in to see what the 12-lead isn’t picking up.”

At Delray Medical Center in Delray Beach, FL, all ED nurses were educated on the Prime ECG over six weeks, reports **Margaret Neddo**, RN, clinical manager of emergency services. ED nurses now do five to 10 Prime ECGs each month. “We had a patient with an [EKG] that was indeterminate of an MI. The ED physician ordered a Prime ECG, which revealed an evolving MI. The patient was subsequently taken to the cath lab and did very well,” she reports.

At Cleveland Clinic, a patient with chest pain and a cardiac history had a 12-lead EKG that showed nothing, and the 80-lead EKG also showed nothing. He continued to have chest pain, and 14 minutes later had another Prime ECG that did show damage occurring. “He ended up going to the cath lab and had a great outcome,” says Mahone. “In a case like that, you are looking at heart damage during the time it takes for the patient’s condition to declare itself. Now we can see exactly what is going on, before it shows up on that 12-lead.” ■

What to do immediately for infants with seizures

Causes range from sepsis to hypoglycemia

If panicked parents bring in a seizing infant, the underlying cause could be life-threatening, but it also could have resulted from something as simple as drinking too much water.

Seizure caused by water intoxication is treated by gradual replenishment of sodium via intravenous (IV) fluid replacement, says **Jennifer Anders**, MD, an ED physician at Johns Hopkins Children’s Center in Baltimore.

Perform these interventions immediately, says Anders:

- Start an IV or intraosseous line.
- Send blood to lab for stat electrolytes.
- Weigh the infant, and estimate the degree of dehydration, if any.
- Calculate the sodium deficit and any fluid deficit using the infant’s weight, the estimated amount of dehydration and the difference between a normal sodium level and the laboratory result of the infant’s sodium level.

“The sodium must be replaced slowly over a period of 24 to 48 hours,” notes Anders. “Too rapid replacement of sodium can cause demyelination of the brain.”

If it is determined that the cause of the seizure is

EXECUTIVE SUMMARY

Seizure in infants is potentially life-threatening if prolonged apnea or hypoventilation occur. If water intoxication is the cause, do the following:

- Obtain a baseline serum sodium level.
- Weigh the infant, and estimate the amount of dehydration.
- Replace sodium levels slowly intravenously.

SOURCES

For more information on caring for infants with seizures, contact:

- **Jennifer Anders**, MD, Pediatric Emergency Medicine, Johns Hopkins Children's Center, Baltimore, MD. Phone: (410) 955-6143. E-mail: jander74@jhmi.edu.
- **Mary Frey**, RN, P-SANE, CPN, Emergency Department, Cincinnati Children's Hospital Medical Center. E-mail: Mary.frey@cchmc.org.

related to water intoxication, rapid treatment to correct the hyponatremia is needed, says **Mary Frey**, RN, P-SANE, CPN, an ED nurse at Cincinnati Children's Hospital Medical Center. Before administering IV saline to correct the low sodium level that resulted from excessive oral intake of free water, obtain a baseline serum sodium level to determine the severity of hyponatremia, she says. "It may be necessary to intervene with medications to stop seizure activity."

Once the patient is stabilized and the serum sodium level is normalizing, you'll need to educate the caregivers, says Frey. "Infants are at risk for hyponatremic seizures due to their immature renal function and vigorous appetite," she says. "There are however, contributing factors that increase an infant's chance of developing hyponatremic seizures."

For example, infants that are recovering from vomiting and diarrhea-related illnesses might be dehydrated. Signs of dehydration in infants include a sunken fontanelle, sunken eyes, tacky mucous membranes, decreased urine output, decreased tearing or no tearing with crying, and tachycardia, says Frey.

"Additional signs of worsening dehydration include delayed capillary refill, weakening peripheral pulses, poor skin turgor and irritability, or decreased level of consciousness," she says. "Hypotension is a late sign of severe dehydration." ■

Ask these questions if an infant is seizing

“**U**ndiagnosed or new-onset seizure in infants is always a critical emergency, mostly because we need to figure out the underlying cause and treat it before it worsens,” says **Jennifer Anders**, MD, an ED physician at Johns Hopkins Children's Center in Baltimore.

Common causes of seizure in previously healthy young infants are sepsis, meningitis or encephalitis, metabolic disease, hypocalcemia, hyponatremia, or hypoglycemia, says Anders.

“In general, seizure is life-threatening for infants only when it causes prolonged apnea or hypoventilation,” says Anders. “The danger would come from hypoxia.”

Because the infant might no longer be seizing by the time the parents arrive at the ED, obtaining an accurate history and timeline is very important, says **Mary Frey**, RN, P-SANE, CPN, ED nurse at Cincinnati Children's Hospital Medical Center. She recommends obtaining the following information from the parent or caregivers who witnessed the seizure:

- How long did the seizure last?
- What part of the body was involved? Did the seizure progress to other parts of the body during the event?
- Did the infant stop breathing during the seizure? If so, what interventions were done?
- Does the infant have a history of seizures?
- Does the infant have a history of illness?
- Does the infant have a history of injury?
- Does the infant drink water? How much per 24 hours? How is formula being prepared? Either of these situations can be life-threatening, says Frey:

— prolonged seizure activity lasting more than 10 minutes;

— frequent seizures without the patient returning to his or her baseline neurological status between the seizures.

“Status epilepticus is a medical emergency and needs immediate interventions,” says Frey. “Maintaining the airway and establishing intravenous access for medication administration is crucial.” ■

Are heart attack symptoms due to cocaine use?

Treatments can be life-threatening if not known

Has your patient used cocaine? Not knowing the answer to this question could be life-threatening for your patient because the wrong medications might be given, says a new report on management of cocaine-associated chest pain and myocardial infarction.¹

ED visits related to cocaine use increased 47% from 135,711 visits in 1995 to 199,198 visits in 2002, according to the Substance Abuse and Mental Health Services Administration.

Cocaine use can cause chest pain, shortness of breath, anxiety, palpitations, dizziness, and nausea, which all are

EXECUTIVE SUMMARY

Ask about cocaine use if a patient presents with symptoms suggesting a possible heart attack, such as chest pain, shortness of breath, dizziness, or palpitations. Medications can be harmful if patients have taken cocaine.

- Giving beta-blockers to a patient who has taken cocaine could make coronary spasms worse, or cause worsening hypertension or death.
- Benzodiazepines might be helpful if patients are hypertensive and tachycardic after using cocaine.
- Inform patients that their answer will affect the treatment given, and explain that the question is being asked for medical reasons only.
- Determine the time of use, because symptoms can occur hours or days later.

symptoms suggesting a possible heart attack. However, some medications can be life-threatening if your patient has used cocaine, warns **James McCord**, MD, who chaired the statement writing committee for the report.

“The therapy would be different if it is known that the patient consumed cocaine,” says McCord, cardiology director of the chest pain unit for the Henry Ford Health System in Detroit. “The ED nurse should question young patients with a traumatic chest pain and few cardiac risk factors about the use of cocaine.”

If cocaine use is missed, therapy for typical ischemic heart disease and acute coronary syndromes, such as beta-blockers, can have detrimental or fatal consequences, says **James Reiffel**, MD, professor of clinical medicine at New York Presbyterian Hospital/Columbia University Medical Center in New York City.

Giving beta-blockers to a patient who has taken cocaine can lead to less blood flow to the heart, worsening hypertension, and even death, says Reiffel. “Cocaine use may induce coronary artery spasm and arrhythmias,” he explains. “Beta blockade may protect against arrhythmias but may make the coronary spasm worse.”

For patients who are hypertensive and tachycardic after cocaine use, benzodiazepines can be very effective. “These are not normally used if the patient has not taken cocaine,” says McCord.

Reference

1. McCord J, Jneid H, Hollander JE, et al. Management of cocaine-associated chest pain and myocardial infarction: A scientific statement from the American Heart Association Acute Cardiac Care Committee of the Council on Clinical Cardiology. *Circulation* 2008; 117:1,897-1,907. ■

Know risk factors for youngest MI patients

Young people with a history of Type I diabetes, juvenile obesity, hypertension, sickle cell anemia, smoking, or recreational drug use are at considerable risk for myocardial infarction (MI), even in their 20s, says **James Hardecki**, RN, ED nurse at Henry Ford Hospital in Detroit.

ED nurses recently cared for a 27-year-old man with chest pain and vomiting, with Type 1 diabetes. “The triage nurse was initially thinking that his chest pain was a result of the persistent vomiting he had been talking about. However, upon closer observation, the nurse saw that this patient was diaphoretic and looked ‘gray,’” Hardecki recalls.

A 12-lead electrocardiogram (EKG) was done and revealed ST elevations in the anterior leads. The man immediately was brought to the resuscitation room and was taken to the cardiac catheterization lab within 25 minutes of his arrival at the ED. “Treatment was successful, and he was discharged home the same week,” says Hardecki.

In another case, an obese 29-year-old man complained of epigastric heaviness, nausea with vomiting, dizziness, and diaphoresis. When the triage nurse prodded further, she got him to reveal that he had been using cocaine and smoking cigarettes for more than 10 years.

The ED nurse decided to do a 12-lead EKG and found an acute inferior wall MI with ST elevations. “The patient was in the cardiac cath lab within 30 minutes of arrival and was able to walk out of the hospital a few days later,” says Hardecki. ■

When should you ask about cocaine use?

Always ask about recent cocaine use when a younger individual presents to the ED with possible cardiac symptoms, says **Pamela Tokarski**, RN, an ED nurse at Henry Ford Hospital in Detroit.

“Young patients may not make a connection between cocaine use and the symptoms they are experiencing,” she says.

On the other hand, publicity about the consequences of cocaine abuse may raise the fear of cardiac effects or death, prompting the ED visit, she says.

“We have cared for many young patients, several less than 40 years old, who presented to the ED with

chest pain and admitted to cocaine use prior to or during the onset of their symptoms,” says Tokarski. “Even casual cocaine use should be asked about.”

Part of the routine

Questions by triage nurses regarding recent cocaine use have become as routine as asking about hypertension, diabetes, and tobacco use, says Tokarski. Determine when cocaine was last used, because cardiac consequences might occur up to several hours or even days later, she adds.

At Henry Ford Hospital, ED nurses routinely obtain an immediate electrocardiogram (EKG) at triage for any patient 30 years or older who reports chest or epigastric discomfort, dyspnea, diaphoresis, nausea, vomiting, palpitations, or syncope, with the specific intent of identifying ST elevation or left bundle branch block. “If these [EKG] abnormalities are noted, we treat the patient as we would a Level 1 medical or trauma patient, by placing them in our resuscitation room and activating our resuscitation team,” says Tokarski.

Cocaine users might present with shortness of breath, headache, hemiparesis, facial asymmetry, abdominal pain, hypertension, or chest pain, either midsternal or radiating through to the back, says **Regina L. Wright**, MSN, RN, CEN, CNE, clinical nurse specialist for emergency services at Albert Einstein Healthcare Network in Philadelphia. “Acute stroke, seizures, and aortic dissection are also concerns,” she says. “These possible complications are compounded if patients have a coexisting condition.”

Due to the rapid, simultaneous approach in the ED with oxygen started, intravenous line placed, and chest X-ray being given, patients suddenly become aware of their acuity, says Wright. “They ask, ‘Could I really be having a heart attack?’ They might report drug use at this time.”

Patients often do not connect their drug use with serious consequences, adds Wright. “As always, the ED nurse must be prepared to adjust care as more patient history is obtained,” she says. ■

How to get an honest answer on cocaine use

Patients may be hesitant to admit cocaine use, either because they fear legal consequences or because they don’t want family members to know, says **Pamela Tokarski**, RN, an ED nurse at Henry Ford Hospital in Detroit. Do the following to obtain a truthful response:

- **Tell the patient that the questions are being asked for medical reasons only.**

Explaining that ED personnel are not using the information for legal reasons might bring out a more truthful answer, says Tokarski.

- **Give patients a preface.**

Before asking about cocaine use, **Regina L. Wright**, MSN, RN, CEN, CNE, clinical nurse specialist for emergency services at Albert Einstein Healthcare Network in Philadelphia, always prefaces her questions by saying, “I ask everyone these questions. Please do not be offended. Please answer honestly. The answers are very important for how we are going to treat you.” She asks patients:

- Do you use alcohol?

- Do you use any recreational drugs? Cocaine, crack, marijuana?

- Have you ever used cocaine or crack, even one time?

- When is the last time you used cocaine or crack?

- How much cocaine or crack do you use?

- **Always interview the patient alone.**

“Patients are not forthcoming about recreational drug use, especially with family members present, however, in front of health care providers as well,” says Wright. “Assure the patient the information is confidential and essential for appropriate treatment.” ■

Is there a fentanyl patch hidden on your patient?

Patients may not mention transdermal patches

Because a woman with chronic pain failed to tell ED nurses about the fentanyl patch she was wearing, she was given a second fentanyl patch and intravenous morphine for breakthrough pain. The woman became unresponsive and was intubated, but she recovered after the patch was removed.¹

Patients sometimes forget to mention they are wearing transdermal patches, so you should specially ask about these when obtaining a medication history, says **Hedy Cohen**, RN, BSN, MS, vice president of the Institute for Safe Medication Practices. “A fentanyl patch is typically put on every three days. Since the patient isn’t applying it every day, it just slips their mind,” she says.

You probably will be seeing more patients with transdermal patches in the ED, as the numbers of patients with chronic diseases being treated as outpatients continues to increase, adds Cohen. Sometimes patients forget to remove transdermal patches and keep

EXECUTIVE SUMMARY

If patients don't tell you they are wearing fentanyl transdermal patches, they risk being given an overdose of narcotic opioids in the ED. Also, chronic pain patients might be brought to your ED with overdose symptoms due to wearing multiple patches.

- Ask all patients if they are wearing transdermal patches.
- Suspect a fentanyl overdose if there is a change in mental status or respiratory depression.
- Look for patches in areas such as under the breasts or around the groin.

putting on additional ones, and they eventually are brought to the ED unconscious, she says. In one case, an elderly woman with cancer was unresponsive when she arrived at an ED, and nurses found five fentanyl patches on her body.

"It may be that family members are caring for the patient, and a daughter puts on a patch one day and a son puts one on another day but doesn't remove the other one," says Cohen. "When the patient becomes hard to arouse, they aren't sure whether it's the disease or something else. Finally, they can't arouse the patient, and they show up at the ED."

This scenario should raise a red flag that your patient might have on more than one patch. "If the patient is coming in from a nursing home or is unconscious, look in the grooves of the body for patches, under the breast and around the groin area," says Cohen.

Reference

1. Institute for Safe Medication Practices. Patches: What you can't see can harm patients. *ISMP Medication Safety Alert! Nurse Adviser*. April 2007; 5:1. ■

Always ask patients about transdermal patches

All patients should be asked about any medication, prescribed or over-the-counter, that they are taking, including transdermal patches, says **Cindy Vanek**, MS, RN, director of emergency and critical care services at Indian River Medical Center in Vero Beach, FL.

"Symptoms can be due to side effects, interactions, omissions, or overdoses, so the initial list of medications is a critical piece of information," says Vanek. To

avoid missing transdermal patches:

• **Assess the patient's skin integrity and look for bumps, bruises, abrasions, wounds, needle marks, and transdermal patches.**

"Patches are fairly common, and there are many types, from fentanyl for pain to nitroglycerin for cardiac patients to birth control or nicotine," Vanek says. "That's why a complete medication history is so important — any of these can have implications for diagnosis and treatment."

• **Consider fentanyl overdoses whenever a patient presents with a change in mental status and respiratory depression.**

"It's more important to do the assessment and give a narcotic reversal agent as quickly as possible than to know the exact drug taken," says Vanek.

The use of fentanyl patches is commonly used to treat chronic moderate to severe pain, but like all medications, it can have serious side effects. "This year, there have been multiple recalls of the patch due to leakage, which results in too much drug being delivered and an overdose," says Vanek. "Several deaths have been reported."

• **Before applying a new transdermal patch, always check patients for patches already in place — not only fentanyl, but also others such as lidocaine.**

Diane Cousins, RPh, vice president of healthcare quality and information for U.S. Pharmacopoeia, says, "If the patient is transferred from the ED to another unit, communication of medications, past and present, must be foremost in the nurse's mind when providing a report on the patient." ■

EDs seeing an increase in gymnastics injuries

Nearly 27,000 gymnastics-related injuries are treated in EDs each year for children 6 to 17 years old, says a new study based on data obtained from the National Electronic Injury Surveillance System of the U.S. Consumer Product Safety Commission.¹

Girls were more likely than boys to sustain upper extremity injuries, while head and neck injuries were more common in boys. Fractures and dislocations were most common for children 6 to 11 years of age, and strains and sprains were more frequent in the 12-17 age group.

"We are seeing an increase in injuries as more children are getting involved with gymnastics and cheerleading," says **Laura Aagesen**, RN, MBA, trauma coordinator for Northwest Community Hospital in Arlington Heights, IL. "The popularity of toddler gyms and tumbling classes

EXECUTIVE SUMMARY

ED nurses report seeing more children with gymnastic injuries, including upper extremity injuries, head and neck injuries, and fractures and dislocations.

Stress fractures, growth plate injuries, and cervical injuries can have serious consequences if overlooked.

- Rule out cervical injury before removing immobilization equipment.
- Get comparison views of the opposite extremity to assess for growth plate injury.
- Check joints above and below the injury to avoid missing fractures.

have also attributed to this increase, along with the competition to do riskier stunts at greater heights.”

To avoid complications with these injuries, do the following:

- Use **RICE (Rest, Ice, Compress, Elevate)** as soon as the child arrives at the ED.

“This can decrease the injury or length of recovery time,” says Aagesen. “Do a thorough, hands-on evaluation of the injury, including inspecting, palpating, and auscultation.”

- **Immobilize extremities.**

Regardless of whether your patient has a mild ankle sprain, tibia fracture, or severe knee ligament injury, extremities need to be properly immobilized, says **Robert Frederick**, MD, sports medicine specialist at the Rothman Institute at Thomas Jefferson University Hospital in Philadelphia. “You always have to make sure that the extremity is well perfused and document that all the nerves are functioning properly,” he says.

Cervical immobilization especially is important for patients with facial trauma or a head injury, says Aagesen. “A patient should be put in a cervical collar while you are assessing the airway, with the head maintained in a straight alignment with the body,” she says.

Even if a patient doesn’t have neurological deficits, a cervical injury must be ruled out before the immobilization equipment is removed, cautions Aagesen. “Being diligent in cervical immobilization with a head injury is a must,” says Aagesen. “Many times, the cervical spine is overlooked when a child strikes their head and the initial appearance is just a head injury.”

Brain and cervical CT scans are the standard diagnostic tests when patients present with this type of injury, says Aagesen. “Overlooking a cervical injury can cause a neurological deficit, paralysis, or worsening ligamentous injury,” she warns.

- **Identify the mechanism of injury.**

Does your patient report feeling the knee buckle and give way after dismounting from a balance beam? If so, suspect a potential injury to the ligamentated structures. On the other hand, if they twisted their neck to the side when they landed, be concerned about a potential cervical spine injury and take appropriate precautions, says Frederick.

After learning exactly how the injury occurred, you’ll have a sense of what structures might be at risk for injury, so attune your exam to those areas, says Frederick. “Where the child is most tender will lead you in right direction,” he says.

Reference

1. Singh S, Smith GA, Fields SK, et al. Gymnastics-related injuries to children treated in emergency departments in the United States, 1990-2005. *Pediatrics* 2008; 121:e954-e960 (doi:10.1542/peds.2007-0767). ■

These 3 trauma injuries are easy for you to miss

Young gymnasts may be more stoic than other kids you treat. “So you really have to use all your clinical tools: History, physical exam and X-rays to determine whether it’s something more significant or not,” says **Robert Frederick**, MD, sports medicine specialist at the Rothman Institute at Thomas Jefferson University Hospital in Philadelphia. Here are three injuries that could be overlooked by ED nurses:

- **Growth plate injury.**

“Frequently, it’s difficult for emergency room personnel to properly interpret X-rays from skeletally immature patients, says Frederick. “You should always obtain comparison view of the opposite extremity and maintain a low threshold for referral to a specialist, even if the X-rays appear normal.”

- **Stress fractures.**

If a child reports low back pain or pain tingling down one leg, suspect a stress fracture, says **Valerie Elliott**, RN, an ED nurse at The Children’s Hospital in Denver. “This is not something that happens overnight. It occurs over a period of time,” Elliott notes.

This fracture easily can be missed because it won’t be seen on CT or MRI scans. It can be diagnosed only with a bone scan outside of the ED, says Elliott. “If the patient comes in complaining of lower back pain, you cannot consider it negative unless they have a bone scan,” Elliott cautions. “And if a stress fracture isn’t taken care of, it can cause some chronic problems.”

- **Additional fractures.**

Because the child might have fallen by as far as 12 feet, there could be multiple fractures involved. “Sometimes we see the obvious fracture, but we might miss another fracture,” says Elliott. “Always check the joints above and below the injury.” ■

Don't forget to prepare kids for ED procedures

EDs often fail to manage pain of children undergoing painful procedures, which might mean the procedure can't be performed or the child might suffer needless discomfort, says **Steven J. Weisman, MD**, an ED physician at Children's Hospital of Wisconsin, Milwaukee.

Nonpharmacologic pain and stress management strategies should be part of standard ED protocols, Weisman argues. “I would say most EDs do *not* have this in place,” he says. “Techniques are very simple, take no extra time at all, and are incredibly effective.”

Weisman recommends that all ED nurses receive an hour or two of training in behavioral interventions, such as breathing techniques to distract children. “Every ED should be including these as part of its treatment algorithms,” Weisman says. “If we are going to be putting sutures in a kid, it may mean we don't need to start an IV [intravenous line] and actually sedate them.”

Here are four things that **Carrie L. Baumann, RN, BSN**, patient care supervisor for the ED at Children's Hospital Health System of Wisconsin, does to decrease

a child's discomfort during procedures:

- **The right words are used.**

“Scripting is integral when speaking to a child regarding painful procedures,” says Baumann. She avoids words such as “stick,” “poke,” or “hurt a lot.” Instead she says, “This will help take some of the pain away,” or “We can't make all the ouchies go away, but this will help.”

- **Multiple procedures are done simultaneously.**

When ruling out sepsis in an infant, two nurses enter the room once everything is set up. After the straight cath is complete, then the IV is started, with a simultaneous lab draw done. At the same time, a topical anesthetic is placed on the baby's back to prepare for the lumbar puncture.

“We also group multiple intramuscular injections together with as many providers as needed, such as with antibiotics or rabies vaccinations,” says Baumann. “At times, there can be three or four nurses in a room.”

- **A “comfort box” is used.**

ED nurses placed multicolored lighted toys, bubble-blowing liquid, and age-appropriate books in a box for anyone to bring into a room during a procedure to help distract a child.

- **Children are given choices.**

“Sometimes just giving older children the option of sitting or lying down, or deciding where the IV will go, can make a difference in the way the pain is perceived,” says Baumann. ■

EXECUTIVE SUMMARY

If you offer children nonpharmacologic pain and stress management techniques, painful procedures are better tolerated with less discomfort. This approach also can eliminate the need for sedation.

- Give infants sucrose via a pacifier or orally with a syringe.
- Apply cold spray before starting an intravenous (IV) line or drawing blood.
- Ask children to decide whether to sit or stand when an IV is placed.

CNE instructions

Nurses participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue.

Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material.

After completing this semester's activity with the **December** issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided in order to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

COMING IN FUTURE MONTHS

■ Stop dangerous hospital-acquired infections in your ED

■ Solutions for the 2009 National Patient Safety Goals

■ Find out which meds could harm older ED patients

■ Steps that could save a pediatric trauma patient's life

CNE objectives/questions

Participants who complete this activity will be able to:

- **identify** clinical, regulatory, or social issues relating to ED nursing;
- **describe** how those issues affect nursing service delivery;
- **integrate** practical solutions to problems and information into the ED nurse's daily practices, according to advice from nationally recognized experts.

5. Which of the following is an example of an injury in a child that is possibly indicative of abuse?
- A. Bruises with well-defined shapes.
B. Bilateral thoracic bruising.
C. The presence of a skull fracture in a young child.
D. All of the above
6. Which is recommended for seizure in infants due to water intoxication?
- A. Avoid administering sodium intravenously.
B. Replace sodium as rapidly as possible.
C. Replace sodium slowly over 24-48 hours.
D. Assume the infant is severely dehydrated.
7. Which is true regarding patients with heart attack symptoms with recent cocaine use?
- A. Beta-blockers should be given only if patients report palpitations.
B. Beta-blockers will not worsen hypertension.
C. Beta-blockers will improve coronary artery spasms.
D. Benzodiazepines can be effective for patients who are hypertensive and tachycardic after cocaine use.
8. Which is true regarding the need for cervical immobilization of gymnastics injuries?
- A. Patient should be put in a cervical collar while you are assessing the airway, with the head maintained in straight alignment with the body.
B. Cervical immobilization is not necessary if patients have only a head injury.
C. If a patient doesn't have neurological deficits, immobilization equipment can be removed.
D. A patient should not be put in a cervical collar until after the airway assessment is complete.

Answers: 5. D; 6. C; 7. D; 8. A.

EDITORIAL ADVISORY BOARD

Consulting Editor: Darlene Bradley, RN, PhD, CNS, CCRN, CEN, MICN, FAEN, Director Emergency/Trauma Services, University of California Irvine Medical Center
Orange

James J. Augustine, MD, FACEP
MD, FACEP
Director of Clinical Operations,
Emergency Medicine
Physicians
Canton, OH
Clinical Assistant Professor
Department of Emergency
Medicine, Wright State
University, Dayton, OH.
Medical Director
Atlanta Fire Rescue
Department and Hartsfield-
Jackson Atlanta International
Airport

Kay Ball,
RN, MSA, CNOR, FAAN
Perioperative Consultant/
Educator
K&D Medical
Lewis Center, OH

Sue Dill, RN, MSN, JD
Director
Hospital Risk Management
OHIC Insurance Co.
Columbus, OH

Linda Kosnik, RN, MSN, APN
Vice President of Clinical
Services
Vistaar Healthcare Solutions
Parsippany, NJ

Darlene Matsuoka, RN, BSN, CEN, CCRN
Clinical Nurse Educator
Emergency Department
Harborview Medical Center
Seattle

Trudy Meehan, RN, CHE
Principal
Meehan Consultants

Reneé Semonin Holleran
RN, PhD, CEN, CCRN, CFRN
Nurse Manager, Adult
Transport Service
Intermountain Health Care
LifeFlight
Salt Lake City

Barbara Weintraub
RN, MPH, MSN
Manager
Pediatric Emergency Services
Northwest Community Hospital
Arlington Heights, IL

To reproduce any part of this newsletter for promotional purposes, please contact:

Stephen Vance

Phone: (800) 688-2421, ext. 5511

Fax: (800) 284-3291

Email: stephen.vance@ahcmedia.com

To obtain information and pricing on group discounts, multiple copies, site-licenses, or electronic distribution please contact:

Tria Kreutzer

Phone: (800) 688-2421, ext. 5482

Fax: (800)-284-3291

Email: tria.kreutzer@ahcmedia.com

Address: AHC Media LLC
3525 Piedmont Road, Bldg. 6, Ste. 400
Atlanta, GA 30305 USA

To reproduce any part of AHC newsletters for educational purposes, please contact:

The Copyright Clearance Center for permission

Email: info@copyright.com

Website: www.copyright.com

Phone: (978) 750-8400

Fax: (978) 646-8600

Address: Copyright Clearance Center
222 Rosewood Drive
Danvers, MA 01923 USA