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Hospitalist Update

Dealing with Hypertensive Urgencies

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INTRODUCTION

Patients presenting with severe hypertension can often be alarming for house officers and family members. Systolic blood pressures ≥ 180 mm Hg, with or without a diastolic blood pressure ≥120, have been known to progress to hypertensive emergencies. The majority of complications are related to end organ damage; this may include encephalopathy, blurred vision, chest pain, unstable angina, acute myocardial infarction and acute renal insufficiency, with or without proteinuria. In the absence of these acute signs, the control of hypertensive urgency remains paramount but is not considered an emergency.

The etiology of severe, asymptomatic hypertension is extremely important in defining treatment strategies. The majority of these patients have a prolonged history of uncontrolled hypertension secondary to poor compliance or inadequate treatment regimens. Guidelines are not entirely specific in the management of hypertensive urgency.

TREATMENT STRATEGY

Based on the current literature, the following approach is recommended:

1. **Confirm that the blood pressure is elevated.** The reading should be repeated in both upper extremities; the physician should ensure that the appropriate cuff size is used and that the readings are consistent.

2. **Goal for blood pressure reduction:** the ideal goal is to reduce the systolic blood pressure by 20-25% and this should be done over a period of hours to days. A rapid decrease of blood pressure should be avoided and may precipitate cerebral or myocardial ischemia [1].

(continued on page 2)

3. Choosing the correct medication:

A. Etiology of the current hypertensive urgency:

i. Non-compliance: restart the patient's usual home antihypertensives at the prescribed dosages; if more than three medications, introduce them two at a time.

ii. Emotional stress induced: allow the patient to rest in a comfortable, darkened room. All patients with hypertensive urgency should be placed in a comfortable environment

iii. Dietary indiscretion: excess salt intake may lead to hypertensive urgency and treatment with a diuretic may prove beneficial [3].

iv. Uncontrolled pain: treatment of the underlying pain will likely correct the hypertension

B. Previously untreated Hypertension:

i. Start treatment with a low dose ace inhibitor, beta blocker or calcium channel blocker. Diuretics alone may not be effective [2].

ii. If a two drug regimen is used, it is best to start at lower doses and to use a diuretic as one of the agents.

4. Follow-up: Patients should be followed closely for signs of end organ damage. Blood pressure control should aim for a steady decline of 20-30 mm Hg over a period of at least several hours. Patients may be discharged once control is sustained below 160/100.

CONCLUSION

Severe asymptomatic hypertension presents a challenging clinical situation. While it requires immediate attention, it does not require rapid reduction of the blood pressure, which may lead to adverse outcomes. Treatment strategies should be tailored to the individual patient and the choice of medications must consider the presence or absence of co-morbid conditions.

REFERENCES

1. Zeller, KR et al., Rapid reduction of severe, asymptomatic hypertension. A prospective, controlled trial. Arch Intern Med 1989; 149: 2186

2. Chobanian, AV et al., The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure: The JNC 7 Report, JAMA 2003; 289:2560

3. Mishra, SI et al., Does dietary salt increase the risk for progression of kidney disease? Curr Hypertens Rep 2005; 7:385

4. Elliot, WJ, Hypertensive Emergencies, Crit Care Clin 2001; 17:435

CASE OF THE MONTH

Christian Rojas, MD

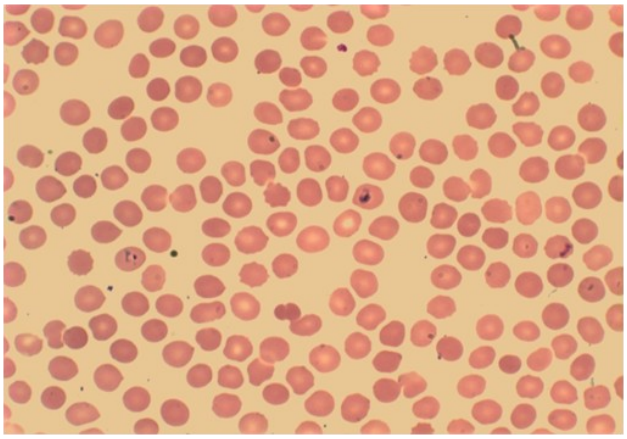
A 23 year old Caucasian male, with no significant past medial history, was admitted to University Hospital for evaluation of fever, chills and back pain. The patient reported that, five days prior to admission, he developed intermittent fever and chills with no specific pattern. He started taking ibuprofen and OTC medications for influenza with only partial relief. Two days prior to admission, he noticed back pain and, on the following day, he developed discomfort in his RUQ. He also reported fatigue and headaches. The patient denied neck stiffness, skin rash, arthralgias, dyspnea, cough, diarrhea, constipation, nausea or vomiting.

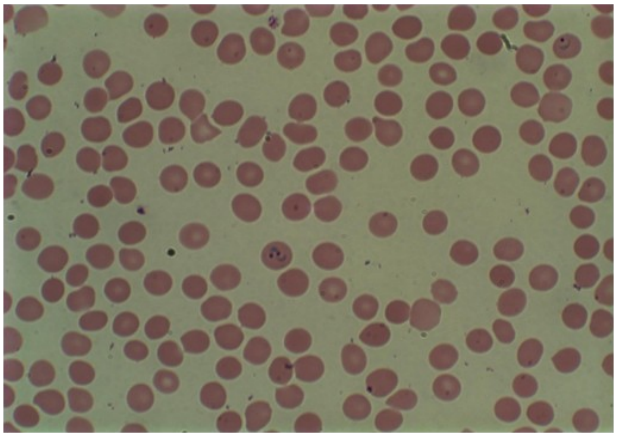
The patient works on a dairy farm in Missouri, milking, vaccinating and feeding the cattle. He has had occasional tick bites in the past. He has smoked half a pack per day for the past five years but denies alcohol abuse, illicit drug use or a history of STDs. He is sexually active with one partner.

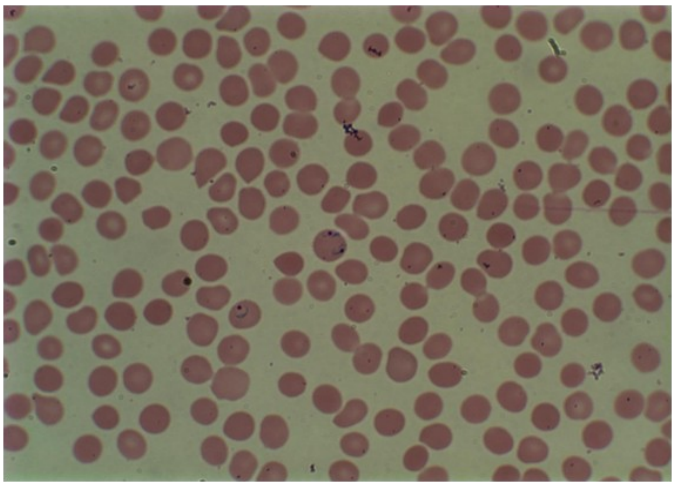
Nine months prior to his presentation, the patient took a trip to India (Mumbai, Chennai) and Sri Lanka; he was traveling for three weeks and visited markets, beaches and an elephant sanctuary. He reports having had multiple mosquito bites during the trip but had taken malaria prophylaxis with doxycycline starting 10 days prior to the trip and continuing until two weeks after his return; he admits that he may have missed some doses. He ate vegetarian and non-vegetarian food during his vacation. He denied any symptoms of illness while traveling or upon arriving back in the U.S. After his return, he visited Wyoming, where he worked on a cattle breeding ranch and spent a few days in Colorado, where he went rafting and hiking.

On examination, his temperature was 41.2 C and his other vital signs were stable. Cardiovascular and lung auscultation were unremarkable. There was some tenderness to palpation of the RUQ and LUQ, his liver was palpable 2-3 cm below the right costal margin and splenomegaly was present. No lympadenopathy, edema, urethral discharge, rash or neurologic deficits were found.

Admission labs revealed WBC 4.2, Hgb 13.2, platelets 41, normal liver enzymes, normal renal function and a total bilirubin of 2.5. A CXR was normal and an ultrasound of the abdomen revealed hepatosplenomegaly. G6PD levels were normal. A peripheral blood smear showed ring forms within RBCs, consistent with Plasmodium vivax (below):







The patient was diagnosed with Plasmodium vivax malaria and was treated with both chloroquine and primaquine (the latter to eradicate hypnozoites).

Discussion:

Malaria is a mosquito-borne disease caused by four species of malarial parasites that can infect humans: Plasmodium falciparum, P. vivax, P. ovale and P. malariae. Patients with malaria often experience fever, chills and a flu-like illness; if untreated, they may develop severe complications and die. Each year, 350-500 million cases of malaria occur worldwide, leading to 1 million deaths (most occurring in children in sub-Saharan Africa). About 1300 cases of malaria are diagnosed in the U.S. each year; the vast majority of these cases are in travelers or immigrants, arriving from sub-Saharan Africa or southern Asia.

In most cases, symptoms begin 10 days to 4 weeks after infection, although illness may develop as early as 1 week and as late as 1 year after inoculation. Two types of malaria, P. vivax and P. ovale, may have a relapsing course; in these infections, some parasites (hypnozoites) remain dormant in the liver for several months (or up to four years) after the person is infected. Once these parasites become active, they invade RBCs and the patient develops acute symptoms (a relapse of the initial illness).

In our case, the patient took doxycycline for prophylaxis, an acceptable option when traveling to India and Sri Lanka; chloroquine is not indicated for prophylaxis when traveling to those countries. However, as this case illustrates, prophylaxis is not always effective and malarial symptoms may develop up to 1 year after returning from a high risk area. Although there have been rare reports of chloroquine-resistant P. vivax in India, the CDC still recommends that chloroquine be used as initial treatment, with a switch to a chloroquine-resistant P. vivax regimen if clinical response is not documented. Primaquine is used to eradicate hypnozoites, thereby preventing relapse; since primaquine can cause hemolytic anemia in G6PD-deficient persons, G6PD screening is essential prior to starting treatment with this drug.

References:

http://www.cdc.gov/Malaria

Baird JK, Effectiveness of antimalarial drugs, NEJM 2005; 352:1565-1577

FROM THE JOURNALS — Les Hall, MD

The following articles should be of interest to hospitalists:

Facemasks and Hand Hygiene to prevent influenza transmission in households

Cowling, BJ et al., *Annals Int Med* 2009; 151: 437-446

Functional Status of Elderly Adults before and after Initiation of Dialysis

Tamura, MK et al., *NEJM* 2009; 361: 1539-1547

The natural history of recovery for the healthcare provider "second victim" after adverse patient events

Scott, SD et al., *Qual & Safety in Healthcare* 2009; 18: 325-330

Glucocorticoid Use and Risk of Atrial Fibrillation or Flutter

Christiansen, CF et al., *Arch Int Med* 2009; 169: 1677-1683

Incidence and Mortality of Hip Fractures in the United States

Brauer, CA et al., *JAMA* 2009; 302: 1573-1579

ID CORNER — William Salzer MD

COMMUNITY ACQUIRED PNEUMONIA

The 10-16-09 issue of the Annals of Internal Medicine has a nice "In the Clinic" review of Community Acquired Pneumonia, authored by Michael Niederman. It is clear, concise, to the point and well referenced:

http://www.annals.org/cgi/reprint/151/7/ITC4-1.pdf

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MISSOURI HOSPITALIST CALENDAR

CHEST 2009, October 31-November 5, San Diego; information and registration online at www.chestnet.org

Galaxy of Gastroenterology, November 6-7, Ritz Carlton Hotel, St. Louis, Washington University School of Medicine; http://cme.wustl.edu/gi LOCAL

4th Annual Mid-Atlantic Hospital Medicine Symposium: Optimizing Patient Care and Hospitalist Value, Mount Sinai Hospital, New York, November 6-7, info via www.mssm.edu/cme/courses/hm/

41st Annual Cardiovascular Conference at Snowmass, January 11-15, information at www.acc.org/education/programs/brochures/snowmass_2010.cfm

Hospital Medicine 2010, April 8-11, Washington, DC, information online at www.hospitalmedicine.org

Internal Medicine 2010, American College of Physicians, April 22-24, Toronto, register online: www.acponline.org

American Geriatric Society, Annual Meeting, May 12-15, Orlando, information and registration via www.americangeriatrics.org

Please direct all comments, ideas and newsletter contributions to the Editor:

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