Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

the factors that may have an effect on the propensity to receive certain classes of antihypertensive medications. The NHANES III collects dietary information and self-reported presence of various disease conditions, which could have been used by the authors to adjust for confounding by these variables (3).

Adherence and persistence to antihypertensive agents is poor, especially among older patients who are prescribed many medications for a variety of conditions (4). Nonadherence to antihypertensive therapy leads to uncontrolled hypertension and may also have an effect on the widening of pulse pressure. Several studies have shown that compliance and persistence with beta-blockers and diuretics is lower compared with angiotensin-converting enzyme inhibitors and calcium channel blockers (5–7), and thus widening of pulse pressure among patients taking beta-blockers may in part be explained by higher rates of noncompliance.

Chang et al have attempted to address a relevant and pertinent issue, but valid conclusions cannot be drawn due to the limitations of the study design and analyses. A cross-sectional design is not adequate to determine whether differences in pulse pressure among older persons are associated with use of different classes of antihypertensive medications. The use of NHANES III data does increase the generalizability of the study findings, but, as the authors acknowledge, a randomized controlled trial would have to be performed to take into account the above mentioned variables. The use of newer classes of drugs, such as angiotensin receptor blockers, should also be included in the comparison.

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1. Chang J, Luchsinger J, Shea S. Antihypertensive medication class and pulse pressure in the elderly: analysis based on the Third National Health and Nutrition Examination Survey. *Am J Med*. 2003;115:536–542.
2. Hajjar I, Grim C, George V, Kotchen T. Impact of diet on blood pressure and age-related changes in blood pressure in the US population. Analysis of NHANES III. *Arch Intern Med*. 2001;161:589–593.
3. U.S. Department of Health and Human Services (DHHS). National Center for Health Statistics. Third National and Nutrition Examination Survey, 1988-1994, NHANES III Laboratory Data File [CD–ROM]. Atlanta, Georgia: Centers for Disease Control and Prevention; 1996.
4. Marentette M, Gerth W, Billings D, Zarnke K. Antihypertensive persistence and drug class. *Can J Cardiol*. 2002;18:649–656.
5. Monane M, Bohn R, Gurwitz J, et al. The effects of initial drug choice and comorbidity on antihypertensive therapy compliance–results from a population-based study in the elderly. *Am J Hypertens*. 1997;10:697–704.
6. Caro J, Speckman J, Salas M, Raggio G, Jackson J. Effect of initial drug choice on persistence with antihypertensive therapy: the importance of actual practice data. *CMAJ*. 1999;160:41–46.
7. Rizzo J, Simons R. Variations in compliance among hypertensive patients by drug class: Implications for health care costs. *Clin Ther*. 1997;19:1446–1457.

PROGNOSTIC IMPORTANCE OF LYMPHOPENIA IN WEST NILE ENCEPHALITIS

To the Editor:

During the summer months of 2003, the infectious disease service was consulted on 18 patients with viral (non–herpes simplex virus) meningitis/encephalitis. Of these patients, 6 (33%) had West Nile encephalitis. Among the 12 patients with non–West Nile viral meningitis/encephalitis, mild/transient relative lymphopenia (≤21% lymphocytes) was present in 5 patients (42%) on admission to the hospital. All 6 patients with West Nile encephalitis had relative lymphopenia. We found that even in this small sample relative lymphocyte counts were higher in patients with non–West Nile viral meningitis/encephalitis. This prompted us to review our 2001–2003 experience with West Nile encephalitis.

Of the 13 patients with West Nile encephalitis seen during the 3-year period, all had relative lymphopenia (range, 2% to 20%). However, patients with severe/fatal West Nile encephalitis had a lower relative lymphopenia (range, 2% to 9%) than did patients with nonsevere/fatal disease (range, 10% to 20%).

In addition to measles and human immunodeficiency virus, lymphopenia is an important nonspecific laboratory finding in typhoid fever, babesiosis, malaria, viral hepatitis, tuberculosis, histoplasmosis, brucellosis, and severe acute respiratory syndrome. Lymphopenia may also be induced by steroids, antilymphocyte globulin, alcohol, radiation, or chemotherapeutic agents for cancer. Lymphopenia may be present in a variety of noninfectious disorders, including rheumatoid arthritis, systemic lupus erythematosus, Hodgkin lymphomas, CD4 lymphocytopenia, severe combined immunodeficiency, ataxia-telangiectasia, Wiskott-Aldrich syndrome, and myasthenia gravis (1–3).

Many patients with viral illnesses have leukopenia, lymphopenia, or thrombocytopenia on presentation. Lymphopenia is one of the nonspecific clinical laboratory manifestations of West Nile encephalitis. We previously reported that prolonged lymphopenia in a patient with viral meningitis/encephalitis should be suggestive of West Nile encephalitis (4).

However, in our review of cases at the Winthrop-University Hospital from 2001 to 2003, we found that the degree of relative lymphopenia not only differentiated non–West Nile viral meningitis/encephalitis from West Nile encephalitis, but also was predictive of a severe/fatal outcome in patients with West Nile encephalitis (Table).

Table. Lymphocyte Counts in Patients With West Nile Encephalitis

Patient No.	Age (years)	Sex	Leukocyte Count (/mm^3)	Lymphocytes (%)	Comments
1	80	M	13,000	7	Died
2	75	M	8900	10	Recovered
3	74	F	5900	2	Died
4	77	M	6900	11	Recovered
5	68	F	8600	13	Recovered
6	41	M	9500	20	Recovered
7	46	M	11,400	10	Recovered
8	61	F	8100	18	Recovered
9	85	M	17,300	14	Recovered
10	54	M	11,100	16	Recovered
11	69	M	5000	16	Recovered
12	17	M	17,200	9	Severe neurologic deficits
13	80	M	6900	16	Recovered

F = female; M = male.

The lymphocyte count, particularly the degree of relative lymphopenia, is a readily available test, and its diagnostic role in many disorders is underappreciated (5). The degree of relative lymphopenia (≤10%) appears to have prognostic importance in West Nile encephalitis.

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1. Coovadia H. The versatile lymphocyte count. *Lancet*. 2004;363:574.
2. Coovadia HM, Wesley A, Brain P, Henderson LG, Hallett AF, Vos GH. Immunoparesis and outcome in measles. *Lancet*. 1977;1:619–621.
3. Shafiq M, Cunha BA. The diagnostic significance of lymphopenia. *Infect Dis Pract*. 1999;23:81–82.
4. Cunha BA, Sachdev B, Canario D. Serum ferritin levels in West Nile encephalitis. *CMI*. 2004;10:184–186.
5. Cunha BA. Diagnostic significance of nonspecific laboratory abnormalities in infectious diseases. In: Gorbach SL, Bartlett JG, Blacklow NR, eds. *Infectious Diseases*. 3rd ed. Philadelphia, Pennsylvania: Lippincott Williams and Wilkins; 2004:158–166.

REQUIREMENT FOR HYPERTENSION AND HYPERLIPIDEMIA MEDICATION IN U.S. AND JAPANESE PATIENTS WITH DIABETES

To the Editor:

Recent discussion of the undertreatment of hypertension in patients with known diabetes (1) led us to reevaluate our previously examined cohort of patients (2) for possible differences in treatment by ethnicity. We compared data from U.S. patients

Table. Comparison of Characteristics Related to Vascular Risk Factors among U.S. and Japanese Patients with Previously Diagnosed Diabetes*

Characteristic	U.S. Patients (n = 128)	Japan Diabetes Complications Study (n = 2205)
	Mean ± SD or Number (%)	
Male sex	50 (39)	1205 (55)
Age (years)	66 ± 11.7	59.4 ± 7.4
Hemoglobin A_{1C} (%)	7.7 ± 1.5	7.7 ± 1.4
Systolic blood pressure (mm Hg)	136 ± 18	132 ± 16
Diastolic blood pressure (mm Hg)	73 ± 10	77 ± 10
Total serum cholesterol (mg/dL)	180 ± 37	201 ± 35
Taking medication for hypertension	102 (80)	607 (28)
Taking medication for hyperlipidemia	73 (57)	567 (26)

* From references 2 and 3.