Large VA study finds seasonal differences in blood pressure

November 5 2007

Fewer people treated for high blood pressure return to normal pressure levels in the winter compared to those treated in the summer, Veterans Affairs (VA) researchers reported at the American Heart Association's Scientific Sessions 2007.

The five-year study analyzed electronic health records from 15 VA hospitals in warmer and colder cities throughout the United States. Researchers identified 443,632 veterans with high blood pressure. Those who had readings of more than 140 mm Hg systolic or more than 90 mm Hg diastolic on three separate days were identified as hypertensive.

"The bottom line is that regardless of whether you're in Anchorage, Alaska or San Juan, Puerto Rico, there is a difference in high blood pressure returning to normal in the winter compared to the summer," said Ross D. Fletcher, M.D., the study's lead author and chief of staff at the VA Medical Center in Washington, D.C.

The study found a significant variation in every city, warmer or colder, in return to normal blood pressure in winter compared to summer. The average significant difference in percent of patients returning to normal was 7.76 percent between the two seasons, based on patients' blood pressure readings as recorded in their Electronic Health Record.

The average age of veterans in the study was 66 years. About 51 percent were Caucasian, 21 percent Hispanic and 27 percent black. Only 3.7 percent were female.

“San Juan is virtually equal to Anchorage, as blood pressure systematically worsens in the winter and improves in the summer,” Fletcher said. “We did not see the coldest city had the biggest change in blood pressure.”

The other 13 VA hospitals included those in Baltimore, Boston, Chicago, Fargo, Honolulu, Houston, west Los Angeles, Miami, Minneapolis, New York, Philadelphia, Portland, Ore., and Washington, D.C.

Fletcher suggested that weight and exercise may play a role in these seasonal variations rather than southern or northern climate or the amount of light.

“There is a weight change that is significant,” Fletcher said. “People gain weight in the winter and lose weight in the summer. People tend to exercise more in the summer and less in the winter.”

He emphasized the importance of designing treatment strategies for patient’s high blood pressure to account for these seasonal variations, perhaps requiring increased anti-hypertensive intervention during the winter months.

VA hospitals in all cities demonstrated improvement from the beginning to the end of the study. Improvement averaged about 4 percent per year in the VA hospital system overall.

The award-winning electronic health record system, containing 1.8 billion vital records, and data on the nearly 1,192,781 patients with more than 19 million blood pressure records, is one important factor in improving the treatment of high blood pressure, Fletcher said. The electronic system feeds back blood pressure information from each patient to his doctor, with reminders when blood pressure needs to be checked, leading to rapid turn-around in blood pressure control.

Source: American Heart Association