Pretransport MI Mortality Surged in Last Decade

ARTICLES BY BRUCE JANCIN

FROM THE ANNUAL MEETING OF THE AMERICAN COLLEGE OF CARDIOLOGY

ATLANTA — The proportion of deaths caused by myocardial infarction that happen before patients are in transit to a hospital or clinic has climbed steadily in the past decade.

Overall myocardial infarction mortality in the United States decreased impressively from 192,898 deaths in 2000 to 141,462 deaths in 2006. That is a decline in rate from 70.1 to 47.2 per 100,000 population.

But at the same time, the proportion of all myocardial infarction deaths that occurred before transport rose from 37.3% to 42.4%, a 13.7% increase over those 7 years, Dr. Shifan Dai reported at the meeting.

These pretransport deaths are a reflection of a lack of progress in educating the public to recognize the early signs and symptoms of a heart attack and to call for emergency assistance in a timely way. The implication is that the past decade's progress in coronary prevention and more effective treatment has not been matched by gains in the earliest, pretransport stage. A new and more effective public health education effort is clearly needed, according to Dr. Dai of the Division for Heart Disease and Stroke Prevention, Centers for Disease Control and Prevention, Atlanta.

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The increase in the proportion of MI deaths that occur pretransport has affected Americans of all races, ages, and geographic locations. But there are variations warranting further investigation. For example, Hispanics had a 28.4% increase in the proportion of pretransport MI deaths, more than twice the national average. In Idaho, the increase was 65%, while in District of Columbia it was just under 20%.

There was also a large age-based difference in the increase in the percentage of MI deaths occurring before transport. That proportion climbed by 24.7% in individuals under age 65, by 21.5% in those aged 61-74, by 14.4% in those 75-84, and by 4.5% in the 85-and-older population.

This analysis was carried out using National Vital Statistics System mortality data.

Dr. Dai reported having no financial conflicts. ■

Vitamin D Deficiency Found In 75% of MI Patients

FROM THE ANNUAL MEETING OF THE AMERICAN COLLEGE OF CARDIOLOGY

ATLANTA — Vitamin D deficiency and insufficiency are "extraordinarily prevalent" in patients presenting with acute myocardial infarction, according to a national prospective study.

Of 239 patients admitted for acute MI at 20 U.S. hospitals, 75% were vitamin D deficient as commonly defined by a serum level of 20 ng/mL or less. Another 21% had insufficient vitamin D levels, meaning more than 20 but less than 30 ng/mL. So a mere 4% of MI patients in this national sample had a normal serum vitamin D level, Dr. John H. Lee said at the meeting.

"Screening and treatment should be considered to correct this common vitamin deficiency and investigated as a means of further improving MI patients' cardiovascular risk factors and outcomes," added Dr. Lee of the Ochsner Clinic Foundation, New Orleans.

Patients with vitamin D deficiency were significantly more likely to be diabetic, with a prevalence of 31% vs. 17% of those with normal or insufficient vitamin D. Patients who were vitamin D deficient were more likely to be uninsured (24% vs. 10%), nonwhite (29% vs. 15%), smokers (42% vs. 25%); to lack social support (18% vs. 5%); and to have a low level of physical activity (79% vs. 57%).

Dr. Lee disclosed having no financial relationships relevant to this study. ■

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Cardiovascular Events Decline With Normal Vitamin D Levels

FROM THE ANNUAL MEETING OF THE AMERICAN COLLEGE OF CARDIOLOGY

ATLANTA — Vitamin D–deficient patients who reached normal levels had significantly lower cardiovascular event rates than did patients whose levels remained deficient, based on a large prospective observational study.

"Since testing for vitamin D is simple and relatively inexpensive, and therapy is safe and easily administered, patients with low levels should be considered for supplementation," Dr. Tami L. Bair concluded at the meeting.

She reported on relative risk for events in 9,491 patients with serum vitamin D levels of 30 ng/mL or less. Their average age was 57 years, 78% were women, and their mean baseline serum vitamin D was 19.3 ng/mL.

During up to 6 years of prospective follow-up, 47% of the group boosted their serum vitamin D levels to normal values above 30 ng/mL. Those patients had significantly lower rates of myocardial infarctions, heart failure, coronary artery disease (CAD), and renal failure.

Also, there was a trend for a lower mortality risk during follow-up compared with patients whose vitamin D levels remained deficient.

Significantly higher rates of events were seen in 1,256 patients with serum vitamin D levels of 10-19 ng/mL, compared with 1,670 patients who increased their levels to 44 ng/mL or more, according to Dr. Bair. For CAD, there was a 27% increase in events; for heart failure, a 32% increase; for MI, a 59% increase; for renal failure, a 51% increase. For skeletal disease, there was a 71% increase; for anemia, a 30% increase.

The differences in all-cause mortality fell short of significance. A 42% increase was seen in the group of patients whose vitamin D levels remained at 10-19 ng/mL, noted Dr. Bair of the Intermountain Medical Center Heart Institute in Murray, Utah.

This was not a randomized trial, she cautioned. Investigators do not know how patients increased their serum vitamin D levels. But the results certainly make a case for conducting randomized trials of vitamin D supplementation to boost low serum vitamin D as a means of preventing cardiovascular events, Dr. Bair added.

Event rates were lowest in the 1,670 patients who boosted their serum vitamin D levels to 44 ng/mL or more.

VITALS

Major Finding: During an average follow-up of 1.2 years, patients whose serum vitamin D levels rose from less than 30 ng/mL to at least 44 ng/mL had the lowest rates of death or new-onset diabetes, CAD, MI, heart failure, depression, and renal failure.

Data Source: An observational follow-up study of 9,491 patients, 78% women, with a mean baseline serum vitamin D of 19.3 ng/mL.

Disclosures: Dr. May and Dr. Bair disclosed having no relevant financial interests.

The choice of the 44-ng/mL cutpoint was based on results of a separate 31,289-patient study presented at the meeting by Dr. Bair's colleague, Heidi T. May, Ph.D. Dr. May concluded that rates of seven of nine adverse outcomes were significantly lower in the 3,387 study participants whose baseline serum vitamin D level was at least 44 ng/mL.

During an average follow-up of 1.2 years, patients with a serum vitamin D of 44 ng/mL or more had the lowest rates of death or new-onset diabetes, CAD, MI, heart failure, depression, and renal failure.

However, patients with optimal vitamin D levels did not have lower rates of new-onset hypertension or cerebrovascular events compared with patients with low or very low vitamin D levels. ■