Rapid Communication

Elderly Nursing Home Patients With Congestive Heart Failure After Myocardial Infarction Living in New York City Have a Higher Prevalence of Mortality in Cold Weather and Warm Weather Months

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Background. Some studies have found an increase in cardiac events in the winter months. Other studies, from cities in the southern half of the United States, have shown an increase in cardiac events during the summer months.

Methods. We investigated in a prospective study of 517 patients, mean age 81 ± 8 years, with congestive heart failure (CHF) after prior myocardial infarction who died in a nursing home in New York City with 24-hour on-site physician coverage, whether there was a seasonal variation in mortality from CHF. The exact binomial test was used to see if the number of deaths from CHF in the cold weather and warm weather months was significantly different from those in the spring and fall.

Results. Of 517 patients who died, 321 deaths (62%) occurred during the months of December, January, February, March, July, and August, and 196 deaths (38%) occurred during the other 6 months (p < .0001).

Conclusion. The number of deaths in patients with CHF after prior myocardial infarction in cold weather and warm weather months is significantly higher than those in spring and fall months (p < .0001).

Some studies have found an increase in cardiac events during the winter months (1–4). Other studies, from cities in the southern half of the United States, have shown an increase in cardiac events during the summer months (5,6). We report data from a prospective study of elderly patients with congestive heart failure (CHF) after prior myocardial infarction living in a nursing home in New York City showing a higher incidence of mortality during the cold weather and warm weather months compared to the spring and fall months.

METHODS

In a prospective study of 198 men and 418 women, mean age 81 ± 8 years, with CHF after prior myocardial infarction living in a nursing home in New York City with 24-hour on-site physician coverage, the 5-year all-cause mortality was 517 of 616 patients (84%) (7). The time of death was recorded for each individual patient.

The exact binomial test was used to see if the number of deaths in the cold weather and warm weather months was significantly different from those in the spring and fall months. The definition of cold weather months (December, January, February, and March) and of warm weather months (July and August) were based on predefined criteria.

RESULTS

Figure 1 shows the incidence of deaths during the months of December, January, February, March, July, and August compared with those during the months of April, May, June, September, October, and November. During the cold weather months (226 deaths) and warm weather months (95 deaths), 321 of the 517 deaths (62%) occurred versus 196 of the 517 deaths (38%) during the spring and fall months (p < .0001). The incidence of mortality was significantly higher for the warm weather months than for the spring and fall months (p < .027).

DISCUSSION

Some studies have shown an increase in cardiac events during the winter months (1–4). Cold temperatures probably contributed to the increase in cardiac events during the winter months in these studies. However, there was a seasonal variation in coronary death, even in the relatively mild climate of Southern California, with coronary death rates in December and January 33% higher than coronary death rates in June through September (1).

In contrast, a study from Dallas, Texas (5), and another study from New Orleans, Louisiana (6), showed an increased incidence of acute myocardial infarction during the hottest part of the summer season.
Data from the present prospective study showed a seasonal variation regarding the incidence of all-cause mortality in patients with CHF after prior myocardial infarction in elderly persons living in a nursing home in New York City, with high mortality rates occurring during the cold weather months and during the warm weather months of July and August. Of the 517 deaths from CHF, 391 (62%) occurred during the cold weather and warm weather months versus 196 deaths (38%) during the spring and fall months ($p < .0001$).

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