

Daylight saving impacts the timing of heart attacks

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Still feeling the residual effects of springing ahead for daylight saving time? The hour of sleep lost – or gained – may play a bigger, perhaps more dangerous role in our body's natural rhythm than we think. It seems moving the clock forward or backward may alter the timing of when heart attacks occur in the week following these time changes, according to research to be presented at the American College of Cardiology's 63rd Annual Scientific Session.

Data from the largest study of its kind in the U.S. reveal a 25 percent jump in the number of heart attacks occurring the Monday after we "spring forward" compared to other Mondays during the year – a trend that remained even after accounting for seasonal variations in these events. But the study showed the opposite effect is also true. Researchers found a 21 percent drop in the number of heart attacks on the Tuesday after returning to standard time in the fall when we gain an hour back.

"What's interesting is that the total number of heart attacks didn't change the week after [daylight saving time](#)," said Amneet Sandhu, M.D., cardiology fellow, University of Colorado in Denver, and lead investigator of the study. "But these events were much more frequent the Monday after the spring time change and then tapered off over the other days of the week. It may mean that people who are already vulnerable to heart disease may be at greater risk right after sudden time changes."

Heart attacks historically occur most often on Monday mornings. Sandhu explains that in looking at other "normal" Mondays, there is some

variation in events, but it is not significant. However, when he and his team compared admissions from a database of non-federal Michigan hospitals the Monday before the start of daylight saving time and the Monday immediately after for four consecutive years, they found a consistent 34 percent increase in heart attacks from one week to the next (93 heart attacks the Monday before compared to 125 the week after the start of daylight saving time for the duration of the study.).

Although researchers cannot say what might be driving the shift in [heart attack](#) timing after the start of daylight saving time, they have a theory.

"Perhaps the reason we see more heart attacks on Monday mornings is a combination of factors, including the stress of starting a new work week and inherent changes in our sleep-wake cycle," Sandhu said. "With daylight saving time, all of this is compounded by one less hour of sleep. Whatever the reason, he said, the findings may indicate a need to better staff hospitals the Monday after setting our clocks forward.

"If we can identify days when there may be surges in heart attacks, we can be ready to better care for our patients," said Sandhu. Gaining an hour in the fall may have the opposite effect, though authors don't know why there were fewer heart attacks on Tuesday rather than Monday.

Researchers used Michigan's BMC2 database, which collects data from all non-federal hospitals across the state, to identify admissions for heart attacks requiring percutaneous coronary intervention from Jan. 1, 2010 through Sept. 15, 2013. A total of 42,060 hospital admissions occurring over 1,354 days were included in the analysis. Total daily admissions were adjusted for seasonal and weekday variation, as the rate of heart attacks peaks in the winter and is lowest in the summer and is also greater on Mondays and lower over the weekend.

The hospitals included in this study admit an average of 32 patients

having a heart attack on any given Monday. But on the Monday immediately after springing ahead there were on average an additional eight heart attacks. There was no difference in the total weekly number of percutaneous coronary interventions performed for either the fall or spring time changes compared to the weeks before and after the time change.

This study comes amid ongoing debate about whether daylight saving time is actually needed anymore. Widely implemented during World War I, it was primarily adopted to save energy. But some experts question whether it really saves energy and if it has negative health effects beyond just leaving us feeling groggy and out of sorts.

"We go through daylight saving time periods twice yearly," Sandhu said. "We may want to look more closely at whether the shift in the timing of heart attacks seen after daylight saving time leads to any negative health outcomes."

There are limitations to the study. For example, it was restricted to one state and heart attacks necessitating percutaneous coronary intervention, therefore excluding patients who died prior to hospital admission or intervention.

Sandhu said it would be interesting to compare these findings against heart attack trends in Hawaii and Arizona, which do not have daylight saving time. Future research is also needed to better understand the role of our circadian rhythms on heart health.

"We know from previous studies that a lack of sleep can trigger heart attacks, but we don't have a good understanding of why people are so sensitive to changes in sleep-wake cycles. Our study suggests that sudden, even small changes in sleep could have detrimental effects," he said.

This study will be simultaneously published online in *Open Heart* at the time of presentation.

More information: Sandhu will present the study, "The Impact of Daylight Savings Time on the Timing and Incidence of Patients Undergoing Percutaneous Coronary Intervention for Acute Myocardial Infarction," on Saturday, March 29 at 9:30 a.m. EDT in Hall C.

Provided by American College of Cardiology

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