CARDIOLOGY

Time Change and Acute Myocardial Infarction

In Sweden, acute myocardial infarctions (AMIs) spike noticeably just after daylight savings time (DST) and drop on the Monday after the switch to standard time in autumn. Is the same true in the U.S.? Researchers at Beaumont Hospital in Royal Oak and Oakland University William Beaumont School of Medicine in Rochester, both in Michigan, conducted a retrospective study of all AMIs (935) the week after DST and after the autumn switch between October 2006 and April 2012.

The frequency of AMIs was similar in spring (463 or 49.5%) and autumn (472 or 50.5%). However, the greatest increase in AMIs occurred on the first day (Sunday) after the spring shift (incidence ratio [IR], 1.71); the IRs for the next 6 days were unremarkable. The IR for the first week after DST began was 1.17. In contrast, after DST ended, the IR was slightly lower (0.99), although not significantly different.

Looking at the spring data, the researchers found no differences in risk factors, previous coronary revascularization procedures, or medications between the groups. They did find that the patients who had AMIs on Sunday were more likely to be using calcium channel blockers, compared with the control group (patients admitted with comparable diagnoses on the corresponding weekdays 2 weeks before and 2 weeks after the shifts to and from DST). Classifying the AMIs by type, the researchers also found a significantly greater incidence of non–ST-segment elevation MI (NSTEMI) after the transition to DST.

Similarly, for the autumn data, the researchers found no significant differences between the groups in age, body mass index, gender, prescribed medications, history of coronary artery disease, percutaneous intervention, diabetes, hypertension, obstructive sleep apnea, or tobacco use. The incidence of NSTEMI was not significantly different from the incidence of STEMI (ST-segment elevation MI).

Sleep duration and quality might play a significant role in population-attributable cardiovascular risk, the researchers say. Even partial night sleep deprivation might mean heightened cortisol concentrations, sympathetic activity, and an increase in proinflammatory cytokine levels. Further, sleep deprivation might cause transitory increases in blood pressure and coronary artery vasoconstriction, resulting in a supply-demand mismatch and NSTEMI. The researchers suggest further study to find out whether specific pharmacotherapies and behavioral interventions can reduce the modest increase in cardiovascular risk from disturbance of biologic rhythm.

Source: Jiddou MR, Pica M, Boura J, Qu L, Franklin BA. *Am J Cardiol.* 2013;111(5):631-635. doi: 10.1016/j.amjcard.2012.11.010.