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Editorial

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Are Traditional Holidays (Seollal and Chuseok) Harmful for Cardiac Arrest?

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▸ See the article "High Incidence and Mortality of Out-of-Hospital Cardiac Arrest on Traditional Holiday in South Korea" in volume 49 on page 945.

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Psychological stress is promising coronary heart disease (CHD) risk factor.[1)2)] While chronic stress increases the risk of incident CHD and poor cardiovascular prognosis, acute emotional stress can trigger acute CHD events in vulnerable patients.[1)]

One of the acute psychosocial stress experiences for an average person is experiencing holidays. In the United States, there are studies of holiday-related several cardiac conditions. Christmas and New Year's cardiac mortality is higher than other times.[3)] Christmas and Independence Day were associated with increased heart failure (HF) admissions.[4)] Christmas and New Year's day were associated with increased emergency room visit of HF and sudden cardiac death.[5)] In Sweden, Christmas and Midsummer holidays were associated with a higher risk of myocardial infarction.[6)]

Seollal and Chuseok are big traditional holidays in Korea. Also, reports of these holiday psychosocial stress are not-too-small. According to the office of court administration of Korea, mean request number for divorce of 2016 was 298 cases per day. However, during the holiday periods (with ten days period before and after the holiday), the mean request number for divorce of 2016 was 656 cases per day. It is more than twice than usual day. Moreover, during the Seollal and Chuseok, the number of suicidal attempts is increasing (2017 Seollal 139 cases, 2017 Chuseok 179 cases, 2018 Seollal 244 cases). The mean number of domestic violence was 683 cases per day. However, during the holiday periods, the mean number for domestic violence was 1,032 cases. If acute psychosocial stress is relatively high level during the traditional holiday, how does it affect the cardiac health index, especially out-of-hospital cardiac arrest (OHCA)?

In this issue of the *Korean Circulation Journal*, Jeon et al.[7)] presents the analysis of a national registry data of the relationship between day type (especially, traditional holiday-Seollal and Chuseok) and OHCA incidence, mortality, and neurologic outcomes. The findings are suggesting that traditional holiday (Seollal and Chuseok) connects to more OHCA incidence, higher in-hospital mortality, and better neurologic outcomes. More specifically, in this large population-based 712 multisite study of 95,066 OHCA events for 4 years observation, OHCA occurred more frequently on traditional holiday than a weekday, weekend, and public holiday (median OHCA incidence 60.0, 51.0, 53.0, 52.5, respectably. p<0.001). Also, the traditional

holiday was related with higher in-hospital mortality than weekdays (adjusted hazard ratio [HR], 0.747; 95% confidence interval [CI], 0.587–0.945) and weekend (adjusted HR, 0.741; 95% CI, 0.579–0.943), but had similar in-hospital mortality with public holidays (adjusted HR, 0.810; 95% CI, 0.585–1.121). May due to the death of poor outcome patients, the traditional holiday was related to lower poor neurologic outcomes than weekdays (adjusted HR, 0.747; 95% CI, 0.587–0.945).

In the hospital management area, the weekend effect and holiday effect are well known. However, this study is an excellent and clear example of this phenomenon for Korea. Moreover, this study shows not the only weekend and public holiday, but also shows the Korean specific traditional holiday (Seollal and Chuseok) as the third category with OHCA for the first time. According to this data, Seollal and Chuseok are distinctive than other public holidays at least with OHCA incidence (not beneficial to cardiac health).

Authors mentioned the reasons behind this phenomenon with emotional stress, behavior change (Koreans abruptly change their patterns of life during the traditional holiday- alcohol intake, sleep-wake cycle, physical activity, diet), and delaying medical treatment. One of the possible explanation is that the new hypothesis of holiday sudden cardiac overload which is food and alcohol inhibition of SULT1A enzymes as a precipitant.[8]

Although variables of resuscitation (quality of chest compression, a dose of medication, and hands-off time) and scales of hospital were not assessed for hospital mortality and prognosis, still this is a valuable finding which, together with future research, can contribute to a better understanding of the relationship between holiday psychosocial stress and OHCA outcomes. Adjunct, as the authors described, the findings of the present study revealed some important implications from the perspective of preventive strategies and policy for OHCA care in South Korea. Providing sufficient emergency medical resources during traditional holidays, strategies for early recognition of OHCA at home, increasing basic life support of family and lifestyle modification for cardiometabolic health[9] during traditional holidays is a reasonable suggestion by study population characteristics.

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