Seasonal Changes in Blood Pressure: Possible Interaction Between Sunlight and Brain Serotonin

To the Editor:

Whoever wishes to investigate medicine properly, should proceed thus: in the first place to consider the seasons of the year, and what effects each of them produces for they are not at all alike, but differ much from themselves with regard to their changes. Attributed to Hippocrates, this quotation highlights the relevance of a recent article by Modesti et al1 who examined the influence of ambient/personal temperature and meteorologic factors, such as outdoor temperature, humidity, atmospheric pressure, and daylight hours on changes in ambulatory blood pressure. The authors provided evidence that personal-level temperature and daylight hours were independent predictors of aspects of ambulatory blood pressure. Although this finding is of interest, it is, however, unclear from the article what the authors mean by daylight hours, we presume the hours between sunrise and sunset rather than actual bright sunshine hours. This distinction, although subtle, is potentially important. Previous studies by us2 and others3 have demonstrated a clear influence of hours of bright sunlight on brain serotonin turnover and serotonin transporter binding potentials in a variety of brain regions. More than 3 decades ago, Carlsson et al4 showed seasonal and circadian variation in monoamine concentration in human brains examined post mortem. Changes in brain monoamine turnover have been linked with sympathetic nervous activation in patients with hypertension and heart failure.5

Although the authors acknowledge that changes in physical activity, diet, or adiposity may underlie alterations in ambulatory blood pressure parameters, the possibility that seasonal changes in blood pressure are mediated, at least in part, through interactions between bright sunlight and brain monoamines, and sympathetic nervous activity should not be neglected.

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