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Higher Frequency of Atrial Fibrillation Linked to Colder Seasons and Air Temperature on the Day of Ischemic Stroke Onset

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Background: Whether a seasonal variation of atrial fibrillation among acute ischemic stroke (AIS) patients occurs is unknown. We studied the distribution of atrial fibrillation across seasons and air temperatures in a cohort of AIS patients. *Methods:* We selected 899 AIS patients from the Argentinean Stroke Registry (ReNACer), who were admitted to 43 centers in the Province of Buenos Aires. We recorded the minimum and maximum temperatures at local weather centers on the day and the city where each stroke occurred. We used the goodness-of-fit χ^2 test to assess the distribution of atrial fibrillation across seasons and air temperatures and the Pearson correlation coefficient to assess the relationship between these variables. We developed a regression model for testing the association between seasons and atrial fibrillation. *Results:* We found a seasonal variation in the occurrence of atrial fibrillation, with a peak in winter and a valley in summer (23.1% versus 14.0%, $P < .001$). The semester comprised by autumn and winter was associated with atrial fibrillation (Pearson $P < .001$). Atrial fibrillation showed a nonhomogeneous distribution across ranges of temperature ($P < .001$, goodness-of-fit test), with a peak between 5°C and 9°C, and was associated with minimum (Pearson $P = .042$) and maximum (Pearson $P = .002$) air temperature. After adjusting for significant covariates, there was a 2-fold risk of atrial fibrillation during autumn and winter. *Conclusions:* In this cohort of AIS patients, atrial fibrillation showed a seasonal variation and a nonhomogeneous distribution across air temperatures, with peaks in cold seasons and low temperatures on the day of stroke onset. **Key Words:** Ischemic stroke—atrial fibrillation—risk—season—temperature—weather.

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