Oral Abstracts

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SEASONAL VARIATION IN SELF-POISONING IN TEN SRI LANKA HOSPITALS

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Objectives: Biorhythmic patterns in timing of deliberate self-harm is a phenomenon widely reported in epidemiological research, with many studies finding that peak rates occur in late spring around the world. Sri Lanka has one of the highest rates of self-poisoning in the world, with 11 self-poisonings per 100,000 in 2010-2012 accounting for 50% of suicides in Sri Lanka in that time frame. Located near the equator, Sri Lanka lacks the pronounced environmental variations with seasons in higher-latitude countries, so we investigated whether similar seasonal patterns of deliberate self-poisoning occur in Sri Lanka.

Methods: We used the cosinor method to explore seasonal patterns of suicides via plants, medicines, and pesticides and other toxins among more than 70,000 self-poisoning admissions to 10 hospitals across Sri Lanka between 2002 and 2015. The cosinor method uses trigonometric terms to model periodic data with a sinusoidal pattern and provides estimates of amplitude (distance from the median to the peak or trough), acrophase (peak time), and mesor (the median value about which the sinusoidal oscillation varies). Generalized linear models were used to determine the sinusoidal curves that best fit the self-poisoning rates for different types of poisons over time. F-statistics were calculated to compare cosinor model estimates of amplitude and acrophase among three classes of poisons.

Results: Different seasonal patterns were found in self-poisonings using oleander, medicines, and pesticides. The timing and maximum rate varied by poison category. Use of pesticides in self-harm appeared to peak in April while oleander and medicine poisoning rates peaked in July, with acrophase estimates for pesticides significantly different than those for oleander and medicines (0.99, -0.40, and -0.47 radians, respectively; p-value<0.001). The peak rate of self-poisonings by oleander was significantly increased over those for medicines and pesticides (amplitudes of 0.13, 0.06 and 0.04, respectively; p<0.001).

Conclusion: Awareness of the seasonal nature of self-poisoning may allow preventive strategies to be designed and public health resources to be prepared in advance of the yearly peaks.