

# Mysterious poisoning outbreak in children linked to lychee fruit

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Annual outbreaks of seizures and coma have occurred in India since 1995. These outbreaks always start in mid-May ending with the July monsoons, and have a 40% fatality rate. They would often target only one child in a village and leave others untouched. Investigators were unable to pinpoint a cause until recently, when a case-control study funded by the Centers for Disease Control was published. The authors found 390 patients meeting the case definition (new onset seizures or altered mental status in a child aged  $\leq 15$  years) during the 2014 seasonal outbreak. Lychee fruit consumption was associated with illness, with an odds ratio of 9.6 (CI 3.6-24), especially in conjunction with missing the evening meal within the 24 hours before the illness onset, with an odds ratio of 2.2. Patients were more likely to eat unripe or rotten fruit rather than fresh fruit from the tree. Plant metabolites of hypoglycin A, methylenecyclopropylglycine (MCPG) or both were detected in 66% of patients and in none of the controls. Both chemicals were detected in tested fruit, and were higher in unripe fruit. Abnormal acylcarnitine profiles were found in 90% of patients (1).

Following these surprising results, public health measures were instituted, including recommendations to minimize lychee consumption among young children, to assure that children receive an evening meal during the lychee harvesting month, and to rapidly assess hypoglycemia in suspected patients. In subsequent years, the number of affected children decreased markedly.

Similar outbreaks have been described in Bangladesh and Vietnam near lychee fruit plantations but investigations were focused on infectious agents or pesticides (2 3). It is well known that another plant in the same family as lychee, the Ackee fruit, causes a toxic hypoglycemic encephalopathy known as Jamaican vomiting sickness in children. Both plants contain unusual amino acids that interfere with gluconeogenesis and beta-oxidation of fatty acids. Of interest is that lychee is imported into the USA and is not subject to the same screening for hypoglycin as is in place for canned Ackee fruit. Fewer outbreaks may be reported in the United States due to the lower rate of malnutrition and the high expense of this fruit.

**For more information on hypoglycin, check our Best Practice topic on Common Toxic Plant Ingestions.**

## References

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