Analysis of the 1996 Konzo outbreak in Democratic Republic of Congo

Summary of published paper

A recently published article documents and analyses a Konzo outbreak in south west Democratic Republic of Congo (DRC) in 1996. Konzo is a distinct upper motor neurone disease that has been attributed to the combined effect of high cyanide and low sulphur intake from an exclusive consumption of insufficiently processed bitter cassava.

In August 1996, the chief medical officer reported poliomyelitis cases in the Kahemba region of Bandundu province in DRC. Following an initial investigation, the diagnosis was reviewed and changed to Konzo. With the support of MSF, Epicentre carried out an investigation in the region with the purpose of describing the epidemic and studying factors associated with the recent increase of the disease.

The investigation, carried out in November 1996, involved two field teams and was conducted in all the villages situated along the provincial roads accessible by car or motor-bike, an area covering almost 300 km. For each case identified, demographic data and history of disease were collected using standardised questionnaires. Prevalence and incidence rates were calculated using data collected by the local administration in 1995 as the denominator population. Data were also collected on food crops, dietary habits, cassava processing and knowledge and attitudes on Konzo from village group discussions.

The investigation confirmed that Konzo was endemic and highly prevalent in the region. An increased number of cases in 1996 suggested a large-scale outbreak. The disease mainly affected those living in isolated locations with no access by car, women in the reproductive age group and children over 2 years. The number of cases was higher during the dry season. There was a high proportion of women affected in the first term following infant delivery. Increased protein and vitamin A requirements during pregnancy, lactation and child growth could explain why women and children are at an increased risk of contracting Konzo. (It has been demonstrated that serum levels of vitamin A following delivery are low compared to nonpregnant women, although requirement for vitamin A seems to decrease as retinol levels in breastmilk decline progressively during breastfeeding. This could explain the high percentage of women affected at an early stage after delivery).

Although data could not be found to prove the hypothesis, there were indications of a rise in palm oil price during this period which could explain the distribution of disease among the populations who were poorest and furthest from the supply route. The authors of the study concluded that Konzo is a major public health problem in Kahemba region with dramatic social consequences. In the affected villages the women could not farm or feed their families. Many of their husbands had already left them and only a few women received any assistance from relatives.

Discussions did not help identify any changes in cassava processing or in the climate that could explain a mono-consumption of insufficiently processed cassava. However, Konzo seems to affect particularly the population in Bandundu where cassava flour is not mixed with maize as it is in the rest of the country (maize contains sulphur that is needed to detoxify ingested cyanide). The authors state that this study shows a need to conduct further research into Konzo and in particular the role of vitamin A in its development.

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