Endomyocardial fibrosis and hepatocellular carcinoma in Inhambane Province in Mozambique

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Mozambique, a former Portuguese colony on the Indian Ocean coast of southeastern Africa, was the poorest country in the world in 1986. Fifteen years after the end of the civil war, this area was still undergoing economic recovery. Inhambane is one of the five southern provinces, with 1.2 million inhabitants, the majority of whom are children and adolescents. This region is notable for having a very high prevalence of both endomyocardial fibrosis (EMF) and hepatocellular carcinoma (HCC).

EMF is a severe and progressively restrictive form of cardiomyopathy that is characterized by fibrosis and thickening of the endocardium, and leads to restricted ventricles and giant atria. Although it was first described in Uganda in 1948 (1), its etiological factors remain unclear half a century later. EMF is found across the tropics, but is unequally distributed among countries of the same region and areas of the same country, due to local environmental or familial etiological factors. A study of the geographic origins of patients with EMF at the Central Hospital in Maputo, the capital of Mozambique, showed a disparate distribution in the country, with a high prevalence in Inhambane Province (2). A complementary cross-sectional study (unpublished data) carried out by the same team in this region enrolled 948 subjects living in the Inharrime district, where the highest attack rate had been found, and revealed a prevalence of 8.9% (95% CI 5.8 to 11.9), with echocardiographic confirmation of the diagnosis. To our knowledge, it is the first recorded case of community-based prevalence concerning endomyocardial fibrosis. Despite having the same pathological and histological characteristics as the eosinophilic syndrome in industrialized countries, EMF seems to be a different entity, and the role of eosinophil is not accepted by all authors. A link with cassava consumption or other hypoprotein diets remains an important current hypothesis. Discordant marked ascites without pedal edema, regardless of which ventricle is involved, remains a misunderstood clinical aspect in EMF.

On the other hand, HCC is endemic to Mozambique (3), particularly in Inhambane Province (4), where the dietary exposure to aflatoxins is highest, occurring from early in life. Aflatoxin B1, typically found in staple foods contaminated by *Aspergillus flavus* or *Aspergillus parasiticus*, is known to be a major risk factor in human HCC, usually with a specific mutation of the p53 protein (5). The high HCC prevalence in Inhambane is due to the synergistic interaction between aflatoxin B1 and hepatitis B virus in hepatocarcinogenesis (5), which are both frequent in this area.

Although cassava is the most common staple food in Inhambane, and an associated chronic hepatopathy could explain such a poorly understood disproportionate ascites in EMF, we have no reason to think that there is any link between these two epidemic diseases (EMF and HCC) in this region of Mozambique. Indeed, there were no suspicious echocardiographic lesions on the congestive livers correlated with autopsy findings, and no geographic correlation between these two diseases was found in the rest of the world. Therefore, these two afflictions affecting this young population remain poorly understood, particularly in the case of EMF.

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