

## LETTER TO THE EDITOR

# Low prevalence of ischemic heart disease in rural coastal Ecuador: an issue of high mortality rate?

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## Dear Editor

Ischemic heart disease (IHD) will be one of the next health epidemics in rural areas of Latin America due to increased life expectancy and changes in lifestyle of the population. Knowledge on prevalence, incidence, and mortality rates of IHD is important to implement cost-effective strategies directed to reduce the burden of this condition. However, there is scarce and somewhat contradictory information on the epidemiology of IHD in the region<sup>1</sup>. Here, we report the basal findings of the Atahualpa Project, a multi-step population-based study designed to reduce the burden of IHD in rural coastal Ecuador.

Methodology of the Atahualpa Project has been detailed elsewhere<sup>2,3</sup>. In brief, trained field personnel performed a door-to-door survey to evaluate the cardiovascular status of all Atahualpa residents aged  $\geq 40$  years, and to apply a

validated Spanish translation of the Rose questionnaire directed to identify persons with suspected IHD<sup>4</sup>. Using this simple screening instrument, persons are considered as 'suspected cases' if their response to one of two questions is affirmative. Thereafter, certified cardiologists examined all individuals who were screened as suspected cases, as well as two randomly selected persons who were considered as non-suspected cases during the screening phase (matched by age and gender to the suspected cases); such evaluation also included a 12-lead ECG and a treadmill test performed in the field. Cardiologists were blinded as to whether the individual was a suspected case or a non-suspected control, and IHD was diagnosed by clinical judgment and ECG findings.

The census yielded 642 Atahualpa residents aged  $\geq 40$  years (41% men; mean age,  $59.1 \pm 12.6$  years). The questionnaire revealed 12 persons with suspected IHD. Evaluation by cardiologists showed that six of these subjects were confirmed cases. Examination of 24 non-suspected



individuals disclosed no further cases, yielding the questionnaire a sensitivity of 100% (95% confidence interval (CI) 52–100%), a specificity of 80% (95% CI 61–92%), a positive predictive value of 0.5 (95% CI 0.22–0.78), and a negative predictive value of 1 (95% CI 0.83–1). Crude prevalence of IHD in subjects aged  $\geq 40$  years was 9.34%. The six patients with IHD had a mean age of  $65.5 \pm 8.2$  years, and five were women; all of them had experienced the event in the past 10 years.

To get more insights of this low prevalence of IHD in the population, we looked at death certificates at the civil register office of the village. After reviewing a total of 139 death certificates of people aged  $\geq 40$  years from 2003 to 2012, we found that 24 (17.3%) of them were attributed to an ‘acute myocardial infarction’, and signed by a physician. Despite the biases of a retrospective search of death certificates, this suggests that Atahualpa (and probably other rural areas of the region) has been going through a process of epidemiologic transition during the past decade, where an age of ‘pestilence and famine’ has been replaced by an age of ‘receding pandemics’<sup>5</sup>. It is known that increasing mortality rates may result in low prevalence of a given condition as determined by cross-sectional studies. An ongoing prospective study in Atahualpa residents will determine the true incidence and mortality of IHD, and will help to reduce the burden of this condition in the population at large<sup>6</sup>.

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