

## REPORTE PRELIMINAR – SHORT REPORT

### **Macroclimatic Variations and Ascaridiasis Incidence in Venezuela \***

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### **Background**

Recent studies have indicated that ascaridiasis presents distinct geographical variation, which is suggested to reflect climatic variation, as well as behavioral differences.[1-6] It has been though that ascaridiasis could be influenced by climatic variability. This issue has been understudied worldwide. For this reason we report possible impacts of climatic variability and El Niño events occurred during 1994-2002 on ascaridiasis in Venezuela.

### **Methods**

Climatic data was obtained from remote sensing systems. Epidemiological data was obtained from Environmental health service (DGSACS) in Venezuela. Climatic events classifications were made according NOAA and indexes SOI and ONI as main global climatic variability indicators. Comparisons of yearly variations and deviation from medians trends between ascaridiasis incidence and climatic variability as well lineal regression models were made. Statistical analyses were made with SPSS 10.0 and GraphPad Prism 4.0, 95% of confidence.

### **Results**

During this period a considerable global climatic change was present, with strong El Niño events during years 1994, 1997 and 2002, and strong La Niña events during 1995/1996 and 1998-2001. El Niño in this region is expressed as drought periods and La Niña as increases in rainfall. During this period, 66758 cases of ascaridiasis were registered in Venezuela, mean of  $7417.56 \pm 3774.75$  cases/year. During years with El Niño an increase of up to 69.09% in ascaridiasis incidence was observed, whilst in La Niña a decrease of up to 45.93% was evidenced. Lineal regression models analysis found that with a higher value of SOI (tending to La Niña) less incidence of ascaridiasis is observed, although did not reached statistically significance ( $r^2=0.0307$ ,  $p=0.0696$ ) (Figure 1); with higher values of ONI an increase in ascaridiasis incidence was observed, being significant ( $r^2=0.0362$ ,  $p=0.0488$ ) (Figure 2).

## Conclusions

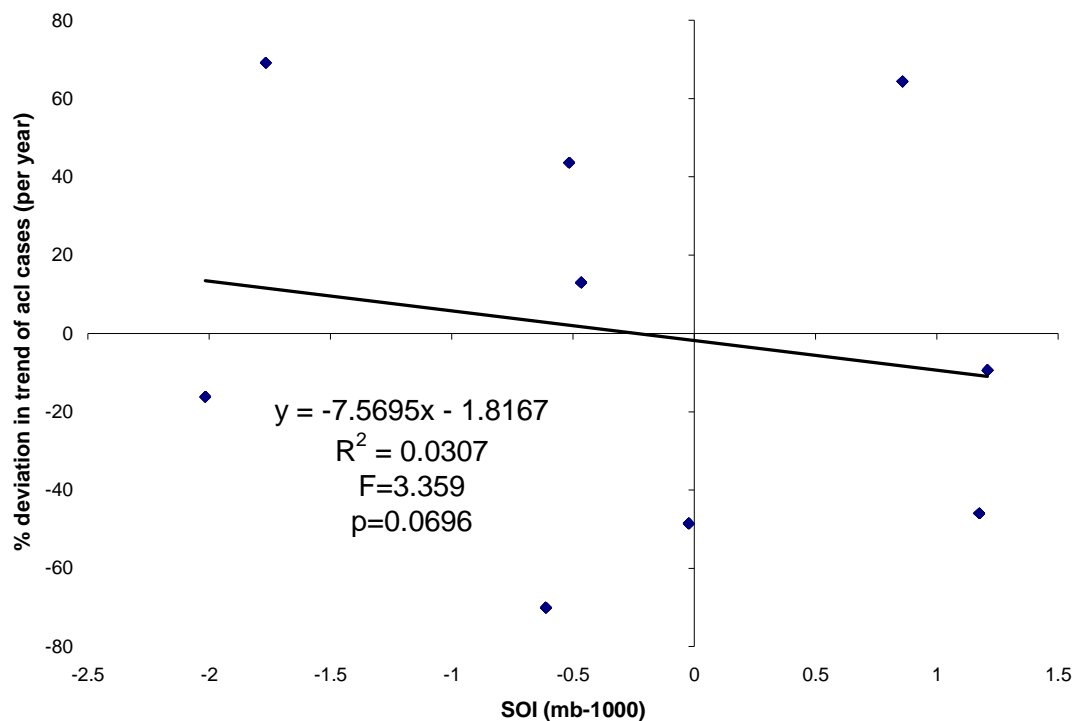
A significant association between climate years tending to El Niño and increase in *Ascaris lumbricoides* infections. This has been related to the fact of embryonation took place only during the hotter months and seemingly was independent of the microclimate.[1-6]

This first study needs to be validated in larger studies.

## References

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**Figure 1.** Lineal regression model analysis between values of SOI and incidence of ascaridiasis.



**Figure 2.** Lineal regression model analysis between values of ONI and incidence of ascaridiasis.

