

Letter to the Editor

Anisakis simplex sensitisation: frozen fish for all?

Dear Editor:

It is indeed satisfying to see that the Journal under your Editorship publishes the results of observational studies that go much beyond the simple description of cases or of series of cases. A good example is the study by Fernández de Corres and co-workers¹. One of the objectives implicit in that case - control study was to estimate the association between sensitisation to *Anisakis simplex* (AS) and the occurrence of acute episodes of urticaria, angioedema or anaphylaxis (UAA).

Quite aside from some typographic errors ($p>0.05$ instead of $p<0.5$) and of the number discrepancies between some Tables (888 subjects in Table I vs 858 in Table III; 164 patients in group "U" in Table III vs 148 in Table VII and 134 in Table VIII), the really surprising aspect are the clinical repercussions derived from the data of the study.

From the data in Table III, the following Table can be constructed:

	Group U	Group NU
Sensitised to <i>A. simplex</i>	164 (38.1%)	56 (13.1%)
Not sensitised to <i>A. simplex</i>	267 (61.9%)	371 (86.9%)
	431 (100%)	427 (100%)

With the limitations and restrictions posed by any case - control study, and assuming no selection bias has been introduced, it can be stated that patients with AS sensitisation have a fourfold higher risk of developing urticaria, angioedema or anaphylaxis than those not sensitised (OR = 4.07).

A number of studies have demonstrated the effectiveness of certain dietary measures in preventing renewed allergic reactions due to consuming *A. simplex*-parasited fish². For this reason, I consider of particular interest the population included in the shaded box. When they come

for consultation, one inevitable question arises: Should we recommend dietary restriction measures to all patients with acute UAA episodes in whom AS sensitisation is detected?

If we answer in the affirmative and accept as valid the criteria for AS allergy used by the authors, who consider as allergics 19.2% of the population in group "U", we might be recommending an unnecessary diet in 50% of the cases.

	Allergic	Not allergic	
UAA + sensitisation to <i>A. simplex</i>	83 (50.6%)	81 (49.4%)	164

Considering the biologic cycle of *A. simplex* and the experience of other investigators³, I believe that a selection bias has indeed been introduced, underestimating the proportion of allergic patients due to excessively restrictive criteria. Should this be true, then the results of the logistic regression model (Table VIII) become invalidated.

In an attempt to correct this deviation, we might assume that the number of sensitised individuals without relationship to UAA episodes is similar in the case and in the control groups (56 subjects). A new table would thus result:

In this latter case, we might be recommending an un-

	Allergic	Not allergic	
UAA + sensitisation to <i>A. simplex</i>	108 (65.9%)	56 (34.1%)	164

necessary diet to about three or four patients out of each ten.

It might be argued that although the avoidance diet is not necessary for all at the present time, it should be recommended in order to prevent future allergic reactions in sensitised patients. This hypothesis is certainly plausible, but should be tested and demonstrated in adequately designed follow-up studies.

REFERENCES

1. Fernández de Corres L, Del Pozo MD, Aizpuru F. Prevalencia de la sensibilización a *Anisakis simplex* en tres áreas españolas, en relación a las diferentes tasas de consumo de pescado. Relevancia de la alergia a *Anisakis simplex*. *Alergol Inmunol Clin* 2001; 16: 337-346.
2. García F, Blanco JG, Garces M, Juste S, Fuentes M, Herrero D. Freezing protects against allergy to *Anisakis simplex*. *J Investig Allergol Clin Immunol* 2001; 11(1): 49-52.
3. López-Serrano MC, Alonso-Gómez A, Moreno-Ancillo A, Daschner A, Suárez de Parga J. Anisakiasis gastro-alérgica: Hipersensibilidad inmediata debida a parasitación por *Anisakis simplex*. *Alergol Inmunol* 2000; 15: 230-236.

J. L. Justicia Ruano

Allergology Section
"Reina Sofia" University Hospital
Córdoba, Spain

Dear Editor:

We are grateful to Dr. Justicia Ruano for his painstaking and detailed review of our paper presenting the results of the multi-centre study on the prevalence of *Anisakis simplex* sensitisation.

Regarding his letter, we must confirm that indeed some typographical errors did slip in in the use of the "greater than" and "lesser than" symbols, the symbol ">" appearing where the "<" should have. The discrepancies he mentions in the numbers in the various tables are due to an incomplete data collection for some of the variables, which is rather usual in most epidemiologic studies performed with the help of surveys.

On the other hand, this study cannot be strictly construed as a "case - control" one from the methodological point of view. Even though the terminology used may have been inductive of confusion, the design was fundamentally cross-sectional with the sampling stratified in order to ensure a sufficient representation of the "urticaria, angioedema, anaphylaxis" group. The analysis carried out

allows the study of associations between the variables, but only a more potent design –either case - control or cohort– might establish an aetiological correlation.

It is true that, according to the results of the study, some 50% of the sensitised subjects in group "U" (urticaria / angioedema) would not be considered to be allergic to the parasite, or rather, that particular allergic episode would not have been due to the parasite; obviously, this holds if the criteria established for the diagnosis of *Anisakis simplex* allergy are accepted and if no selection bias has been introduced. However, as Dr. Justicia points out in the last paragraph of his letter, as we do not know the evolution and the clinical impact this sensitisation may have over time, we at present consider the dietary restriction to be not only not "unnecessary" but to be convenient. The risk-benefit ratio is quite clear.

We might assume, as Dr. Justicia suggests, that the number of sensitised but not symptomatic cases should be similar in the "U" and "NU" groups, but it can also be argued that individuals with angioedema or urticaria evidence a number of characteristics, as a group (atopy, total IgE levels, cross-reactivity with other parasites, panallergens, etc.), that render the detection of non-relevant sensitisations much more probable.

To conclude, we wish to express our appreciation for the effort and cooperation of all the participating investigators. In spite of the multiple difficulties encountered, they made this multi-centre study possible. With all its defects, we believe this study provides a number of interesting data. There are still many aspects that require clarification and as many suspicions that require confirmation, some of them of considerable practical importance; this will require future studies, which we here encourage all interested readers to set in motion.

**L. Fernández de Corres,
M.^a D. del Pozo*,
F. Aizpuru****

Allergology Service, "Santiago Apóstol" Hospital, and
*Research Unit, "Txagorritxu" Hospital, Vitoria-Gasteiz;
***"San Millán y San Pedro" Hospital, Logroño, Spain