



LETTER TO THE EDITOR

Comment on "Epilepsy and seropositivity rates of *Toxocara canis* and *Toxoplasma gondii*"
KEYWORDS

Epilepsy;
Parasites;
Toxoplasma gondii;
Toxocara canis

Dear Sir

We have read with great interest the paper from Akyol et al.¹ looking for the link between *Toxocara* or *Toxoplasma* seropositivity and epilepsy. On the basis of their findings, the authors concluded that they did not find any association between epilepsy and *Toxoplasma gondii* and *Toxocara canis* seropositivity. To date only a few studies have been carried out on this issue and, from this point of view, further evidence should be helpful. However we have some concerns on key methodological aspects.

The most important limitation in the interpretation of the presented results is that, due to the small sample size, the power of this study was low to detect a difference between cases and controls (type II error). Based on the exposure proportions found in the study, the power estimates were only 39.7% for *T. gondii* and 17.8% for *T. canis* to detect an odds ratio of 2 (with an alpha risk of 5%). It is not really surprising then that the authors did not statistically confirm the difference they found (crude odds ratio = 2.14 for *T. canis*).

Moreover, besides the lack of a precise definition of epilepsy, the authors reported a higher frequency of generalized epilepsies, as expected, because of the inclusion of only cryptogenic (in the abstract) or idiopathic (in the methods) epilepsies. Some of them could have a genetic background while, according to previous data, a stronger association was found with focal epilepsies, and seems biologically more plausible.^{2,3}

Finally, we would like to stress that in a case–control study, the composition of the control group is crucial. In this study, it is composed of volunteers, and the students are significantly more frequent in

this group. One could think of a possible volunteer bias and/or a possible higher education level in this group, which could lead to a lower prevalence of toxocariasis. The descriptive data are lacking on a control group to be sure that controls were comparable to the cases.

On the bases of these observations it should be argued that the conclusions reported by the authors are not entirely supported by their results. Even if some evidence of association between epilepsy and toxocariasis has been reported in literature, this relationship has not been sufficiently investigated, and, to date, there is doubt about whether this implicates causality. It is therefore of importance to avoid biases in the future to be able to give definitive conclusions.

References

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