Reviewer's report

Title: Symptoms and sources of Yersinia enterocolitica -infection: a case-control study

Version: 1 Date: 6 October 2009

Reviewer: Gianluca Matteoli

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Summary:

The study by Huovinen E. et al. is an interesting and well-performed case-control study that provides pieces of information on the clinical outcome upon infection with different Yersinia enterocolitica types and their possible sources in Finland. The authors clearly show that either the Y.e BT 1A strains and the pathogenic Y.e bio/serotypes (3-4/O:3 and 2/O:9) may cause illness in humans. In addition, patients infected with the Y.e. BT 1A strains report a substantially different clinical outcome compared to those infected with the pathogenic Y. e. strains.

According to previous studies, the authors show that the majority of the Yersinia enterocolitica isolates from the Finnish population belongs to the BT 1A biotype. Huovinen E. et al. state that patients infected with both the pathogenic and the Y.e. BT 1A strains suffer equally from diarrhoea and stomach cramps, On the contrary, the authors claim that patients infected with the pathogenic Y.e. are younger and more often have fever, while BT 1A infected patients experience vomiting and persisting diarrhoea more frequently.

In the second part of the study, the authors analyse the sources of Y.e. infection reported by the patients. As in literature, eating or tasting raw pork is a significant risk factor for pathogenic Y.e. infection, together with eating in restaurants or travelling abroad.

Interestingly, only imported fruits and berries are significantly associated with an increased risk of BT 1A infection.

While the analyses of the symptoms clearly show a specific clinical outcome in patients infected with the Y.e. BT 1A strains, the data about the sources of infection may be misleading due to the few collected cases.

Further investigation and explanatory efforts will be required to support the major conclusion and implications concerning the possible origin of infection.

Discretionary Revisions:

1) In order to increase the overall clarity of the work, I would advise the authors to represent the data (number of strains and/or symptoms) with graphics such as histograms or pie charts. Moreover, the definition of an integrated analysis (e.g. regression analysis) associating the occurrence of symptoms to the infections
would be beneficial to the comprehensive meaning of this case-control study,

Minor Essential Revisions:

1) The authors should carefully review their manuscript and ensure that the English they used is correct. (es. line 16 page 5, line 7 page 6, line 21 page 8, )

2) It would be interesting to display as supplementary material the questionnaires submitted to the patients and to their controls, in order to assess the effectiveness of the survey and to exclude possible biases in the questions.

3) In the discussion section, the authors state that “The higher frequency of vomiting among patients with YE BT 1A might be due to enterotoxin YstB known to be produced by some BT 1A strains”. It would be of extreme interest to analyze the frequency of the Y.e. BT 1A strains expressing the enterotoxin YstB in their isolates.

Major Compulsory Revisions:

1) The authors report more cases of continuous diarrhea in the BT 1A-infected patients compared with the pathogenic Y.e.-infected patients. Considering that the infection with the pathogenic Y.e. is generally correlated with a worse clinical outcome, it would be worth mentioning the therapeutic actions undertaken by these patients, in order to exclude influence of pharmacological treatments on the course of the infection.

2) The association of joint symptoms with the pathogenic Y.e. infection may be ambiguous and a more accurate analysis with a larger number of patients would be required to support this conclusion and implications of the different Y.e. strains. The fact that a so high percentage of individuals form the control group reported joint symptoms may lead to inappropriate conclusions.

3) The authors need to clarify and to support with more details their statements about the correlation between low-lactose diet and infection with the BT 1A strains.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.