Reviewer’s report

Title: Clinical aspects and self-reported symptoms of sequelae of Yersinia enterocolitica infections in a population-based study, Germany 2009-2010

Version: 1 Date: 1 April 2013

Reviewer: Mark Riddle

Reviewer’s report:

Major Compulsory Revisions

Study Design: This does not appear to be a case-control study, but rather a retrospective cohort study among exposed and non-exposed individuals in which they are followed for development of multiple outcomes. Traditionally, a case-control study starts with the selection of the particular disease outcome (e.g. ReA or EN) and a matched control without the outcome and then retrospectively evaluates whether the cases and controls had particular exposures of interest. Suggest re-describing this study using an appropriate methodological design to avoid confusion.

Control (unexposed comparator group) selection: Controls were selected from population registries at random and frequency-matched to cases by age group (0-4 years, 5-14 years, ≥15 years) and federal state (ratio 3 controls per 1 case). However, for this study design, it would be important to consider patterns of health care seeking behavior. For examples were controls selected based on a non-infectious medical encounter event type (e.g. ER visit, outpatient visit, hospitalization for a different reason?) This is important as you want the unexposed comparator group (non-Y. enterocolitica) to be similar to those who were exposed. Having such selection criteria would assure that they were more similar across variables which could not be adjusted for.

Ascertainment of enteric exposures among ‘controls’: Because multiple types of infections can cause ReA, EN, ocular findings, did you query these subjects about recent infectious illness in the preceeding month?

Analysis: Authors should justify why ORs and RRs were computed. Since this was event based data (with person-time denominator), it would seem that a Poisson regression that accounts for matched un-exposed individuals should be utilized (see Zou G. A modified poisson regression approach to prospective studies with binary data. Am J Epidemiol. 2004;159(7):702–706.). Authors should justify the appropriateness of their statistical methods used.

Results:

• The finding of appendectomy associated with appendicitis which is associated with Yersinia is not novel. Presentation of the odd’s ratio is therefore not interesting. Simply describing that you saw it is enough.

• It is strange that one of the main objectives of this study was to identify the
relative risk of select outcomes (ReA, EN, conjunctivitis) among those exposed to Yersiniosis and those who were not. Table 4 describes odd’s ratios (Risk Ratios or Incident Rate Ratio more appropriate) of these outcomes between “case-patients” (exposed) and “non-case patients” (unexposed) however these are no where mentioned in the results.

Discussion: (see control selection above) Authors should comment on how control selection and assessment of outcomes (and antecedent preceding GI illness/STD exposure), may have affected the estimates derived from this study.

Minor compulsory Revisions:

Introduction: For completeness, authors should be aware of the scope of post-Y enterocolitic infections that have been shown to occur (see Porter CK et al., Pathogen-specific risk of chronic gastrointestinal disorders following bacterial causes of foodborne illness. BMC Gastroenterol. 2013 Mar 8;13:46. Finding: Yersinia enterocolitica risk of functional bowel disorders, particularly IBS.)

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.