



Coxiella burnetii antibody prevalence in humans in Estonia.

Neare K¹, Janson M¹, Tummeleht L¹, Hütt P², Lassen B³, Viltrop A¹

¹ Estonian University of Life Sciences, Institute of Veterinary Medicine and Animal Science, Tartu, Estonia

² University of Tartu, Faculty of Medicine, Department of Microbiology

³ University of Copenhagen, Department of Veterinary Disease Biology

Correspondence e-mail: kadi.neare@emu.ee

INTRODUCTION

In humans, Q fever, caused by *Coxiella burnetii* (C.b.), has been diagnosed nearly all over the world. The cases are often related to domestic animal outbreaks. In recent years, the knowledge about the disease and infection has improved (Eldin *et al.*, 2017). In Estonia, the study group was able to receive human samples, stratified by population density and gender, and linked questionnaires from Estonian Genome Center (EGC) to evaluate the health status of the local general population. Detection and clarifying the prevalence of C.b. antibodies were two of many goals set. The disease has not been diagnosed in Estonia before. Here we report the preliminary results of a larger study, clarifying the prevalence of C.b. antibody prevalence and possible risk factors in humans.

MATERIALS

Risk groups:

- Blood samples were collected on a voluntary basis, afterwards serum was separated.
- Questionnaires were used to detect risk factors.

General population:

- A random sample of plasma samples and matching questionnaires to detect risk factors was received from EGC.

METHODS

Sample analysis:

- Serum and plasma samples were tested with Q Fever IFA IgG kit produced by Focus Diagnostics.

Statistical analysis:

- To evaluate the significance of the variables, logistic regression analysis was performed. Program R, version 3.0.1, package Rcmdr was used to carry out the analysis.

Table 1. Binary logistic regression analysis results showing Standard errors and odds of being tested *Coxiella burnetii* antibody positive in different risk groups compared to general population.

Variable	Standard error	Odds Ratio (95% CI)	p-value
General population	Reference	1	
RiskGroups			
Vets and vet assistants	0.973476	2.65 (1.38 ... 5.08)	0.00339
Dairy cattle caretakers	0.672844	1.96 (1.02 ... 3.76)	0.04302
Beef cattle caretakers	-0.376032	0.69 (0.09 ... 5.17)	0.71506
Small ruminant caretakers	-0.550227	0.58 (0.08 ... 4.30)	0.59151
Hunters	-0.026589	0.97 (0.33 ... 2.87)	0.96151
Age (years)	0.00674	1.01 (0.99 ... 1.02)	0.40551
Gender (reference= male)	0.176815	1.19 (0.70 ... 2.04)	0.51716

RESULTS

The study indicates that:

- Veterinary practitioners, vet assistants, and dairy cattle caretakers have a significantly higher risk for exposure to C.b. compared to the general population in Estonia.
- Age and gender seem to increase the risk of being tested C.b. antibody positive in the risk groups in Estonia.

ACKNOWLEDGEMENTS

Estonian Genome Center – for general population plasma samples and questionnaires/information. Research was funded by Estonian Research Council, Health promotion research programme TerVE; project No3.2.1002.11-0002



Eesti Maaülikool
Estonian University of Life Sciences

Veterinaarmeditsiini ja loomakasvatuse instituut
Institute of Veterinary Medicine and Animal Sciences

www.emu.ee



Eesti Teadusagentuur
Estonian Research Council

TerVE

