Assessment of vertical / pseudovertical transmission of Mycobacterium bovis infection in cattle

Menzies F.D., Abernethy D.A., Honhold N., Stringer L.A. & Denny G.O.
Veterinary Service, Department of Agriculture and Rural Development (DARD), Northern Ireland. Email: fraser.menzies@dardni.gov.uk

Introduction

Infection with *Mycobacterium bovis* is the cause of bovine tuberculosis. The low infectious dose along with the transmission dynamics (via aerosolised droplet nuclei) and the proximity of dam and off-spring, would suggest that the progeny of TB infected dams are more likely to become infected than their within-herd cohorts.

The aim of this study was to assess if the progeny of TB infected dams were at a higher risk of developing TB.

Method

- Matched cohort study design
- Exposed cohort
  Last progeny of confirmed TB cases in 2002 (provided progeny were born < 9 months before slaughter of dam and calf survived > 15 months).
- Unexposed cohort
  Cohorts matched 1:1 within herd of birth and by date of birth of exposed cohort (+/- 1 month). Progeny of all dams that were tuberculin skin reactors excluded and unexposed cohort calf survived > 15 months.

The selected cohorts were then linked to datasets of tuberculin reactor animals and animals found to have TB at routine slaughter to identify their TB status.

Results

- 1,156 matched cohorts

  Exposed cohort
  32 TB cases (2744 years at risk)
  Annual incidence rate = 1.17%

  Unexposed cohort
  24 TB cases (2754 years at risk)
  Annual incidence rate = 0.87%
- Relative risk 1.34 (95% CI 0.79 - 2.27)
- No significant difference (McNemar test p=0.2)

Conclusions

- The off-spring of TB infected dams do not appear to be at a significantly increased risk of developing TB.
- Data to be re-analysed as 30% of cohorts are still alive.
- Re-evaluate this potential risk factor using a case-control approach.