Case-control study into risk factors for visible lesions or positive laboratory tests in bovine tuberculosis reactor cattle in Northern Ireland

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To determine the risk factors that affect the presence of visible lesions or positive laboratory tests in bovine tuberculosis (bTB) reactor cattle (i.e. cattle that reacted to the single intradermal comparative (SIC) tuberculin skin test) in Northern Ireland. An observational case control study was conducted of all reactor cattle in Northern Ireland in 1998, 2002 and 2006. Data were obtained from APHIS (Animal and Public Health Information System). Step wise logistic regression modelling was used to investigate potential risk factors, hypothesised to be associated with the presence of visible lesions in bTB reactor cattle or positive laboratory tests. Out of the 29,846 reactor cattle investigated, 43.0% had visible lesions at post-mortem and 45.4% were confirmed as bTB positive by laboratory tests. In 97.5% of the reactors the visible lesion status and bTB status were either both negative or both positive. Significant risk factors identified through the multivariable analysis (P<0.05) were age at death, breed, sex, test year, net rise in bovine skin thickness, risk status of the disclosure test, total number of reactors at the disclosure test, history of being in an area with confirmed bTB and being an inconclusive at a SIC skin test previously. These risk factors are likely related to other factors including the strength of the challenge and the susceptibility of the animal. These findings are important as the detection of visible lesions and the confirmation of bTB are integral parts of the overall bTB control programme in Northern Ireland.