Abstract

This population-based retrospective study examined the DNA fingerprints of all laboratory confirmed cases of tuberculosis (TB) in the Northwest Territories, Canada (NWT), between 1990 and 2009. An isolate of each lab-confirmed case had genotyping done using IS6110 Restriction Fragment Length Polymorphism (IS6110-RFLP). DNA patterns were assigned to each DNA fingerprint and indistinguishable fingerprints patterns were assigned a cluster. Trend analysis using chi-square and correlation studies using odds-ratio were used to examine the demographics, risk behaviour, and clinical aspects with the major DNA fingerprint clusters. Social Network Analysis (SNA) was used to examine direct linkages among cases through conventional contact tracing (CCT), their DNA fingerprint, and community. Eight clusters were found among 195 cases. Clustering was associated with risk factors of unemployment, excessive alcohol consumption, homelessness, and previous exposure to a case. DNA fingerprinting and SNA can be additional epidemiological tools, along with CCT, to determine transmission patterns of TB.