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Title: Prevalence of latent tuberculosis infection among household contacts and community controls in South India

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Body: Introduction: Household contacts (HHC) are at higher risk of tuberculosis, but in endemic countries most of the burden occurs outside case households. This study examines differences at baseline infection rates between HHC and community controls (CC) and assesses the influence of risk factors. Methods: Tuberculin skin test (TST) and Quantiferon test (QFT) were collected from prospectively recruited HHC and CC in South India at baseline. Comparisons between positivity rates were conducted along with logistic regression adjusted for household correlations using generalised estimated equations. Results: We recruited 359 HHC of 114 index TB cases and 363 CC with similar demographics. High rates of positivity were observed in both groups (56% using TST ≥10mm and 44% using QFT in HHC) and 54% using TST ≥10mm and 44% using QFT in CC. Four active TB cases were also detected among HHC (prevalence-1.14%, (CI=0.3-3.7)) with none among the CC. HHC (<15 years) were significantly more likely to be TST (OR=2.34, CI=1.23-4.45) and QFT (OR=2.85, CI=1.3-6.27) positive compared to controls of same age. Risk factors analysis showed that age in decades (OR=1.53, CI=1.22-1.92) and male gender (OR=1.15, CI=1.01-1.32) were significantly associated with increased TST and QFT positivity. Conclusion: TB exposure in both arms were similar at baseline but this masked a significant difference in rates of exposure in child contacts. This data will inform estimates of the force of infection with applications to modelling studies. Risk factor results and incidence of active TB were in line with previously identified results, with the study not powered to detect the influence of multiple factors.