ABSTRACT | Paula Rodrigues

Title

High rates of reinfection tuberculosis: the selection hypothesis

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Abstract

Recent molecular epidemiology studies indicate that rates of reinfection tuberculosis are higher than rates of new tuberculosis. We propose the selection hypothesis to reconcile these observations with the consensual view that infection confers some degree of protection that reduces the individual susceptibility to reinfection. We postulate that some individuals are a priori more likely to develop the disease because they are more exposed or have some form of innate susceptibility. As infection tends to affect individuals at higher risk, the distribution of recovered individuals is skewed towards higher susceptibility inflating the rates of reinfection. The hypothesis is formulated mathematically and confronted with data from six regions representing distinct transmission intensities distributed worldwide. We retrieve natural history parameters in agreement with previous estimates and propose a criterion for further validation.