Bartonella species in human and animal populations in Gauteng, South Africa, 2007-2008

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Bartonella is a genus of fastidious bacteria responsible for a wide range of both symptomatic and asymptomatic infections. Bartonellae are often considered obligate pathogens where infection is concurrent with immunological suppression of the host. The objectives of this study were: to determine the prevalence of Bartonella infections in HIV-positive patients presenting for treatment at a Gauteng HIV-clinic, to determine the extent of bartonellae affecting the healthy population, to determine the seroprevalence of Bartonella henselae and Bartonella quintana antibodies in HIV-negative antenatal patient sera taken from various maternity units in Gauteng public hospitals, and to investigate cats, dogs, and rodents in Johannesburg for carriage of bartonellae. A total of 382 HIV-positive patients attending the HIV clinic and 42 clinically healthy volunteers agreed to participate. Three-hundred and forty-two residual sera from the national antenatal survey were selected and tested for IgG and IgM antibodies against Bartonella. There were 179 dogs, 98 cats and 124 rodents enrolled in this study. The seroprevalence for Bartonella in humans was carried out using IgG and IgM commercially available kits. HIV-positive patients were found to have 32% IgG and 14% IgM seroprevalence, whereas the healthy volunteers had a lower IgG (19%) and higher IgM seroprevalence than the HIV-positive counterparts. All blood samples were cultured, but only the cat and rodent specimens yielded isolates. These were sequenced for species identification. The cat isolates were 99 and 100% similar to B. henselae URBHLIE 9 previously isolated from a patient with endocarditis, and the rat isolates were 98 – 99% similar to either RN24BJ (candidus ‘B. thailandensis’) or RN28BJ, previously isolated from rodents in China. The PCR prevalences were: 22.5% in HIV-positive patients; 9.5% in clinically healthy volunteers; 23.5% in cats; 9% in dogs; and 25% in rodents. Findings of this study have important implications for HIV-positive patients.