Bacteria of the genus *Bartonella* are considered as emerging vector-transmitted pathogens. Among the 13 species or subspecies recognised or suspected to be pathogenic for humans, only three have been detected in Italy: *Bartonella henselae*, *Bartonella clarridgeiae* and *Bartonella quintana*.

*Bartonella henselae* is the principal cause of cat scratch disease (CSD), which was first described as a clinical entity in 1950. The spectrum of human clinical diseases caused by *B. henselae* has increased progressively in recent years. Besides CSD, *B. henselae* has been reported to cause several clinical syndromes in people, including bacillary angiomatosis, bacillary peliosis, bacteraemia, endocarditis, and neurological disorders. The common house cat is the main natural reservoir of *B. henselae*, and humans mainly acquire infection through a cat scratch or bite.

In Italy, relatively few studies have reported the prevalence of *Bartonella* infection in the cats population (Table 1). *B. henselae* antibody prevalence varies from 16% of pet cats (40/254) in Tuscany (central Italy) to 39% of stray cats (553/1416) from various areas in northern Italy. The highest prevalence of *Bartonella* bacteraemia was reported in a study of 1585 stray cats in northern Italy, where 23% (n = 361) were bacteraemic. In a study of 769 stray cats, *B. henselae* was isolated from the blood culture of 140 cats. The molecular typing of 131 of the 140 isolates showed that 21% of bacteraemic cats were infected with *B. henselae* type I strain, 61% with *B. henselae* type II, and 18% with both. In another study in northern Italy, *B. henselae* type II was the predominant type in stray cats but not in pet cats.

Antibodies to *B. henselae* were also detected in 58 out of 205 (28%) dogs in Sardinia and in 23 out of 381 (6%) dogs in Emilia Romagna (northern Italy) (Table 1).

The presence of *Bartonella* species in ticks in Italy was initially investigated by Sanogo et al., who detected *B. henselae* in four (1.5%) *Ixodes ricinus* ticks removed from persons in the Belluno Province in 2000–2001 [1]. From June to July 2001, some of the authors of the present work used PCR to examine 470 Ixodidae ticks collected by flagging vegetation from Alto Adige (40 samples of 308 *I. ricinus* and nine samples of 162 *Haemaphysalis punctata*): *B. henselae* DNA was detected in one of the 40 *I. ricinus* samples and in one of the nine *H. punctata* samples.

Although the incidence of CSD in Italy is unknown, numerous cases have been reported in immunocompetent persons and a few cases in immunocompromised persons. Atypical cases of CSD in immunocompetent persons have also been reported. Though many *B. henselae* isolates have been obtained from domestic cats in Italy, no strain of human origin has been cultured or characterised. The characterisation of two cat isolates by PFGE allowed the two isolates to be differentiated, suggesting that they derived from two different clones [2].

*Bartonella clarridgeiae* is another agent of CSD, though rare. In the study by Fabbi et al. (Parassitologia 2004; 46: 127–129) (Table 1), from 5% (stray cats) to 6% (pet cats) of the *Bartonella* isolates were *B. clarridgeiae*.

*Bartonella quintana* was recognised as the causative agent of trench fever in 1915, during World War I. More recently, *B. quintana* has also been associated with endocarditis and bacteraemia in homeless people and with chronic lymphadenopathy and bacillary angiomatosis, an AIDS-related disease first described in 1983. Humans are the only known reservoir of *B. quintana*, which is transmitted by body lice. The infection is typically found in crowded areas with unsanitary living conditions. In 1997, a *B. quintana* strain was
isolated from the blood culture of an HIV-infected person with bacillary angiomatosis [3]. The isolate was similar but not identical to \textit{B. quintana} Oklahoma, which was used as a control strain. This case of bacillary angiomatosis is the only case of \textit{B. quintana} infection in Italy since World War I.

In 1994, an imported case of verruga peruana in an Italian traveller returning from Peru was also reported [4]. The causative agent, \textit{Bartonella bacilliformis}, is only found in specific regions of Peru, Ecuador and Colombia.

A recent study has shown that 24\% \((8/33)\) of cattle in a herd in the province of Venice were bacteraemic with \textit{Bartonella bovis} [5]. To date, \textit{B. bovis} has only been reported in cattle, wild ruminants, cats and dogs. Recently, two cases of \textit{B. bovis} endocarditis were reported in adult cows in France.

In conclusion, the data presented here show that very little is known about \textit{Bartonella} species in Italy. Nonetheless, more attention should be focused on \textit{Bartonella} infections in both immunocompetent and immunosuppressed individuals. The current knowledge of \textit{Bartonella} infections in Italy can only be increased by more extensively applying techniques based on gene amplification.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|c|}
\hline
\textbf{Location} & \textbf{Animal populations} & \textbf{Blood culture} & \textbf{Serology} & \textbf{Reference} \\
& & \textbf{No. of animals examined} & \textbf{No. of animals testing positive (\%)} & \textbf{No. of animals examined} & \textbf{No. of animals testing positive (\%)} \\
\hline
Emilia-Romagna (northern Italy) & Pet cats & 248 & 24 (10) & 254 & 40 (16) \\
Tuscany (central Italy) & Pet cats & 769 & 140 (18) & 540 & 207 (38) \\
Lombardia (northern Italy) & Stray cats & 1585 & 361 (23) & 1416 & 553 (39) \\
Northern Italy & Pet cats & 165 & 35 (21) & 165 & 49 (30) \\
Sardinia & Stray/pet cats & 79 & 17 (22) & 79 & 17 (22) \\
Emilia-Romagna (northern Italy) & Dogs & 205 & 58 (28) & 205 & 58 (28) \\
Sardinia & Stray/pet cats & 381 & 23 (6) & 381 & 23 (6) \\
\hline
\end{tabular}
\caption{\textit{Bartonella henselae} infection surveys (bacteraemia or antibodies) in cats and dogs in Italy}
\end{table}

\begin{thebibliography}{99}
\bibitem{3} Ciervo A, Petrucca A, Ciarrocchi S \textit{et al.} Molecular characterization of first human \textit{Bartonella} strain isolated in Italy. \textit{J Clin Microbiol} 2001; \textbf{39}: 4554–4557.
\end{thebibliography}