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NEWSLETTER

Bartonellosis: Human *Bartonella* Diseases- What If?©

Evelyn E. Zuckerman, Editor **Summer 2023** **Vol. 22 Number 3**

In This Issue:

The Summer 2023 NVL Newsletter will be a slightly modified reproduction of our Summer 2017 **What If?** Newsletter reviewing the human diseases (bartonellosis) caused by *Bartonella spp*. We will also discuss a paper describing the US physicians experience and knowledge about cat scratch disease (CSD). **What If?** Would you screen cats for a common pathogen? **1.** If 35% of healthy cats are infected with the pathogen?[1] **2.** If the pathogen causes numerous inflammatory diseases in cats?[1] **3.** If there is an economical and accurate blood test to detect infected cats?[2] **4.** If there are effective antibiotic therapies to eliminate the infection in cats?[3-4] **5.** If this pathogen is zoonotic and can cause serious diseases in their owners?[5-6] **6.** If the human diseases, caused by this cat pathogen are: severe malaise, chronic fevers, chronic arthropathy, reduced or loss of vision, osteomyelitis, heart disease, liver disease, encephalitis- seizures, "brain fog," painful lymphadenopathy?[7] What is your liability- moral or legal? Are you recommending testing for the common cat pathogen- ***BARTONELLA*****?** Do you think US physicians are experienced and knowledgeable about the *Bartonella* zoonosis from pet cats? As veterinarians, you are the "first line of defense" to prevent human zoonotic bartonellosis and to prevent *Bartonella*-induced inflammatory diseases in your feline and canine patients. It is now flea and tick season and fleas and ticks transmit *Bartonella* among pet cats and dogs- what will you do?

Bartonellosis:

Presently, there are 34 *Bartonella* species of which at least 15 have been shown to cause disease in humans. The most common human pathogenic *Bartonella* species is *Bartonella henselae*, derived from its most common reservoir, pet cats, which can cause severe diseases (bartonellosis) in various major organ systems including the heart, brain, eyes, liver, spleen, lungs, skin, and the GI tract. The term cat scratch disease (CSD) is commonly used to include all the pathogenic consequences of *Bartonella* infections. Many physicians use the terms "typical" CSD to define the benign syndrome and "atypical" CSD to denote more severe (sequelae) inflammatory diseases of various organ systems. The former human *Bartonella* paradigm stated that *Bartonella* caused CSD, a self-limiting condition, occurring mostly in children, characterized by fever, a papule at the scratch site and regional lymphadenopathy. Most "typical" CSD cases resolve without antibiotic therapy although in the less common systemic "atypical" CSD cases there is involvement (sequelae) in major organs (Figures 1 & 2).

Figure 1

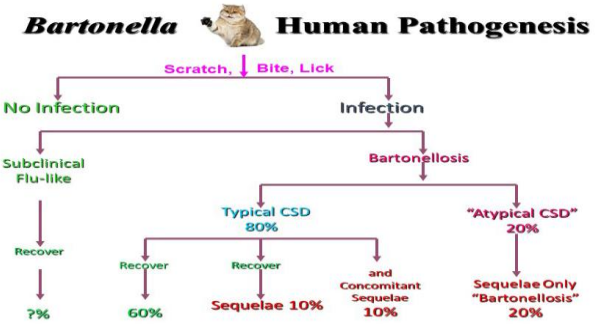
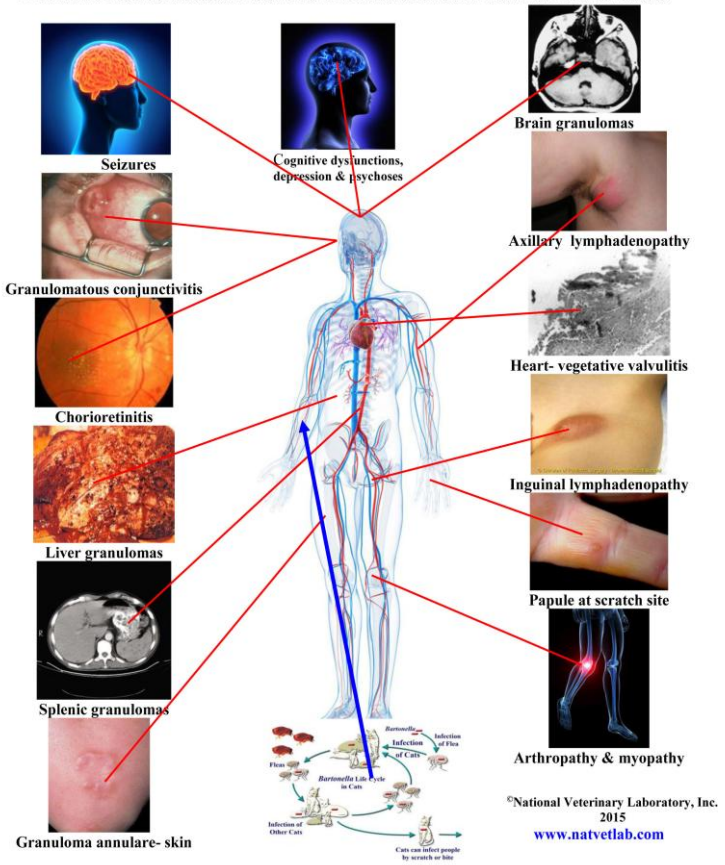


Figure 2

Human *Bartonella* Diseases Derived from Feline *Bartonella*



CSD: US Physicians Experience and Knowledge:

A paper entitled: Cat scratch disease: US clinicians experience and knowledge, by Nelson C.A., et. al., from the Centers for Disease Control and Prevention in Fort Collins, Colorado, investigated the experience and knowledge of physicians in the US concerning CSD.[8] They surveyed 3,011 (primary care providers, family practitioners, internists, pediatricians, and nurse practitioners), during 2014-2015, as part of an annual nationwide DocStyles survey. Three questions regarding CSD were asked:

Q1: In the past year, how many patients did you diagnose with CSD? Responses were grouped into 2 categories: **None or ≥1 patient**.

Q2: A 16-year-old- female presents with typical CSD signs and you diagnose CSD. What would you do next? Select one: **Red** is the CDC recommendation.

1. **Recommend analgesics and monitor the patient.**[9]
2. Prescribe antibiotics and monitor the patient.
3. Recommend analgesics and aspirate the lymph node.
4. Prescribe antibiotics and aspirate the lymph node.
5. None of these.

Q3: Cats and their fleas are reservoirs for *Bartonella henselae*. An immunocompromised patient who owns a cat should be counseled to:

Select one: **Red** is the CDC recommendation.[9,10]

1. Give the cat away.
2. **Avoid rough play with cat & treat for fleas.**
3. Test cat for *Bartonella*/Treat cat if positive.
4. Take no special precautions.
5. Don't know.

Results:

Q1: 37.2% of clinicians surveyed had diagnosed at least one case of CSD in the prior year. Pediatricians diagnosed the most cases (47.2%) followed by family practitioners (40.6%) whereas nurse practitioners diagnosed the fewest CSD cases (21.2%). Clinicians who saw some pediatric patients (patients ≤17 years of age) diagnosed more cases that those that did not. Clinicians in the Pacific region diagnosed the most cases (44.2%) whereas those in the mountain region diagnosed the least (27.6%). These authors divided the country geographically differently than we have in our studies where we used zip codes.

Q2: Only 12.5% of the clinicians chose the CDC recommended treatment option of **"analgesics and monitoring."** Among all clinicians, **"antibiotics and monitoring"** was the most common choice (71.4%), especially among family practitioners. Pediatricians (20.1%) were the most likely to choose the recommended treatment of **"analgesics and monitoring."** We were happy to see that physicians recommend antibiotic therapy for people with typical CSD as we feel this should help to prevent the infection from becoming more severe with the development sequelae and inflammation in various organ systems-atypical CSD.

Q3: Assessing the knowledge of CSD prevention in an immunocompromised patient, most clinicians (31.2%) chose to recommend **"test the cat for *Bartonella*/treat cat if positive"** rather than the CDC recommended **"avoid rough play with the cat and treat for fleas"** (30.3%). We are happy to see that most clinicians recommend test and antibiotic therapy for infected cats as we also recommend this action since we feel our WB *Bartonella* test and therapy recommendation should be more effective in protecting susceptible immunocompromised people.

Conclusions:

We quote the author's conclusions of this paper verbatim. "More than one third of clinicians surveyed reported having diagnosed at least one case of cat scratch disease in the prior year. The overall lack of concordance of survey answers with current CSD treatment guidelines was remarkable. Only 12.5% of respondents correctly chose to treat a hypothetical patient with uncomplicated CSD with analgesics and monitoring, while 71.4% chose to treat with antibiotics. One likely reason for this is lack of awareness of published treatment guidelines (Angelakis & Raoult, 2014). This is understandable, however, given the challenges of keeping up with guidelines for the myriad conditions that primary care providers manage. Nevertheless, our findings demonstrate a need for enhanced education and resources for both clinicians and patients regarding CSD treatment in the US."

"Notably, clinician's specialty appears to play an important role in treatment decisions, with family practitioners being more likely to prescribe antibiotics, internists being more likely to aspirate and pediatricians being more likely to choose analgesics. Nevertheless, these results indicate that clinician and patient education may serve to limit the overuse of antibiotics and invasive procedures for otherwise benign and self-limited cases of CSD."

"Although relatively few clinicians (30.3%) chose the preferred response of **"avoid rough play with cat and treat for fleas"** when confronted with an immunocompromised patient with a cat, the majority of clinicians chose some form of precaution. The most popular option chosen was **"test cats for *Bartonella* and treat cat if positive"**, which is not recommended due to the poor predictive value of testing, lack of evidence for treatment of otherwise healthy cats and difficulty administering medication to cats.[10,11] Additionally, giving the cat away is generally not recommended due to the potential benefits that pet ownership provides."

"This study was subject to several limitations…and sampling bias may still exist and limit generalizability. CSD diagnoses were self-reported by survey respondents with no means to verify true infections. Finally, we were unable to differentiate whether incorrect responses for treatment and prevention questions were due to lack of knowledge of guidelines or other factors such as practitioner preference or questionnaire fatigue. A high proportion of inaccurate responses to questions regarding CSD treatment and prevention reveals potential knowledge gaps among the primary care community. Education and enhanced resources targeted to general practitioners in high incidence regions may improve implementation of these guidelines, decreasing unnecessary treatments and preventing transmission in high-risk patients."

Editorial Comments:

We are encouraged to see that the CDC has investigated the knowledge of physicians and *Bartonella* diseases. For the past 23 years we have studied cases of *Bartonella* infection in the owners of cats that we have tested. Many of our findings of the geographic distribution of *Bartonella* in cats are similar to those reported in this paper. However, we differ greatly in the recommendation that there is no rationale for testing cats for *Bartonella* and treating those that are positive.

We feel it is not good medicine to allow patients infected with *Bartonella* from their cats, who develop CSD, to go untreated with antibiotics. Some of the people in our study who developed typical CSD, who were not treated with antibiotics, progressed to the atypical bartonellosis CSD with severe inflammatory disease in major organs. We feel simple antibiotic therapy for all patients with CSD, or *Bartonella* infection, should be recommended.

Now that we are in the midst of the flea and tick season in this country, we feel that veterinarians must become more proactive in identifying and treating *Bartonella* infected cats. Most veterinarians will test for FeLV and FIV but many will not test for the zoonotic pathogen *Bartonella* in cats. *Bartonella* is 15 times more likely to be present in pet cats than either of the feline retroviruses. There is a reliable and accurate *Bartonella* serological test and effective antibiotic therapy for pet cats carrying this zoonotic pathogen.[2-4]

What will you do?

More cases of CSD occur in the fall of each year after the flea season. During the summer, fleas transmit *Bartonella* among cats and especially to kittens. By the fall, many kittens are newly introduced into households, carrying newly acquired *Bartonella*. As kittens are more playful than adult cats, they often scratch and bite in a playful fashion which can transmit *Bartonella* to family members. Shouldn't you counsel cat owners about the dangers of *Bartonella* and recommend testing adult cats and kittens? What if you don't counsel and one of your clients develops one of the *Bartonella* diseases?[5-14]

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***Bartonella* references can be obtained at: www.nlm.nih.gov/ or natvetlab.com**