

Coronavirus SARS-CoV-2 (COVID-19) and Companion Animal Pets

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Keywords

Coronavirus; Respiratory Syndrome; Animals

Background

Coronaviruses belong to a large family of related viruses that can infect and cause diseases of the respiratory and gastrointestinal tracts of mammals and birds [1-8]. The human strains were first identified in the 1960s, and were the cause of common colds, which could lead to bronchitis and pneumonia [1-3]. Coronaviruses are zoonotic microbes that can jump between species and are transmitted between animals and people [3,4]. For example, the Severe Acute Respiratory Syndrome Coronavirus (SARS -CoV) of 2003 was transmitted by civet cats to humans, and the Middle Eastern Respiratory Syndrome (MERS-Co-V) of 2012-2018 had the dromedary camel as an intermediate host [1,2]. The SARS-CoV-2 virus that causes COVID -19 disease of 2019-2020 is believed to have been transmitted by bats, and not as originally thought by some to have arisen from certain snakes and ant-eating pangolins [4-6]. The beta-coronavirus (SARS-CoV-2) outbreak that began in the Wuhan area of China in late 2019 has 70% genetic similarity to SARS-CoV and 96% similarity to a bat coronavirus, or even to a chimera of the two viruses [9]. The current spread of COVID-19 disease is a result of human to human transmission [3,4]. Most symptoms are mild but they can develop into severe respiratory infections in elderly people and those with compromised immunity (e.g, cardiovascular and respiratory diseases, and diabetes) [3]. Importantly, SARS-CoV-2 infection of COVID-19 disease has been proven by gene sequencing to have evolved naturally as a mutation and was not a lab-constructed or purposely manipulated virus [9]. Regarding the alpha-coronaviruses of animals, the bovine and canine strains developed from a common ancestor in about 1950 [7,8]. These viruses were recognized in veterinary medicine to cause pathological conditions since the early 1970s. All have been intestinal (enteric) infections except for avian (mostly chicken) infectious bronchitis, which also targets the urogenital tract [7]. For dogs, there are two coronaviruses, the most common form that

can cause mild gastrointestinal tract symptoms, and a different rare respiratory form [7]. In cats, feline coronavirus is mainly a mild enteric infection, but it can undergo spontaneous mutation in some cats to cause feline infectious peritonitis (FIP) with high morbidity and mortality. In other species, the porcine coronavirus causes transmissible gastroenteritis, and both the bovine and porcine viruses cause diarrhea in young animals. Ferrets, rabbits, rats and mice are also infected. In bats, the most closely related coronavirus diverged from SARS in 1986 [3,4].

Companion Animal Pets

In times like this pandemic, please read the postings of the American Veterinary Medical Association (AVMA), the World Organisation for Animal Health (OIE), the World Health Organization (WHO) and the World Small Animal Veterinary Association (WSAVA) regarding companion pets and COVID-19 [3,4,7,8,10]. Please also see the links in the references from the Cybersecurity and Infrastructure Security Agency (CISA) of the U.S. Department of Homeland Security, and the U.S. Centers for Disease Control and Prevention (CDC) [11]. There is currently no evidence that companion animals can be infected with SARS-Cov-2 and no evidence that pet dogs or cats can be a source of infection to other animals or to humans [7,8,10,12]. However, the news about a 17-yr-old Pomeranian from Hong Kong with aging-related cardiovascular and renal diseases and possibly having COVID-19 disease from his infected caregiver, prompted more testing because some genetic material from the virus was present in his blood [12]. The follow up confirmatory rRT-PCR (real-time reverse transcriptase polymerase chain reaction) testing on this dog was negative, and there have not been any clinical signs of COVID-19; the dog has since passed away from old age [12]. There is absolutely no evidence that vaccinating dogs with commercially available canine corona vaccines will provide cross-protection against the infection by COVID-19, since the enteric and respiratory viruses are distinctly different variants of canine coronavirus [7,8]. No vaccines are currently available in any market for respiratory coronavirus infection in the dog. The WSAVA states that vaccinating pets with canine corona virus vaccine is not recommended, as it only affords protection against enteric canine coronavirus infection [8].

Precautionary Measures for Safety

Should precautionary measures be taken by pet owners when companion or other animals have close contact with humans sick or suspected with COVID-19 disease? In response, there have not been any reports of companion or other animals becoming sick with COVID-19 and currently there is no evidence that they play a significant epidemiological role in this human disease [7,8,10]. However, because animals and people can sometimes share zoonotic diseases, common sense prevails so that people who are sick with COVID-19 disease should limit contact with other people and companion and other animals, until we are informed otherwise [4,10,11]. It is now known that SARS-CoV-2 aerosols survive only for a few hours

in the air and can be present on surfaces for a few days [8,11]. This has translated to leaving 6 feet of space between people known or suspected to be infected, avoiding crowds in close quarters, and greeting people by waving, nodding or bowing instead of hand shaking. Importantly, washing hands in hot soapy water or using a hand sanitizer for at least 20 seconds, and not touching one's face (eyes, nose and mouth) are recommended. Some healthy people choose to wear a properly fitted face mask, although these are recommended for anyone with an upper respiratory illness and not for the general public. If most people wore them, this would limit the supplies needed for those that truly do need to use them, and perhaps impart a false sense of safety to those around them. The COVID-19 outbreak has raised concern about potential medical supply issues, including both pharmaceuticals and medical products such as personal protective equipment (e.g., gloves, masks, gowns) and surgical drapes [11]. Although no current shortages are reported, six of the 32 animal drug firms that supply finished drugs or source active pharmaceutical ingredients in China for the U.S. market, have stated that supply chain disruptions soon could lead to shortages. When handling and caring for animals, basic hygiene measures should always be implemented. This includes hand washing, preferably with hot soapy water, before and after being around or handling animals, their food or supplies, as well as avoiding kissing them, licking or sharing food [7,8,10]. We all must play a role in personal and community safety. The best approach is to prepare, be calm and give correct advice. Being overly fearful or panicking raises stress levels that can contribute to a reduction in immune function [13]. A healthy immune system is key to recovery against COVID-19 disease. As stated by the WHO: "Be Safe, Be Smart and Be Kind", and support one another [3]. Please show empathy towards those infected by COVID-19, and try not to spread rumors. In other words, "Be Supportive, Be Careful, Be Alert, and Stay Calm". For a simple and detailed guideline that includes even tips on how to dilute bleach to clean surfaces, please visit the CDC's page "How to Protect Yourself".

References

1. SARS (Severe Acute Respiratory Syndrome). World Health Organization. 2012.
2. Middle East Respiratory Syndrome Coronavirus (MERS-CoV). World Health Organization. 2019.
3. World Health Organization. Corona virus.
4. Centers for Disease Control and Prevention (CDC). Coronavirus (COVID-19).
5. Callaway E, Cyranoski D. Why snakes probably aren't spreading the new China virus. *Nature*. 2020;577(7792):1.
6. Cyranoski D. Mystery deepens over animal source of coronavirus. *Nature*. 2020;579(7797):18-9.
7. Dodds J. The Wuhan Coronavirus and Companion Pets. *Pet Health Resources Blog*.
8. Dodds WJ. COVID-19 and Companion Pets. 2020.
9. Science Alert. Coronavirus could be a 'chimera' of two different viruses, genome analysis suggests.
10. American Veterinary Medical Association. "Veterinary practices are "essential businesses". 2020.
11. Krebs, Christopher C. Memorandum on Identification of Essential Critical Infrastructure Workers During Covid-19 Response. U.S. Department of Homeland Security, Cybersecurity and Infrastructure Security Agency (CISA). 2020.
12. Brulliard, Karin. "Dog with 'Low-Level' Coronavirus Infection Remains Quarantined after Blood Test, Hong Kong Officials Say." *The Washington Post*, WP Company. 2020.
13. Dodds WJ. How does stress affect a dog's long-term health?. *Pet Health Resources Blog*. 2020.