Killing Canine Coronavirus

Canine coronavirus is an enveloped RNA virus. It causes gastrointestinal signs in puppies that can be severe or occasionally fatal, including diarrhea, vomiting, and dehydration. The virus is highly contagious and can be difficult to control once it becomes established in the environment. It is stable and not inactivated at low pH (3.0), is heat stable, and can be stored for years when frozen. Lipid solvents can inactivate the virus. In this study, the sensitivity of coronavirus to 3 chemical disinfectants that are commonly used in dog kennels was evaluated. Benzalkonium chloride, didecyl-dimethyl-ammonium chloride, and alkyl-dimethylbenzyl-ammonium chloride were evaluated at different concentrations on cell cultures of coronavirus. Effects of the disinfectants were evaluated by detecting morphologic changes, counting infected cells, and by calculating the tissue culture infective dose. Cells were harvested and examined at various times up to 72 hours after exposure. Cell cultures showed that as concentration of disinfectants increased so did efficacy. This in vitro model showed that the sensitivity of coronavirus to disinfectants varies, and the differences are dose-dependent.

COMMENTARY: This study describes an in vitro model for testing disinfectants against canine coronavirus. It has applicability as an animal model for testing disinfectants against human pathogens (severe acute respiratory syndrome [SARS] coronavirus). Control of both human and canine infections is dependent on appropriate prophylaxis and identification of disinfectants that can control the spread of viruses. The take-home message in this study is that commonly used disinfectants are effective when used as directed. There are 3 key points when disinfectants, and allow for the recommended contact time. The latter is often the weakest point in disinfection. Simply spraying and wiping an area is insufficient.—*Karen A. Moriello, DVM, Diplomate ACVD*

Action of disinfectants on canine coronavirus replication in vitro. Pratelli A. **ZOONOSES PUBLIC HEALTH** 54:383-386, 2007.