

RESEARCH ARTICLE

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Molecular and serological surveillance of canine enteric viruses in stray dogs from Vila do Maio, Cape Verde

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Abstract

Background: Infections caused by canine parvovirus, canine distemper virus and canine coronavirus are an important cause of mortality and morbidity in dogs worldwide. Prior to this study, no information was available concerning the incidence and prevalence of these viruses in Cape Verde archipelago.

Results: To provide information regarding the health status of the canine population in Vila do Maio, Maio Island, Cape Verde, 53 rectal swabs were collected from 53 stray dogs during 2010 and 93 rectal swabs and 88 blood samples were collected from 125 stray dogs in 2011. All rectal swabs (2010 n = 53; 2011 n = 93) were analysed for the presence of canine parvovirus, canine distemper virus and canine coronavirus nucleic acids by quantitative PCR methods. Specific antibodies against canine distemper virus and canine parvovirus were also assessed (2011 n = 88). From the 2010 sampling, 43.3% (23/53) were positive for canine parvovirus DNA, 11.3% (6/53) for canine distemper virus RNA and 1.9% (1/53) for canine coronavirus RNA. In 2011, the prevalence values for canine parvovirus and canine coronavirus were quite similar to those from the previous year, respectively 44.1% (41/93), and 1.1% (1/93), but canine distemper virus was not detected in any of the samples analysed (0%, 0/93). Antibodies against canine parvovirus were detected in 71.6% (63/88) blood samples and the seroprevalence found for canine distemper virus was 51.1% (45/88).

Conclusions: This study discloses the data obtained in a molecular and serological epidemiological surveillance carried out in urban populations of stray and domestic animals. Virus transmission and spreading occurs easily in large dog populations leading to high mortality rates particularly in unvaccinated susceptible animals. In addition, these animals can act as disease reservoirs for wild animal populations by occasional contact. Identification of susceptible wildlife of Maio Island is of utmost importance to evaluate the risk of pathogen spill over from domestic to wild animals in Cape Verde and to evaluate the associated threat to the wild susceptible species.

Keywords: Canine coronavirus, Canine distemper virus, Canine parvovirus, Cape verde, Molecular surveillance

Background

Over the past few years, efforts have been made towards a better understanding of the health status of animal populations, particularly regarding viral infections. Due to their high mutation rate and replication strategies, viruses are responsible for recently recognized emerging diseases, posing a danger not only to domestic and wild animals, but also to humans [1,2].

The high density of domestic and stray animals in urban areas enables viral dissemination and maintenance in these populations. Consequently, these animals can act as reservoirs of diseases, with the possibility of transmission to wildlife populations through occasional contact.

Canine parvovirus (CPV) was first identified in the late 1970s and was responsible for severe hemorrhagic gastroenteritis and myocarditis in dogs [3]. Parvoviruses are extremely stable in the environment and indirect transmission assumes a critical role in spreading

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