Detection of Viral Antigens for WNV and SLE by rt-PCR in Wild Turkey from South Georgia

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Abstract: West Nile virus (WNV), St. Louis encephalitis virus (SLE), eastern equine encephalitis virus (EEE), and avian influenza virus (AI) are zoonotic pathogens that affect many species including wild turkey (*Meleagris gallopavo*). Several studies have documented serum antibodies to these pathogens in wild turkey; however, few studies have tested for the presence of viral antigen in tissues. Therefore, we initiated a study to test samples of multiple organs (heart, liver, kidney, spleen, brain, testes, and lung) from opportunistically-collected wild turkey for the presence of these viruses. Tissues from 45 birds from South Georgia were collected from 2005 to 2007 mainly during the spring hunting seasons. The RNA was extracted from the fresh tissues and tested for WNV, SLE, EEE, and AI using rt-PCR. We found that 56% (15) of 27 turkeys were positive for WNV, 19% (5) of 27 were positive for SLE, and 0% (0) were positive for EEE and AI. Three birds tested positive for both WNV and SLE. Heart samples were negative for all viruses. St. Louis encephalitis virus was only detected in the brain tissues. Clinical disease consistent with infection by WNV or SLE was not observed in any of the individuals tested. The lack of clinical disease in the presence of viral antigen suggests subclinical infection. We suspect that clinical disease could become manifested in immunologically-stressed individuals. It remains unclear if wild turkeys serve as reservoirs of these pathogens; thus, this question warrants further investigation.

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