Selected Abstracts From the Literature


Case Description—Within a 2-week period, 4 southern cassowaries (Casuarius casuarius) at an exhibit at a Virginia zoo died acutely subsequent to eastern equine encephalitis virus (EEEV) infection. This prompted a search for other EEEV outbreaks in cassowaries, which resulted in the identification of 2 additional cassowaries that died of EEEV infection at a conservation center in Florida.

Clinical Findings—Both juvenile and adult birds were affected. Three of the 6 birds died acutely with no premonitory signs. Clinical disease in the other 3 birds was characterized by lethargy and ataxia. Clinicopathologic findings typically included leukocytosis, hyperuricemia, abnormally high liver enzyme activities, and hyper-β globulinemia, which was indicative of acute inflammation.

Treatment and Outcome—The 3 birds with clinical disease died despite supportive treatment. Gross abnormalities commonly observed during necropsy included coelomitis and evidence of diarrhea. Frequently observed histologic abnormalities were encephalitis, vasculitis, hepatitis, nephritis, and splenitis. The diagnosis of EEEV infection was confirmed by detection of serum anti-EEEV antibodies or detection of viral RNA in brain tissue by use of a reverse-transcriptase PCR assay.

Clinical Relevance—Findings suggested that EEEV can cause high morbidity and mortality rates in southern cassowaries. Clinical disease might be reduced or prevented by vaccination, isolation of ill birds, and mosquito control strategies.


Emerging diseases are continuously diagnosed in poultry species. A few of these diseases are known to cross the species barrier, thus posing a public health risk and an economic burden. We identified and synthesized global evidence for poultry non-foodborne zoonoses to better understand these diseases in people who were exposed to different poultry-related characteristics (eg, occupational or nonoccupational, operational types, poultry species, outbreak conditions, health status of flocks). This review builds on current knowledge on poultry zoonoses/potentially zoonotic agents transmitted via the nonfoodborne route. It also identifies research gaps and potential intervention points within the poultry industry to reduce zoonotic transmission by using various knowledge synthesis tools such as systematic review (SR) and qualitative (descriptive) and quantitative synthesis methods (ie, meta-analysis). Overall, 1663 abstracts were screened and 156 relevant articles were selected for further review. Full articles (in English) were retrieved and critically appraised using routine SR methods. In total, 8 known zoonotic diseases were reviewed: avian influenza (AI) virus (n = 85 articles), Newcastle disease virus (n = 8), West Nile virus (WNV, n = 2), avian Chlamydia (n = 24), Erysipelothrix rhusiopathiae (n = 3), methicillin-resistant Staphylococcus aureus (MRSA, n = 15), Ornithonyssus sylviarum (n = 4), and Microsporum gallinae (n = 3). In addition, articles on other viral poultry pathogens (n = 5) and poultry respiratory allergens derived from mites and fungi (n = 7) were reviewed. The level of investigations (eg, exposure history, risk factor, clinical disease in epidemiologically linked poultry, molecular studies) to establish zoonotic linkages varied across disease agents and across studies.

Based on the multiple outcome measures captured in this review, AI virus seems to be the poultry zoonotic pathogen that may have considerable and significant public health consequences; however, epidemiologic reports have only documented severe human cases clustered in Asia and not in North America. In contrast, avian Chlamydia and MRSA reports clustered mainly in Europe and less so in North America and other regions. Knowledge gaps in other zoonoses or other agents were identified, including potential direct (ie, non-mosquito-borne) transmission of WNV from flocks to poultry workers, the public health and clinical significance of poultry-derived (livestock-associated) MRSA, the zoonotic significance of other viruses, and the role of poultry allergens in the pathophysiology of respiratory diseases of.