Prevalence of Avian Influenza H5N6 in Birds: A Systematic Review and Meta-analysis of Other Viral Zoonosis


ABSTRACT

Avian influenza viruses (AIV) are zoonotic pathogens that can potentially affect humans and potentially be epidemic in a region. Birds (such as poultry and wild birds) serve as potential reservoirs for these viruses, highlighting the importance of determining AIV prevalence in the avian population. No systematic reviews have been published on this issue in the world so far. The present systematic literature review following the PRISMA standard, with meta-analysis, used three databases to globally assess the Influenza H5N6 infection in birds (including poultry and wild birds). A model of random-effects meta-analysis was performed to calculate the pooled prevalence and 95% Confidence Interval (95% CI) for the prevalence of Influenza H5N6 infection in birds. A total number of 14,605 articles published from 2015 to 2020 were retrieved. After screening the abstract/title, 37 articles were selected for full-text assessment, and 15 were included for qualitative and quantitative analyses. Of the total number of birds (n = 13,416 birds), the pool prevalence by RT-PCR was 3.5% (95% CI: 2.8-4.3%). From the total, 39.67% of the birds assessed were ducks (family Anatidae), in which pool prevalence was 7.7% (95% CI: 4.4-11.0). In chickens (*Gallus gallus domesticus*), the pool prevalence was 3.3% (95% CI 1.9-4.8). Vietnam was the country with the highest pool prevalence; 7.9% (95% CI 4.0-11.7%). Bangladesh was the country with the lowest pool prevalence of 0.4% (95% CI 0.2-0.7%). A considerable proportion of infected birds tested positive highlighted the relevance of individual animals as reservoirs of H5N6. Ducks and chickens were found to be positive by RT-PCR in over 3% of the cases. These data suggest their relevance in maintaining zoonotic transmission and their potential implications for epidemics and even pandemics in the near future.

**Keywords:** H5N6, Influenza, Meta-Analysis, Molecular diagnosis, RT-PCR, Systematic Review

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ABSTRACT

A 10-year (2008-2017) retrospective canine-mediated human rabies epidemiology was studied from Sukraraj Tropical Hospital, Kathmandu, Nepal. The findings revealed that the number of dog bite cases in humans recorded between 2008 and 2017. Every month, there were 252,297 dog bite cases in humans recorded between 2008 and 2017. On average, 36,995 PEP dosages were used per year for stray dog bites. There were 482 human rabies deaths recorded in Nepal during the study period. On average, 49 people died of canine-mediated rabies each year. Although there was an increase in the use of Post-exposure Prophylaxis (PEP), the number of human deaths and street dog bites recorded were still high. The high rabies burden could then be attributed to the flawed surveillance system and stray dog management. Vaccination and population management program for stray dogs are needed to reduce the country's rabies burden.

Keywords: rabies, Nepal, dog bite, Post-exposure Prophylaxis, human rabies.
Production of Newcastle Disease Polyclonal Antibody as the Alternative of Immunohistochemistry Primary Antibody against Newcastle Disease in Poultry

ABSTRACT

The present study aimed to produce ND polyclonal antibody as the alternative of immunohistochemistry primary antibody for diagnosing ND in poultry. Two adult male New Zealand rabbits were vaccinated seven days after the adaptation using intraperitoneal injection of the ND live vaccine at multilevel doses weekly. The serum was collected and their samples of brain, lung, spleen, and intestine were tested using immunohistochemistry primary antibody against Newcastle Disease in Poultry. A total number of 12/31 (39%) were negative. Based on the obtained results, immunohistochemistry using aggregate polyclonal antibody produced by vaccination in the rabbit could be used as the alternative of immunohistochemistry primary antibody for diagnosing Newcastle disease in poultry. It can be concluded that ND polyclonal antibody had a similar accuracy with RT-PCR. It can be recognized that ND immunohistochemistry primary antibody against Newcastle Disease in Poultry may be used as the alternative of RT-PCR and immunohistochemistry primary antibody for diagnosing Newcastle disease in poultry.

Keywords:
- Newcastle disease
- Immunohistochemistry
- Polyclonal antibody
- Poultry
Chicken Anemia Virus, Egypt, Genetic evolution, Viral protein 1 gene


Role of elastin in the thickening of the postpartum vaginal wall

Elastin levels were significantly correlated with epithelial thickness.
The Patin catfish (Pangasius sp.) is a species of fish that is widely cultivated both in quarantine and in ponds. Based on the results of the current study, Patin catfish can be a good source of Omega-3 and Omega-6 if the feed that is used in the cultivation process, contains lysine as an amino acid. The research had a significant effect (p < 0.05) on the increase in the content of Omega-3 and Omega-6 in Patin catfish meat. The addition of the amino acid (lysine) in the commercial feed not only affects the metabolism of the fish but also the content of Omega-3 and Omega-6 would be found in the fish.
One way that can accelerate the growth of this fish in order to shorten the maintenance period is by the addition of essential amino acids, such as lysine. However, this certainly gives its own influence on energy retention. Therefore, the aim of this study was to determine the influences of addition of lysine in feed on energy retention and feed conversion ratio of carp. The research method used an experimental method with a completely randomized design consisting of five treatments and four replications. The treatments used were the addition of Lysine 0%, 1%, 2%, 2.5%, and 3%.

The results showed that the addition of lysine as much as 2% in commercial feed can increase the energy retention and decrease conversion ratio in carp. It can be concluded that the use of lysine has different effects related to the increase in energy retention of addition of lysine in feed on energy retention and decrease conversion ratio in carp.
Biochemical blood parameters, Crossbreed Holstein cows, Energy and protein supplementation, Traditional farmers. The study aimed to evaluate the effect of protein and energy supplementation on the biochemical blood profile in Crossbreed Holstein cows raised in small stake holder farms.

The pharmacokinetic characteristics of the moxidectin-based drugs have been studied in the blood serum of animals after a single oral administration of the drug at the therapeutic dose in analog groups. The drug, moxidectin, was orally administered once at the dose of 400 μg/kg for cats and 2 mg/kg for dogs. The obtained results showed that the concentration of the active substance in the blood serum after three hours reached 134.80-498.09 ng/ml in cats and 479.07-1459.40 ng/ml in dogs. The obtained results showed that the treated cows (T1 and T2) had significantly higher serum concentrations of glucose (T1 = 2.12 ± 0.48 mmol/L and T2 = 3.07 ± 0.50 mmol/L) compared to the T0 which were 1.47 ± 0.49 mmol/L. The total concentration of serum protein and urea in treated cows was significantly lower than in the T0 group (T1 = 7.69 ± 0.06 mmol/L and T2 = 7.21 ± 0.05 mmol/L rather than T0 (8.41 ± 0.40 mmol/L)).

The Effect of Different Dietary Energy and Protein Sources on Blood Profile of Crossbreed Holstein Dairy Cows Raised in Small Stake Holder Farms. The total concentration of serum protein and urea in treated cows was significantly lower than in the T0 group (T1 = 7.69 ± 0.06 mmol/L and T2 = 7.21 ± 0.05 mmol/L rather than T0 (8.41 ± 0.40 mmol/L).

The Goal was Greener - Climate Change, One Health, and the High Hopes to Mitigate. The effects of climate change and urbanization on health and well-being have been well-documented, but the role of climate change in the emergence and spread of infectious diseases remains poorly understood. In this review, we examine the evidence for climate change-driven changes in the transmission of infectious diseases, including zoonotic diseases, and the potential impacts on human health and well-being.

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