



SHORT COMMUNICATION

Serum Antibody Levels against Infectious Bursal Disease Virus in Nigerian Village Chickens

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ABSTRACT

The serum antibody levels against infectious bursal disease (IBD) virus in unvaccinated village chickens (n=484) reared in and around Nsukka, Southeast Nigeria were studied using indirect hemagglutination (IHA) test. Result showed a high seroprevalence (88.4%). Therefore, there is need for government involvement in the control of this disease in village chickens through extension services and mass vaccination of poultry population.

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INTRODUCTION

Infectious bursal disease (IBD) is an acute, highly contagious viral disease of young chickens and it affects the poultry industries worldwide (Toro *et al.*, 2009). The disease causes heavy economic losses in poultry industries due to immunosuppression in subclinical cases (Jackwood and Sommer-Wagner, 2010) and in acute cases; it is associated with mortalities, hemorrhages and also bursal damage (Jackwood *et al.*, 2009)

Rural poultry is the dominant form of poultry production in the developing world including Nigeria. In some of these countries, scavenging and backyard chicken production systems are more important than the modern intensive poultry production (Hailu *et al.*, 2009). Nigeria is one of such developing countries and many families especially those in rural communities keep backyard and village chickens. Village chickens provide protein in the form of meat and eggs for special festivals, offerings for some traditional ceremonies and serve as a source of income.

Among many other factors, infectious diseases have been an important factor constraining village poultry production in Africa. Over the years, all attentions have been focused on broiler and other intensively managed exotic birds with regards to the control and prevention of infectious diseases. The stakeholders have ignored the fact that local chickens that are not managed intensively are also susceptible to these diseases and contribute significantly in the maintenance and spread of the diseases. Infectious bursal disease has been diagnosed and identified in Nigeria (Oluwayelu *et al.*, 2010). There is a constant need to frequently monitor such infections. This

communication presents work that investigated the prevalence of antibodies to IBD in village chickens in and around Nsukka, Nigeria.

MATERIALS AND METHODS

The antigen used was procured from the National Veterinary Research Institute (NVRI), Vom, Nigeria. A total of 484 serum samples were collected from village chickens (grower and matured birds) kept at homes, in slaughter shops and market places in Nsukka and neighboring communities. The serum samples were harvested and used in an indirect hemagglutination test (IHT) for the detection of antibodies against IBD. Indirect hemagglutination (IHA) test was done according to Hussain *et al.* (2003).

RESULTS AND DISCUSSION

A number of serodiagnostic tests are available for the detection of serum antibodies against IBD (Hussein *et al.*, 2003). A total of 484 sera were collected from village chickens in and around Nsukka and subjected to IHT for the detection of antibodies against IBD. Out of this number, 428 samples tested positive while 56 samples tested negative. This gave a positive percentage of 88.4%. The 56 samples negative for antibodies against IBD accounted for 11.6% of the total sample. The present study was conducted for the provision of reliable information regarding the actual seroprevalence of IBD in village chickens in Nsukka area. It may also give information on the role played by village chickens in the maintenance and spread of the disease.

IBD have been reported in many parts of the country (Razmyar and Peighambari, 2009). Studies by other scientist in Nigeria showed that IBD has acquired an endemic status among the Nigerian poultry population (Oluwayelu *et al.*, 2007). Oni *et al.* (2008) in their study on the serological status of unvaccinated indigenous chickens using ELISA in Abeokuta, Nigeria found a seroprevalence rate of 89.7%. Oluwayelu *et al.* (2007) demonstrated the presence of IBDV antibodies in the sera of ducks.

Among the various diseases that cause significant losses in chicken in developing countries is IBD which takes a major position as it causes high morbidity and mortality (Ceribasi, 2007). Improvement in the poultry industry should incorporate emphasis on the prevention and control of diseases that cause economic losses (Okwor *et al.*, 2009). In Nigeria, village chickens are not vaccinated against most infectious diseases including IBD. Several factors contribute to the lack of vaccination of village chickens against infectious disease in Nigeria and other developing countries. One major factor is the lack of social awareness among the farmers on the control and prevention of diseases. Other factors may include lack of Veterinary services in the rural areas, unavailability of electricity and power for the maintenance of cold chain for vaccines and other biologicals in these areas, most of the vaccines come in large doses and are both expensive and too large for the number of birds kept by the farmers. The absence of preventive measures against infectious diseases in village chickens has led to the widespread dissemination of these infections among the poultry population. Many of these birds succumb to the infections and those that survive carry circulating antibodies in their blood. Some become carriers and disseminate the virus in the environment. Their free range roaming system where they scavenge for food encourages this dissemination.

The seroprevalence of 88.4% as found in this study is high. This indicates that this disease is highly prevalent among the village poultry population in this area. This high prevalence of IBD in village chickens may contribute significantly in the epidemiology of this disease in exotic chickens reared in the same area. Exotic or commercial chickens suffer from sporadic and frequent outbreaks of IBD. This is seen mostly in unvaccinated commercial flocks or in those flocks where poorly stored vaccines have been used. This dissemination of the virus by the village chicken contributes to the maintenance of endemicity and spread of this disease to the commercial birds. Most of the field strains in Nigeria are believed to

be the virulent strain of IBDV (Oluwayelu *et al.*, 2007; Oni *et al.*, 2008). Considering the above, the prevention of this disease in village chickens will go a long way to controlling this disease in the environment, reducing the endemicity and therefore, achieving a more productive commercial farming. This may increase the quantity of protein available to every Nigerian table. Government may develop policies that encourage mass vaccination of village poultry populations.

Conclusions: The result of the above serological survey showed a high prevalence of IBD (88.4%) in village chickens reared in Nsukka area. These birds were predominantly unvaccinated against this disease. Consequently, there is a need for government involvement in education of the farmers and also in mass immunization of this poultry population. This may control the disease in village chickens and reduce their role in the spread of disease.

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