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The Natural Reservoirs of Salmonella Enteritidis in Populations of Wild Birds

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Objective

The aim of our study was to identify possible natural reservoirs of Salmonella Enteritidis among wild birds.

Introduction

Salmonella Enteritidis is dangerous for human due the reason of toxicoinfaction. These pathogen demonstrate high virulence for small children and people with chronic pathologies and can causes people die. The main source of infection to humans is birds (poultry and wild).

Wild birds represent the natural reservoir of same bacterial pathogens. It is known that Salmonella can occupy an intestinal tract of birds. This colonization in general is constant, sometimes proceeds with an alternating fever, and usually, without clinical signs. Infected birds can transmit pathogens to other isolates in close contact. This usually occurs on the nesting during seasonal migrations. In the southern region of Ukraine are several points of intersection of migration routes of wild birds on the way from Europe to Africa and Asia (National Park "Askania Nova"and others).

Methods

The study was conducted in populations of wild birds in National Park "Askania Nova" and peninsula "Arabat arrow" (the Azov Sea coast). From bird selected samples of blood serum and egg yolks for research in serum plate agglutination test (SPA) and litter samples for bacteriological research.

Results

The serological monitoring in populations of wild waterfowl in National Park "Askania Nova" (Ichthyaetus relictus, Sterna nilotica, Sterna herundo, Casarca ferruginea) has shown the presence of seropozitive individuals in adult birds (average 18%) and egg yolks (avarrage 12%). The bacteriological investigations confirmed circulation of Salmonella in this group of birds. 32.3% of all bacterial pathogens was Salmonella and more then half of them was the reprezentatives of serovar Salmonella Enteritidis.

Similar studies were conducted on territory of peninsula "Arabat arrow" (the Azov Sea coast). The serological monitoring among of wild waterfowl (Ardea cinerea, Sterna caspia, Phalacrocorax carbo, Podiceps cristatus, Anas platyrhynchos, Cygnus olar) revealed the presence of antibodies in blood serum (avarrage 17%) and egg yolks (avarrage 10%). From litter samples was isolated a great deal of Enterobacteria (Escherichia coli. Salmonella, Citrobacter, Enterobacter), havever 34.8% of them were Salmonella and near half of Salmonella (53.2%) was reprezentatives of serovar Salmonella Enteritidis.

Conclusions

It is proved that M. gallisepticum can persist among decorative waterfowl for her welfare with Galliformes, while waterfowl is a reservoir of the pathogen. Also natural reservoirs of Mycoplasma can be wild waterfowl (Casarca ferruginea). Such groups (populations) of birds may serve as a source of infection for commercial herds.

This shows that wild waterfowl are the natural reservoir for these dangerous pathogens like Salmonella Enteritidis. The carriers may account for 17-18% of all individuals in the population. In nesting different species of wild birds may be infected by Salmonella Enteritidis. In the process of migrating wild birds can carry Salmonella Enteritidis over long distances and is a threat to commercial poultry flocks and humans.

Keywords

Salmonella Enteritidis; natural reservoir; wild birds

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