



## Comparative evaluation of clinical features and therapeutic response of broilers with colibacillosis induced by intratracheal and subcutaneous routes

Saberi A<sup>1</sup>, Mosleh N \*<sup>1</sup>, Shomali T<sup>2</sup>, Hosseini F<sup>1</sup>

<sup>1</sup>DVM students, School of Veterinary Medicine, Shiraz University, Shiraz, Iran

<sup>2</sup>Avian Diseases Research Center, Department of Clinical Sciences, School of Veterinary Medicine, Shiraz University, Shiraz, Iran

<sup>3</sup>Division of Pharmacology and Toxicology, Department of Basic Sciences, School of Veterinary Medicine, Shiraz University, Shiraz, Iran

Corresponding author E-mail: [nmosleh@shirazu.ac.ir](mailto:nmosleh@shirazu.ac.ir)

**Objectives:** The purpose of this study is to compare two different colibacillosis induction methods and response to treatment in chickens.

**Materials & Methods:** 125 broiler chickens at the age of 35 days were randomly divided into 4 experimental groups and 3 control groups as follows: inoculated with the bacteria intratracheally (IT), intratracheally and received florfenicol (ITF), subcutaneously (SC), subcutaneously and received florfenicol (SCF), the control groups received sterile culture medium intratracheally (ITC), subcutaneously (SCC), and the negative control with no treatment (C). Clinical signs and mortalities were recorded daily, and dead birds as well as 5 euthanized birds were grossly examined on days 3 and 7, moreover; heart blood sampling was performed

**Results:** Clinical signs were fully revealed after 12 hours of inoculation. The severity of clinical symptoms and also the deaths on the first and second day after the challenge showed the highest level in the treatment groups, especially the SCF, SC and IT groups. From the third day, clinical symptoms in the ITF group decreased noticeably, but the birds in the SC and SCF groups still showed severe clinical symptoms with continued deaths. The highest losses were in the SCF group and the lowest losses in the ITF group. Respiratory system lesions were observed from the first day and especially on the second day after challenge in the dead chickens of the IT and ITF groups, while these injuries occurred with a delay of 2 to 3 days in the SC and ITF groups. Kidney injuries in birds of SCF group was remarkable. In SC and SCF groups, euthanized birds had no pulmonary involvement. Renal involvement was observed in all birds of these two groups on day 3. Loss of body weight and increase in liver/body weight ratio on day 3 was noticeable in the subcutaneously challenged groups. The IT group showed an increase in lung/body weight ratio on this day. Smaller number of heart blood samples in the ITF group were positive for bacteria on day 3

**Conclusion:** Different inoculation routes cause significant differences in clinical symptoms, necropsy injuries, and mortality rates in broiler chickens challenged with *E-Coli*. Kidney injuries are pronounced in birds inoculated by subcutaneous route, while birds challenged by the intratracheal method lesions in the respiratory system are remarkable. Response to treatment, as a criterion for the ideality of animal models, is better in the intratracheal challenge method than in the subcutaneous method.

**Key words:** *E-Coli*, broiler, model, florfenicol