

Imunohistopatologis Virus Avian Influenza H5N1 pada Paru-Paru Ayam Petelur dengan Penurunan Produksi Telur

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Intisari

Hingga kini, penurunan produksi pada ayam petelur akibat infeksi agen penyakit masih menjadi kasus yang mendominasi di pemberitaan dan laporan kasus penyakit. Ayam petelur dengan gejala penurunan produksi 5-10% terkonfirmasi positif *avian influenza virus* (AIV) tipe A melalui uji *real time reverse transcriptase polymerase chain reaction* (qRT-PCR). Infeksi AIV H5N1 memiliki kontribusi yang lebih besar terhadap terjadinya kasus penurunan produksi telur dengan persentase penurunan sebesar $\geq 40\%$, dibanding agen kausatif lainnya. Namun, pada kasus penurunan produksi yang lebih ringan masih terdapat keraguan apakah AIV subtipe H5N1 juga memiliki andil dalam menimbulkan penurunan produksi tersebut. Penelitian ini bertujuan untuk mengetahui keterlibatan AIV H5N1 dalam menyebabkan gejala berupa penurunan produksi yang ringan dengan persentase 5-10% pada ayam petelur umur produktif, melalui deteksi antigen pada sampel jaringan paru menggunakan metode imunohistokimia *streptavidin-biotin* dengan antibodi monoklonal anti-H5N1. Hasil penelitian menunjukkan bahwa 7 dari 7 (100%) sampel paru-paru terdeteksi positif AIV H5N1 yang ditandai adanya imunoreaktif berwarna merah kecoklatan. Distribusi antigen AIV H5N1 tersebar di sel-sel endotel, sel-sel epitel pulmonal (bronkus, bronkiolus, parabronkus, dan atria), serta parenkima paru. Melalui temuan ini diharapkan peneguhan diagnosa pada ayam petelur dengan tanda klinis yang ringan dapat dilakukan sedini mungkin, mengingat AIV H5N1 dapat menyebabkan infeksi ringan.

Kata Kunci: Penurunan produksi telur, *avian influenza* H5N1, imunohistokimia *streptavidin biotin*, ayam petelur

Immunohistopathology of *Avian Influenza* H5N1 Virus in Lungs of Layer Hens with Decreased Egg Production

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Abstract

To date, case reports regarding the decline in production affecting layer hens due to infectious agents still dominate. Layer chickens with symptoms of a 5-10% decrease in production were confirmed positive for avian influenza virus (AIV) type A through the real-time reverse transcriptase-polymerase chain reaction (qRT-PCR) test. AIV H5N1 infection has a greater contribution to the occurrence of cases of decreased egg production with a percentage reduction of $\geq 40\%$, compared to other causative agents. However, in the case of a milder decline in production, there are still doubts whether AIV subtype H5N1 also had a role in causing the production decline. This study aims to determine the involvement of AIV H5N1 in causing symptoms in the form of a slight decrease in production with a percentage of 5-10% in productive age laying hens, through detection of antigens in lung tissue samples using the immunohistochemical method streptavidin-biotin with anti-H5N1 monoclonal antibody. The results showed that 7 out of 7 (100%) lung samples were detected positive for AIV H5N1 which was indicated by the presence of brownish-red immunoreactivity. The distribution of AIV H5N1 antigen was distributed in endothelial cells, pulmonary epithelial cells (bronchi, bronchioles, parabronchus, and atria), and pulmonary parenchyma. Through these findings it is expected that confirmation of the diagnosis in laying hens with mild clinical signs can be carried out as early as possible, considering that AIV H5N1 can cause mild infections.

Key words: Egg production losses, *avian influenza* H5N1, *streptavidin-biotin* immunohistochemistry, layer hens