低病原性家禽流行性感染病毒 H6N1 亞型感染雞隻之致病機轉

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摘要

本研究利用病理學、免疫組織化學染色及即時定量反轉錄聚合酶連鎖反應分析各組織的抗原分佈及病毒含有量，以探討低病原性禽流感 H6N1 亞型病毒（A/chicken/Taiwan/19120018/2019）感染雞隻之致病機轉。4 週齡 SPF 雞於攻毒後第 3、7、10、14 天犧牲並採樣，攻毒雞隻均無發現有臨床症狀的出現，肉眼病變僅在接種後第 8 天死亡的雞隻發現腎臟腫大及全身尿酸鹽沈積，組織病理學發現所有接種的雞隻均有腎小管壞死。免疫組織化學染色發現所有接種的雞隻均可在壞死的腎小管上皮發現病毒的核蛋白抗原，並且在接種後第 3 天的支氣管上皮有發現存在少量的抗原。病毒含有量檢測發現在接種後第 3 及第 7 天的腎臟存在高量的病毒，喉頭及直腸僅在接種後第 3 天，華氏囊則在接種後第 3 天及第 10 天。口咽及共泄腔的排毒檢測在接種後第 1 天均可檢測到，而口咽的檢出率以接種後第 1 天至第 7 天為最高，共泄腔則為接種後第 3 天，兩者於接種後第 14 天均無檢出病毒核酸。本研究顯示，雞隻的腎臟是低病原性禽流感 H6N1 亞型病毒主要感染器官。

Pathogenesis of low pathogenic avian influenza virus subtype H6N1 infection in chickens

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Abstract

A study on the pathogenesis of a H6N1 low pathogenic avian influenza (LPAI) virus was carried out in specific-pathogen-free chickens by investigating the gross and microscopic lesions, viral antigen and RNA distribution in tissues, and viral shedding. Birds at the age of 28 days were inoculated with the LPAI virus of subtype H6N1 (A/chicken/Taiwan/19120018/2019) and sampled on 3, 7, 10, 14 days post-inoculation (dpi). The presence of viral antigen in tissues and viral RNA loads were detected by immunohistochemistry (IHC) and quantitative real time RT-PCR (qRT-PCR), respectively. No clinical signs were observed during the period of this study. Gross lesions were only found in a dead chicken on 8 dpi, which presented the lesions of renomegaly with systemic gout. Microscopically, renal tubular necrosis was observed in all infected chickens. By the IHC, the viral nucleoprotein (NP) antigen was abundantly presented in the kidneys of all infected groups. NP antigen was also found in rare epithelial cells of the bronchi on 3 dpi. The higher viral RNA in the kidney was detected by qRT-PCR on 3 and 7 dpi, in the larynx and rectum on 3 dpi, and in the bursa of Fabricius on 3 and 10 dpi. Oropharyngeal and cloacal viral shedding had been detected since 1 dpi, with higher oropharyngeal vial shedding detected on 1 to 7 dpi and cloacal on 3 dpi. All viral shedding were not detected on 14 dpi. The present study demonstrates that the main replication site of LPAI virus subtype H6N1 in chickens was the renal tubules.