

A Case Report: Influenza A and B Coinfection

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Abstract

Here we describe an unusual presentation of a patient with rapid testing that was positive for both influenza A and B. No further confirmatory testing was done. The patient did well clinically.

A review of the literature notes that such coinfections among patients with influenza A or B appear to currently be rare, with an incidence in the low single digits (0.6% to 3%) in the studies reviewed. Several authors note that the severity in reference to outcome does not seem to be different in coinfection among non-immunocompromised patients. Further research appears to be needed to look at whether the incidence of coinfection is increasing and whether over time coinfections can lead to viral recombination.

Key words: simultaneous influenza A and B; influenza A and influenza B; coinfection

Introduction

Influenza virus remains a source of potential morbidity and mortality. The Center for Disease Control (CDC) in the United States documented that in the United States alone, there were 29 million symptomatic cases of influenza in the year 2018-2019, with 17 million medical visits and 28,000 deaths. The CDC estimates that there were 35 million symptomatic cases of influenza in the year 2019-2020 in the United States, with 16 million medical visits and 20,000 deaths [1]. Worldwide influenza mortality published by the Global Influenza Mortality project estimated 294 000 to 518 000 influenza-associated deaths annually [2]. Here we present an unusual presentation of a patient with rapid testing that was positive for both influenza A and B.

Case Presentation:

A middle-aged man in general good health presented with influenza-like symptoms (myalgias, coryza, non-productive cough) of an almost two-day duration during the winter months. He had been vaccinated for influenza. He was taking no medications. His past medical history was unremarkable. The patient's vital signs were within normal limits. His physical exam showed some rhinorrhea and was otherwise unremarkable. Rapid testing for influenza was positive for both influenza A and

influenza B. He was prescribed tamiflu and felt well at one week follow up. He continued to feel well at 30 day follow-up.

Discussion:

The patient's presentation with an influenza-like illness (ILI) is, of course, common.

Rapid testing results that were positive for both flu A and flu B was unexpected and raised the question of the rarity of this event and whether coinfection with flu A and flu B conferred greater risk for the patient. Rapid testing can be confirmed with more specific laboratory testing, since the sensitivity and specificity of rapid testing is inferior in performance to confirmatory testing, such as PCR testing. [3] This was not done in this case because the patient appeared to be having a benign course of illness.

True coinfection confirmed by laboratory testing is noted to be rare [4-7].

Almajhdi looked at 80 cases of ILI in hospitalized children in Saudi Arabia and found six cases of influenza A or B, with only one case of confirmed coinfection of influenza A and B. The patient had a known history of leukemia and was immunocompromised [4].

Falchi et al reported a series of 134 tests for ILI in a winter season in an out-patient French population. All cases were tested with rapid tests as well as with RT-PCR assays. Influenza A or B viruses were detected in 93 of the 134 patients (69.4%). There were three cases of confirmed coinfection with influenza A and B (3/93=3.2%). They raised the concern that although rare, coinfection may create the potential for viral recombination between strains [5].

Malause et al have shown that in the presence of Influenza A Virus (IAV), proteins can enhance the Influenza B Virus (IBV) genome expression and therefore the co-infection with influenza type A [8].

In an outpatient study of 1,919 patients with ILIs, the rate of confirmed co-infection with influenza A and B was noted have occurred in 11 patients, resulting in a rate of 0.6%. The study notes that the presentations in co-infection seemed to be typical for ILIs. The authors felt that future studies should look at whether outcomes were different in co-infection and also raised the concern of viral recombination between strains [7].

Concerning outcomes in co-infection, a case controlled study by Perez-Garcia et al found an overall confirmed coinfection rate of 1.6% among patients with positive influenza testing, but found that co-infection was not associated with worse outcomes [9]. The theme of a concern for the evolution of influenza fostered by co-infection is echoed by Tramuto et al [10].

Conclusions:

Here we present an unusual presentation of a patient with rapid testing that was positive for both influenza A and B. No further confirmatory testing was done. The patient did well clinically.

Further research appears to be needed to look at whether the incidence of coinfection is increasing and whether coinfections can lead to viral recombination.

Conflict of Interest: There was no funding related to this case report. The authors declare that they have no conflicts of interest.

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