

## HIV and Swine Flu: A Short Summary

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### Abstract

Emerging swine flu (H1N1) influenza has become the public health concern since its first appearance in 2009. The clinical issue of swine flu in immunocompromised host is very interesting. In this brief article, the author summarizes on the clinical feature of swine flu in HIV infection cases.

**Keywords:** HIV, Swine, Flu

### Introduction

Emerging influenza is the global issue. The infection is a respiratory tract disease with additional atypical systemic presentation [1,2]. Due to the possible worldwide pandemic, the topic becomes hot issue at present. Emerging swine flu (H1N1) influenza has become the public health concern since its first appearance in 2009. This new emerging infection affects several countries around the world and it is still the present public health problem [1,2]. During a pandemic, there are many thousand infected cases around the world. Some infected cases have underlying medical disorders and this is the issue for further study in infectious medicine.

The clinical issue of swine flu in immunocompromised host is very interesting. In fact, the immunity of the patients can play important role in response to any infection including to swine flu. The patient with poor immune status usually has problem in response to infection and the more severe clinical sign and symptom is usually observed. In this brief article, a clinical feature of swine flu infection in HIV infected cases is mainly focused. In fact, up to 2.22% of the patients with swine flu have HIV infection as underlying medical disorder [3]. It is no doubt that the HIV in swine flu is an important issue. However, there are few reports on this specific topic and there is no summary with appraisal on the topic. Here, the authors summarize the clinical data presently available in case of concurrent swine flu infection and HIV. The standard literature searching by publicly available databases, PubMed, was done. The search terms include "HIV" and "swine flu". Conclusions are based on the derived information from the literature available. In Addition, the author also analyzes and discusses on how the information can be further used in the field.

### Swine Flu in HIV Infected Case

As a disease with worldwide spreading, it is no doubt that swine flu affects many patients with underlying medical

disorders. The HIV infection becomes an interesting medical disorder that the swine flu infection should be carefully studied. For sure, there are many reports on HIV infected patients with swine flu. To manage the specific case, CDC mention for the importance of early diagnosis and prompt treatment for the HIV infected patients [4,5]. Due to the impaired lymphocyte function, it is expected that the superimposed viral infection can be serious and the use of antiviral drug is indicated for early management [2,4]. Koegelenberg et al. Reported that HIV infection is an underlying medical condition that leads to the requirement of intensive respiratory support and mortality in patients with swine flu [6]. Kulkarni et al. Also reported a similar observation [7]. Nevertheless, the early use of antiviral drug seems to be effective in the HIV infected cases [8]. Peters et al. Concluded that "clinicians should consider early empiric influenza antiviral treatment in HIV-infected patients presenting with suspected influenza [8]." Nevertheless, it is interesting that having severe impaired immune status, CD4+ count less than 200 cells/ $\mu$ l does not relate to poor clinical outcome or complication of swine flu infection [8]. Focusing on the immune response to the swine flu, according to a recent Thai report, it was found that "seroconversion occurred in approximately one third of the patients with swine flu [8]". It is also reported the observed pattern is not different between HIV-infected and HIV-uninfected cases [9]. Of interest, it seems that the clinical feature in HIV seropositive cases is not different from those with seronegativity. The proposal that HIV is an important risk for severe disease and fatality should be reappraised.

### Difficulty in Diagnosis and Treatment of Swine Flu in HIV Infected Cases

It is no doubt that the HIV infection can be the serious underlying medical disorder in swine flu [10]. HIV is an important risk for having severe infection [10]. To diagnose the swine flu infection in patients with HIV infection, the standard diagnostic procedure, by molecular diagnosis, is needed [2]. Focusing on the imaging investigation, the pattern of pneumonia observed in case with underlying HIV infection is not different from that case without HIV infection [11]. Dosekun et al. Also raised an important note that the clinical feature of swine flu is a classical viral infection and it is the same as early HIV infection, hence, the early HIV infection might be misdiagnosed as swine flu in the period of swine flu outbreak [12]. Also, there are

also several similar viral infections that might look like swine flu in HIV infected cases. Cunha et al. Noted that “during the influenza season, in adults hospitalized with HIV, the diagnostic possibilities should include influenza-like illnesses, e.g., human parainfluenza virus types 3 and 4, human metapneumovirus, and pertussis [13].”

As already noted, the impaired immune status does not contribute to severity of disease [8]. Nevertheless, López-Aldegue et al. Found that “low CD4 lymphocytes correlated with longer hospitalization and bacterial infections [14]”. López-Aldegue et al. Also mentioned that “early oseltamivir treatment reduced severe symptoms [14]” Therefore, the earlier treatment is still warranted for any HIV infected patients [7,8]. Indeed, the early treatment should be given in any cases of swine flu regardless of HIV status [1,2]. Focusing on outcomes of oseltamivir treatment, according to a recent review, “most HIV-infected individuals recovered without major consequence [15].” However, Sheth et al. Noted that susceptibility to swine flu virus infection and severity of influenza illness did not increase in HIV-infected cases that had no advanced immunosuppression or comorbid conditions [16]. According to the observation by Ormsby et al., swine flu is usually more severe in HIV infected patients with late and advanced disease than those ones receiving standard antiretroviral therapy with good disease control [17]. Hence, the management of other comorbid conditions has to be included in the management plan of HIV infection with swine flu.

## Conclusion

In clinical practice, swine flu can be seen in HIV infected cases with no doubt. There are some reported cases of HIV patients getting swine flu infection, which do not show a worse prognosis comparing to that of non-HIV patients. The author further suggested that not only suspected concurrent H1N1 infection in HIV infected patients should get early treatment but also awareness on misdiagnosis of influenza in HIV with other influenza like diseases is needed. Due to the impaired immunity, early diagnosis and prompt treatment for swine flu in HIV infected cases is required. As proposed by Ormsby et al. [17], standard antiretroviral therapy should be considered for all cases aiming at good outcome.

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