

Acute Kidney Injury in HIV-Infected Versus Non-Infected Persons: What Difference?

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Abstract

Patients are younger with a female predominance in the HIV-positive group. The signs are the clinical expression of opportunistic infections related to severe immunosuppression. Anemia is more common and severe in HIV-positive patients. Infections are the leading causes of AKI with a higher proportion in the HIV-positive group. The mortality rate is high, but identical in both groups. Prognosis depends more on the severity of the disease causing acute kidney injury than on its consequences. Prevention requires early management of these risk factors.

Keywords: Acute kidney injury; Human immunodeficiency virus; Infection

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Tel: 22504460779

Received: May 30, 2017; **Accepted:** June 11, 2017; **Published:** June 18, 2017

Introduction

Some comorbid conditions, such as diabetes, cancer, heart surgery and Human Immunodeficiency Virus (HIV) infection at the Acquired Immune Deficiency Syndrome (AIDS) stage increase the risk of developing acute kidney injury (AKI) [1]. Apart from the use of drugs, factors associated with AKI in HIV-infected subjects are the existence of severe immunosuppression or opportunistic infection [2,3]. The mortality of patients with AKI remains high despite advances in resuscitation, reaching up to 49% [4]. However, we do not know if this mortality rate is higher in HIV-positive persons as compared to HIV-negative subjects, given the late consultation rate observed in our population. We analyzed a cohort of patients admitted for acute kidney injury and compared HIV-infected persons with HIV-non-infected patients.

Socio-Demographic Aspects

Patients infected with HIV were younger. This young age is similar to the literature data [5,6]. We observed a female predominance in the HIV-positive group which contrasts with the results of other studies [5,7]. In sub-Saharan Africa, about 60% of HIV-infected patients are female [8,9]. In Côte d'Ivoire, according to the UNAIDS 2008 report, the HIV prevalence in the female population (2.5%) was higher than that of the male population (0.25%) [10]. Women's vulnerability is not only due to susceptibility to heterosexual transmission, but also to the difficult socio-economic problems faced by women [8]. This large proportion of women in our study could be due to the female predominance in the population of people living with HIV in our country.

Clinical and Biological Aspects

The medical histories and clinical signs commonly observed in HIV-infected subjects were the clinical expression of opportunistic infections that occur when the immunosuppression is severe. Thus, AKI is associated with low CD4 count and the AIDS stage [11].

Concerning the biological assessment, we did not find any significant difference in AKI stages between both groups. Conversely, a higher proportion of anemia was observed in the HIV-positive group. Moreover, the proportion of severe anemia was higher in this group. This significant proportion of anemia could be due to the inflammatory syndrome associated with the infection causing AKI, on the one hand, and to HIV infection, on the other hand. Factors associated with anemia in this group were female gender, low CD4 count (<200 cells/mm³) and high viral load [12,13].

Etiology

Infection was the leading cause of AKI in both groups. Besides, the proportion of infection was significantly higher in HIV-infected persons, as observed in the other series [14]. Water losses related to diarrhea and/or vomiting and gastrointestinal fungal

infection were also more common in this group. The proportion of drug-induced AKI was lower in the HIV-positive group. These were actually two cases of AKI related to Tenofovir use and four cases related to traditional medicine use.

Evolutionary Aspects

Mortality was high and comparable in both groups. There was no difference between the acute kidney injury stages at the time of death in both groups. Furthermore, among patients who died at stage 3, mortality could be due to renal damage only in 22.2% (creatinine > 530 $\mu\text{mol/l}$) of HIV-positive persons and 36.7% of HIV-negative patients. The majority of our patients in

each group died not because of AKI but because of the severity of the disease causing AKI [15]. The causes of death also varied per group. These were AIDS, severe sepsis and tuberculosis in the HIV-positive group versus severe sepsis, cancer and liver failure in the HIV-negative group.

Conclusion

Among HIV-infected subjects, patients with AKI were younger and predominantly female. The clinical signs were related to the severity of the risk factors for AKI. Although mortality was high, it was not different in both groups. Prevention requires early management of risk factors that negatively affect survival in patients.

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