CRITICAL CARE

LETTER

Sepsis as a major determinant of outcome in critically ill HIV/AIDS patients: don't forget acute kidney injury

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See related research by Japiassú *et al.*, http://ccforum.com/content/14/4/R152

In a previous issue of *Critical Care*, we read with interest the article by Japiassú and colleagues [1] in which severe sepsis was analyzed as a major determinant of outcome of critically ill patients with HIV/AIDS. For this purpose, the authors prospectively studied 88 HIV-infected patients admitted to the intensive care unit and analyzed the impact of severe sepsis on 28-day and 6-month mortality. The occurrence of severe sepsis was associated with a threefold increased risk of death at these follow-up times. Furthermore, cardiovascular and respiratory dysfunctions were associated with increased mortality. Those are important findings and improve medical knowledge on the key factors determining survival in a specific population that has markedly increased in recent years [2]. Surprisingly, however, the authors have not evaluated the impact of renal dysfunction on patient outcome. Here, we would like to underline the prognostic importance of acute kidney injury (AKI) on the outcome of critically ill patients with HIV. AKI is a common complication in this setting and is independently associated with increased mortality. In addition, sepsis is a leading cause of AKI among those patients [3]. These findings have also been demonstrated in non-critically ill, hospitalized patients with HIV [4]. Therefore, the burden of mortality associated with sepsis could be explained, in part, by the high incidence of associated AKI. Prompt recognition and aggressive treatment of sepsis could be crucial in diminishing both the occurrence of AKI and mortality in critically ill patients with HIV.

Authors' response

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Acute renal failure (ARF) is one of the major determinants of hospital outcome in the critically ill population, and severe sepsis is the main cause of ARF in this setting [5]. Patients with HIV/AIDS show a predisposition to renal dysfunction, as the HIV and antiretroviral drugs can lead to renal tubular dysfunction [6]. Lopes and colleagues [3,4] have reported that ARF is independently associated with hospital mortality of critically ill patients with HIV.

We evaluated 88 HIV-positive critically ill patients, seeking the main risk factors for mortality [1]. Severe sepsis was the major factor associated with 28-day and 6-month mortality. CD4 cell count, viral load, and the use of antiretrovirals were not associated with survival. As suggested by Lopes and Jorge, we reanalyzed the data about organ dysfunctions in that cohort, targeting hospital outcome. Nonsurvivors presented higher rates of renal (63% versus 33%, P = 0.01) and hematological (42% versus 16%, P = 0.009) dysfunctions than survivors of HIV/AIDS. We included these organ dysfunctions in a new multivariate analysis; severe sepsis remained the main factor associated with hospital survival (odds ratio (OR) 4.2, 95% confidence interval (CI) 1.2 to 14.2, P = 0.02), and renal (OR 2.6, 95% CI 0.9 to 7.4, P = 0.06) and hematological (OR 2.7, 95% CI 0.9 to 8.5, P = 0.08) dysfunction had borderline results (Table 1). We also re-evaluated our current cohort, reaching 139 patients with HIV, and the presence of renal failure was related to poorer prognosis but was not associated with hospital mortality in the multivariate analysis (OR 1.9, 95% CI 0.8 to 4.4, P = 0.15). We agree that renal dysfunction, especially when associated with severe sepsis, can reduce survival among critically ill patients with HIV/AIDS.

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Table 1. Acute organ dysfunctions on the first day of intensive care unit stay

	Univariate analysis			Multivariate analysis	
Organ dysfunctions	**Survivors**	**Nonsurvivors**	***P* value**	**Odds ratio (95% CI)**	***P* value**
Cardiovascular	62%	74%	0.25	0.84 (0.25-2.86)	0.78
Respiratory	60%	72%	0.26	0.89 (0.24-3.31)	0.86
Renal	33%	63%	0.01	2.65 (0.95-7.36)	0.06
Hematological	16%	42%	0.009	2.75 (0.89-8.54)	0.08
Neurological	33%	37%	0.82	-	-
Hepatic	13%	28%	0.11	0.90 (0.75-10.4)	0.40

Data extracted from Japiassú *et al*. [1]. CI, confidence interval.

Abbreviations
AKI, acute kidney injury; ARF, acute renal failure; CI, confidence interval; OR, odds ratio.

Competing interests
The authors declare that they have no competing interests.

Authors' contributions
JAL and SJ drafted the letter, revised it critically for important intellectual content, and read and approved the final manuscript.

Published: 10 December 2012

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doi:10.1186/cc11870
Cite this article as: Lopes JA, Jorge S: **Sepsis as a major determinant of outcome in critically ill HIV/AIDS patients: don't forget acute kidney injury.** *Critical Care* 2012, **16:**468.