



## Scientific Comment

# Diarrhea after autologous stem cell transplantation in low-middle income countries: is *Clostridium difficile* the most prevalent infectious etiology?☆

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Diarrhea is a major cause of morbidity during high-dose chemotherapy followed by autologous stem cell transplantation (ASCT). It occurs in almost half of recipients of ASCT and generally, it is attributed to the effects of high-dose chemotherapy on the gastrointestinal mucosa and the effects of broad-spectrum antibiotic regimens for the prophylaxis and treatment of neutropenia. However, other etiologies might be considered, such as viral, bacterial and parasitic infections.<sup>1,2</sup>

Despite being the most common etiology of diarrhea after ASCT, the conditioning regime is seldom implicated in severe complications, with some exceptions. Cytarabine-containing regimens, high-dose melphalan ( $\geq 200$  mg/m<sup>2</sup>), and regimens containing multiple alkylating agents may cause more severe diarrhea.<sup>3</sup>

Conversely, infectious causes of diarrhea are less prevalent than damage from conditioning therapy. *Clostridium difficile* is considered the leading cause of infectious diarrhea among hospitalized patients and is a major concern in immunosuppressed individuals.<sup>4</sup> Viruses such as cytomegalovirus (CMV) and some serotypes of adenovirus might also be implicated in diarrhea after ASCT, but rarely cause life-threatening complications. Diarrhea secondary to intestinal parasite infection, such as *Cryptosporidium*, *Giardia lamblia*, *Entamoeba histolytica* and helminths, is rare among patients who come to

transplant without diarrhea.<sup>5,6</sup> *Strongyloides* infection and non-tuberculous mycobacterial have also been described after ASCT in patients from endemic areas.<sup>2</sup>

In this issue of Hematology, Transfusion and Cell Therapy, Castro et al. investigated the role of enteric pathogens in 47 recipients of ASCT between May 2011 and May 2013.<sup>7</sup> Thirty-nine recipients (83%) met the criteria for the diagnosis of diarrhea. Among them, conditioning regime toxicity was the most prevalent cause (35%). Interesting, a high prevalence of infectious etiology was identified. Through an investigational platform based on parasitological stool examination, stool cultures and the identification of A and B *C. difficile* toxins, 30% of the recipients had an infectious cause as the etiology with *Coccidia* being the most common. Unexpectedly, *C. difficile* presented a low incidence in comparison with currently published data<sup>4</sup> but, in accordance with the frequency and microbiological causes of diarrhea in low-middle income countries.<sup>8</sup>

These results revealed some potential different etiologies of infectious diarrhea in Brazil. However, due to the low number of patients evaluated from a single center, conclusions should be taken with caution. Nevertheless, these data might justify a multicenter study with the aim to clarify etiologies of diarrhea among Brazilian patients. A careful analysis of the

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☆ See paper by Marcelo Dias de Castro et al. on pages [132–135].

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causative agents could lead to more accurate management, early intervention and prevention of severe complications.

### Conflicts of interest

The author declares no conflicts of interest.

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