



# The Brazilian Journal of INFECTIOUS DISEASES

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## Letter to the editor

# First lung transplantation in a HIV patient in Brazil



Dear Editor,

In 2009, Bertani et al. published the first case of lung transplantation in a HIV patient in Italy.<sup>1</sup> Although in the past HIV infection was an absolute contraindication for lung transplantation, the current consensus of the International Society for Heart and Lung Transplantation (ISHLT) changed the status of HIV recipients to only a relative contraindication.<sup>2</sup>

We referred for lung transplantation a 42-year-old female patient with cystic fibrosis, colonized with meropenem-resistant *Burkholderia cepacia* and aspergillus. She was diagnosed with HIV 20 years before during pregnancy and since then regularly treated with Lamivudine, Zidovudine and Nevirapine drug regimen. The viral load was undetectable and the total CD4 count was 1311 cells/mm<sup>3</sup>. Her lung disease worsened requiring oxygen therapy when she was referred for lung transplantation. She completed satisfactory assessment evaluation and was listed for transplant.

After one year on the waiting list, she had hemoptysis and fever requiring in-hospital treatment with multiple courses of antibiotic therapy entering in the urgent list until lung transplantation. She underwent sequential bilateral lung transplantation without extracorporeal support. She received induction therapy with basiliximab and methylprednisolone. The postoperative period was uneventful, extubated in the second day and discharged from ICU after seven days. Surveillance bronchoscopy was done after 10 days showing no rejection (AOBO) and bronchoalveolar lavage (BAL) culture showed *Candida tropicalis*.

The maintenance immunosuppression regimen was azathioprine and tacrolimus. However, she developed leukopenia and had difficulty maintaining serum level control of tacrolimus despite high doses. The patient refused transition from nevirapine to dolutegravir during hospital stay. *Candida tropicalis* were cultured from BAL, pleural fluid, and a subcutaneous abscess. This infection complication resolved with percutaneous drainage and use of voriconazole and micafungin. She also received meropenem and trimethoprim–sulfamethoxazole for *Burkholderia* pneumonia. HIV viral load remained undetectable, although CD4 count declined to 742 cells/mm<sup>3</sup>.

She was discharged after two months. After discharge, the patient consented on changing tenofovir to dolutegravir given

the continuous difficulty in attaining therapeutic levels of tacrolimus. Currently, she is doing well after six months with good quality of life and 98% saturation in room air. CD4 count is 277 mm<sup>-3</sup> (probably due to effect of thymoglobulin) and viral load remains below detection.

The impact of HIV on the outcomes of solid organ transplant is well known for liver and kidney transplantation. Although the impact on graft survival is still an issue, improvements on the management of hepatitis C infection will probably reduce such negative impact and render survival rates similar to non-HIV patients.<sup>3</sup> As for lung transplantation, the real impact of HIV on the outcomes of transplantation will need to be assessed in a large cohort of transplanted patients. Meanwhile, our report suggests that with adequate handling of chronic infections and antiretroviral therapy, the impact of HIV infection can be attenuated. *Burkholderia cepacia* infections are difficult to manage and this has been the case in our experience. However, prolonged antibiotic therapy and intense respiratory therapy were the mainstay for a good outcome made the procedure uneventful with no major complications.<sup>4</sup> Maintenance of immunosuppression in therapeutic levels, specially calcineurin inhibitors is another issue of relevance due to the interaction with antiretroviral agents.

Some studies have shown that the interaction of non-nucleoside reverse transcriptase inhibitors and calcineurin inhibitors is based on CYP3A4 induction. It leads to faster elimination of calcineurin inhibitors, thus requiring higher doses of these drugs. These studies suggest non-boosted integrase inhibitor, such as dolutegravir, is the antiretroviral regimen of choice in HIV-infected solid organ transplantation recipients, associated to two nucleoside reverse transcriptase inhibitors.<sup>5</sup> However, the literature on this subject is scarce, with only a few cases reported.<sup>2</sup>






With improvement of techniques and development of new drugs, lung transplantation for some neglected diseases such as HIV infection is now possible and feasible. The good transplantation outcome of this case encourage others to offer this procedure for selected cases.

## Conflicts of interest

The author declares no conflicts of interest.

## REFERENCES

1. Bertani A, Grossi P, Vitulo P, et al. Successful lung transplantation in an HIV- and HBV-positive patient with cystic fibrosis. *Am J Transplant*. 2009;9:2190–6.
2. Weill D, Benden C, Corris PA, et al. A consensus document for the selection of lung transplant candidates: 2014 – an update from the Pulmonary Transplantation Council of the International Society for Heart and Lung Transplantation. *J Heart Lung Transplant*. 2015;34:1–15.
3. Pierrotti LC, Litvinov N, Costa SF, et al. A Brazilian university hospital position regarding transplantation criteria for HIV-positive patients according to the current literature. *Clinics (Sao Paulo)*. 2019;74:e941.
4. de Souza Carraro D, Carraro RM, Campos SV, et al. *Burkholderia cepacia*, cystic fibrosis and outcomes following lung transplantation: experiences from a single center in Brazil. *Clinics (Sao Paulo)*. 2018;73:e166.
5. Miro JM, Agüero F, Duclos-Vallée JC, et al. Infections in solid organ transplant HIV-infected patients. *Clin Microbiol Infect*. 2014;20 Suppl. 7:119–30.

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