**CARDIOVASCULAR SURGERY
OUTCOMES OF PATIENTS
WITH HUMAN
IMMUNODEFICIENCY VIRUS
INFECTION: NEW DATA IN THE
ERA OF COMBINATION
ANTIRETROVIRAL THERAPY
To the Editor:**

We congratulate Robich and colleagues¹ on an important contribution to the literature on cardiovascular disease among patients with human immunodeficiency virus (HIV) infection in the age of modern antiretroviral treatment. Robich and colleagues¹ investigated the outcomes of nearly 10,000 patients with HIV infection in the Nationwide Inpatient Sample undergoing cardiothoracic surgery between 1998 and 2009 and found that their surgical outcomes were comparable to those of propensity-matched control patients without HIV infection in the same registry. Large registry studies are powerful tools to detect epidemiologic trends in health care delivery and outcomes; however, we believe that the interpretation of this study and the subsequent published discussion from its reading at the American Association for Thoracic Surgery can be further clarified in light of previous studies in this field.

First, it should be emphasized that most cardiovascular disease risk in patients with treated HIV infection can be attributed to traditional risk factors (eg, smoking); however, conventional thinking about the contribution

of HIV-specific factors (eg, antiretroviral therapy vs chronic inflammation and immune activation) has changed significantly in recent years. Antiretroviral therapy is less metabolically toxic today than in the 1990s. Data from the Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) study suggest that newer generations of protease inhibitors (such as atazanavir sulfate [INN atazanavir]) are not associated with the same risk of myocardial infarction as older generations of these drugs.² The cardiovascular-specific risks of uncontrolled viral replication outweigh the risks associated with antiretroviral therapy.³

Second, although Robich and colleagues¹ point out that the percentage of patients with HIV undergoing cardiovascular surgery increased from 0.09% to 0.23% during the study period, this is still lower than the estimated prevalence of HIV in the overall population (0.4%-1%). We appreciate that this study will hopefully reduce stigma among health care providers and lead to increased access to surgery for patients who have the virus well controlled on antiretroviral therapy. The lack of stratified analyses by CD4⁺ T-cell count, however, limits the application of these findings to patients with more severe immunodeficiency.

Third, Robich and colleagues¹ suggest that the lower incidence of stroke observed in patients with HIV infection may be explained by a lower rate of postoperative atrial fibrillation. In this surmise, Robich and colleagues¹ have incorrectly interpreted a study by Hsu and colleagues,⁴ which actually described a higher rate of atrial fibrillation in patients with HIV infection. Although the study did not include a control group without HIV infection, the rate of incident atrial fibrillation observed in veterans with HIV was higher than rates from previously published studies from community-based cohort studies in the general population. Hsu

and coworkers⁴ also found that after adjustment for traditional risk factors, a lower CD4⁺ cell count and higher viral load were independently associated with an increased risk of atrial fibrillation. For this and other reasons, it is surprising that HIV infection was associated with a lower risk of stroke in the Nationwide Inpatient Sample study of Robich and colleagues.¹ We do not believe that less inflammation is the explanation, as was suggested by the meeting discussants, because chronic HIV infection is characterized by a proinflammatory state.⁵

In summary, Robich and colleagues¹ have documented that cardiovascular surgery can be safely performed in patients with treated HIV infection. Future studies are needed to clarify any specific surgical risks that are altered in this population, such as perioperative stroke and atrial fibrillation.

Claire Eileen Sullivan, MD

Maya Serhal, MD

Chris Todd Longenecker, MD

University Hospitals Case Medical
Center
Cleveland, Ohio

References

1. Robich MP, Schiltz N, Johnston DR, Mick S, Tse W, Koch C, et al. Outcomes of patients with human immunodeficiency virus infection undergoing cardiovascular surgery in the United States. *J Thorac Cardiovasc Surg*. 2014;148:3066-75.
2. Monforte Ad, Reiss P, Ryom L, El-Sadr W, Dabis F, De Wit S, et al. Atazanavir is not associated with an increased risk of cardio- or cerebrovascular disease events. *AIDS*. 2013;27:407-15.
3. Longenecker CT, Triant VA. Initiation of antiretroviral therapy at high CD4 cell counts: does it reduce the risk of cardiovascular disease? *Curr Opin HIV AIDS*. 2014;9:54-62.
4. Hsu JC, Li Y, Marcus GM, Hsue PY, Scherzer R, Grunfeld C, et al. Atrial fibrillation and atrial flutter in human immunodeficiency virus-infected persons: incidence, risk factors, and association with markers of HIV disease severity. *J Am Coll Cardiol*. 2013;61:2288-95.
5. Hunt PW. HIV and inflammation: mechanisms and consequences. *Curr HIV/AIDS Rep*. 2012;9:139-47.

<http://dx.doi.org/10.1016/j.jtcvs.2014.12.062>

The Editor welcomes submissions for possible publication in the Letters to the Editor section that consist of commentary on an article published in the Journal or other relevant issues. Authors should: • Include no more than 500 words of text, three authors, and five references. • Type with double-spacing. • See <http://jtcvs.ctsnetjournals.org/misc/ifa.html> for detailed submission instructions. • Submit the letter electronically via jtcvs.editorialmanager.com. Letters commenting on an article published in the JTCVS will be considered if they are received within 6 weeks of the time the article was published. Authors of the article being commented on will be given an opportunity of offer a timely response (2 weeks) to the letter. Authors of letters will be notified that the letter has been received. Unpublished letters cannot be returned.