Prevalence of primary HIV-associated thrombocytopenia in a central South African population

To the Editor: Haematological abnormalities are common manifestations in HIV-positive individuals. Thrombocytopenia (platelet count $<150 \times 10^9$/L) is one of the major haematological abnormalities in HIV-positive individuals in South Africa (SA).[1] Thrombocytopenia may develop at any stage of the HIV infection, and can have many underlying causes.[2-4] Primary HIV-associated thrombocytopenia (PHAT) is thrombocytopenia in HIV-positive individuals in the absence of any secondary causes.[5] Proposed mechanisms include immune-mediated destruction of platelets and decreased platelet production following megakaryocytic infection by HIV.[2] PHAT may cause clinically significant bleeding, and when left unrecognised, may complicate patient management.[6,7] SA has the highest prevalence of HIV globally.[8,9] Consequently, we hypothesised that PHAT should have a high prevalence in our population.

Ethics approval from the Health Sciences Research Ethics Committee of the University of the Free State (ref. no. UFS-HSD2020/1752/2302), as well as permission from the Free State and Northern Cape Departments of Health, and Academic Affairs and Research Office of National Health Laboratory Service (NHLS), was obtained to perform the study. We extracted full blood count reports from the laboratory information system of specimens submitted to the NHLS laboratories at four hospitals in our region (National District Hospital, Pelonomi Regional Hospital and Universitas Academic Hospital in Bloemfontein, and Robert Mangaliso Sobukwe in Kimberley).

A total of 6 068 patient files were screened from February 2021 to April 2022 (Fig. 1). Of the 6 068 patients, 902 (14.86%) had thrombocytopenia, of whom 640 (70.95%) were HIV- positive. After excluding all patients with additional cytopenias, 269 patients (42.03%) remained.

The medical files of all isolated thrombocytopenia cases were subsequently screened, and patients excluded when possible secondary causes for the decreased platelet count (e.g. drugs, COVID-19, TB, hepatitis, abnormal liver and kidney function, and pseudothrombocytopenia) were identified.

Ultimately, 42 patients were considered to have probable PHAT, with an estimated prevalence of 0.69% in our total patient population. This proportion increases to 6.56% of all HIV-positive individuals with thrombocytopenia and 15.61% of HIV-positive patients with isolated thrombocytopenia. A previous local study[10] (KwaZulu-Natal, SA) found the prevalence of thrombocytopenia in their population to be 14.9%, which corresponds to our study prevalence of 14.86%. One global study[6] reported the prevalence of thrombocytopenia in HIV-positive individuals to be 17.9%. However, unlike our study, they did not further exclude comorbidities to determine the prevalence of PHAT. The prevalence of immune thrombocytopenia in hospitalised patients (4.6%) was determined to be slightly lower in a previous SA study[10] than the prevalence of PHAT in HIV-positive individuals in our study (6.56%).

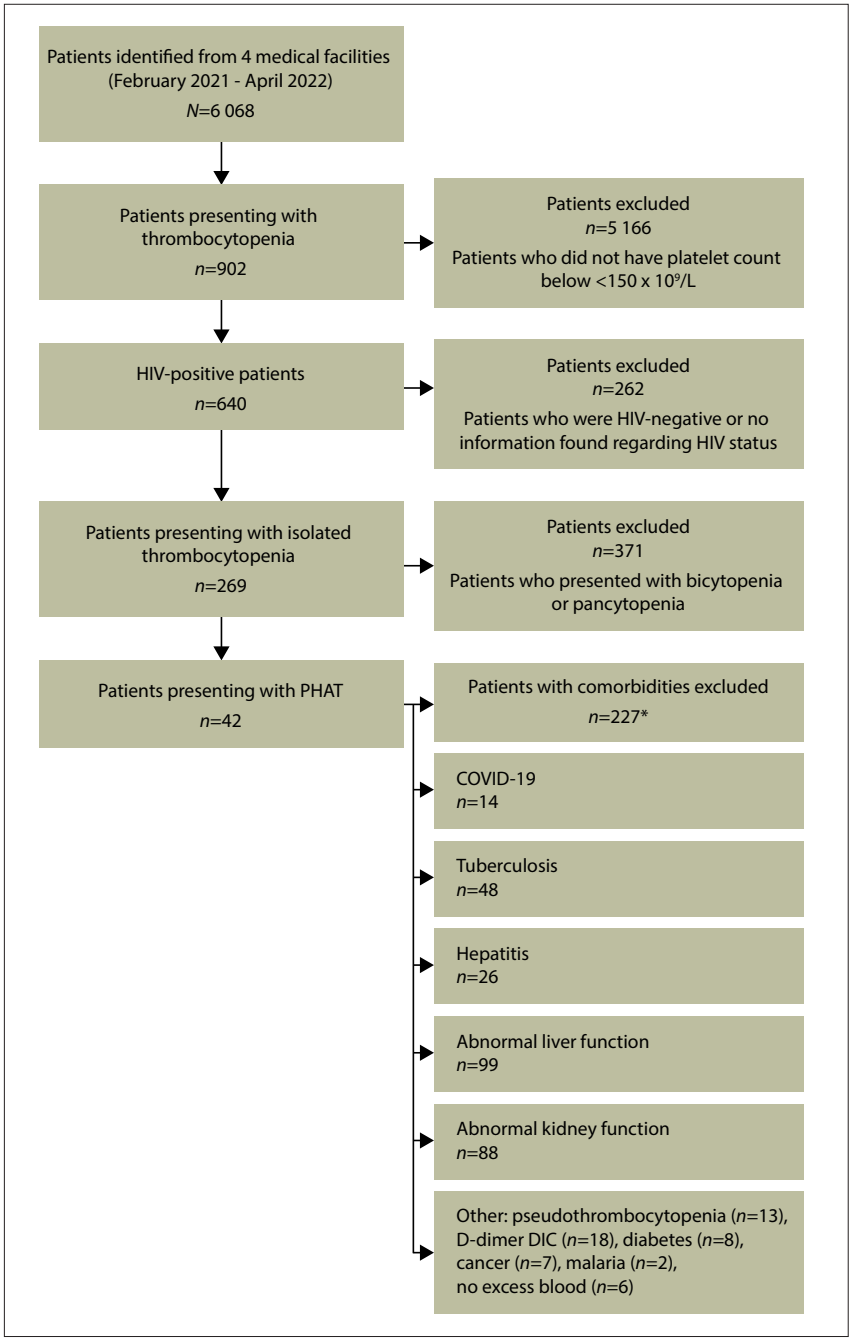

*Fig. 1. Prevalence of primary HIV-associated thrombocytopenia (PHAT). (DIC = disseminated intravascular coagulation.) (*The comorbidities listed do not add up to the total as multiple patients had more than one comorbidity.)*

Most PHAT patients in our study (71.43%) were on antiretroviral treatment (ART), suggesting that ART exposure was not protective against the development of PHAT. This contrasts with reports of improvement in cytopenias subsequent to ART.[1,5,6]

We conclude that PHAT remains a concern in HIV-positive patients in our region, even after the rollout of the Universal Test and Treat ART treatment campaign.

Asymptomatic, isolated thrombocytopenia may go undetected until life-threatening bleeding occurs. Therefore, it is imperative to identify patients with PHAT and monitor their disease progression to improve patient management.

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1. Vaughan JL, Wiggil TM, Alli N, Hodkinson K. The prevalence of HIV seropositivity and associated cytopenias in full blood counts processed at an academic laboratory in Soweto, South Africa. S Afr Med J 2017;107(3):264-269. https://doi.org/10.7196/samj.2017.v107i3.11206
2. Scaradavou A. HIV-related thrombocytopenia. Blood Rev 2002;16(1):73-76. https://doi.org/10.1054/blre.2001.0188
3. Vannappagari V, Nkhoma ET, Atashili J, Laurent SS, Zhao H. Prevalence, severity, and duration of thrombocytopenia among HIV patients in the era of highly active antiretroviral therapy. Platelets 2011;22(8):611-618. https://doi.org/10.3109/09537104.2011.582526
4. Ambler KL, Vickars LM, Leger CS, et al. Clinical features, treatment, and outcome of HIV-associated immune thrombocytopenia in the HAART era. Adv Haem 2012;2012:910954. https://doi.org/10.1155%2F2012%2F910954
5. O'Bryan TA, Okulicz JF, Bradley WP, Ganesan A, Wang X, Agan BK. Impact of the highly active antiretroviral therapy era on the epidemiology of primary HIV-associated thrombocytopenia. BMC Rs Notes 2015;8(1):1-5.
6. Getawa S, Aynalem M, Bayleyegn B, Adane T. The global prevalence of thrombocytopenia among HIV-infected adults: A systematic review and meta-analysis. Int J Infec Dis 2021;105:495-504. https://doi.org/10.1016/j.ijid.2021.02.118
7. Vishnu P, Aboulafia DM. Haematological manifestations of human immune deficiency virus infection. Brit J Haematol 2015;171(5):695-709. https://doi.org/10.1111/bjh.13783
8. Beintheknow. The science of HIV and AIDS – overview. Avert.org, 2022. https://www.avert.org/professionals/hiv- science/overview (accessed 10 April 2022).
9. Statistics South Africa. Statistical resease p0302. Mid-year population estimates. Pretoria: Stats SA, 2021. http://www.statssa.gov.za/publications/P0302/P03022021.pdf (accessed 10 April 2022).
10. Jali AG, Nkambule BB. Prevalence and aetiology of moderate and severe thrombocytopenia in a tertiary and quaternary centre in KwaZulu-Natal. Afr J Labor Med 2020;9(1):1-5. https://doi.org/10.4102/ajlm.v9i1.799

S Afr Med J 2022;112(9):738-739. https://doi.org/10.7196/SAMJ.2022.v112i9.16724