

Incidence of AIDS defining cancers and non-AIDS defining cancers during Pre-and Post-antiretroviral Botswana

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PLHIV experienced a higher cancer incidence, especially **NADCs and ADC specifically Cervical cancer** during **ART expansion**, emphasizing the role of **immunosuppression** and the need for early **cART** initiation and timely **cancer treatment**.

BACKGROUND

Despite widespread use of combined antiretroviral therapy (cART), AIDS-defining cancers (ADCs) and non-AIDS-defining cancers (NADCs) remain prevalent in people living with HIV (PLHIV). Sub-Saharan Africa, including Botswana, bears the highest burden of HIV and cancer co-infection, yet there is limited data on HIV-related cancer epidemiology. This research sought to investigate the incidence of cancers in PLHIV compared to the HIV-uninfected.

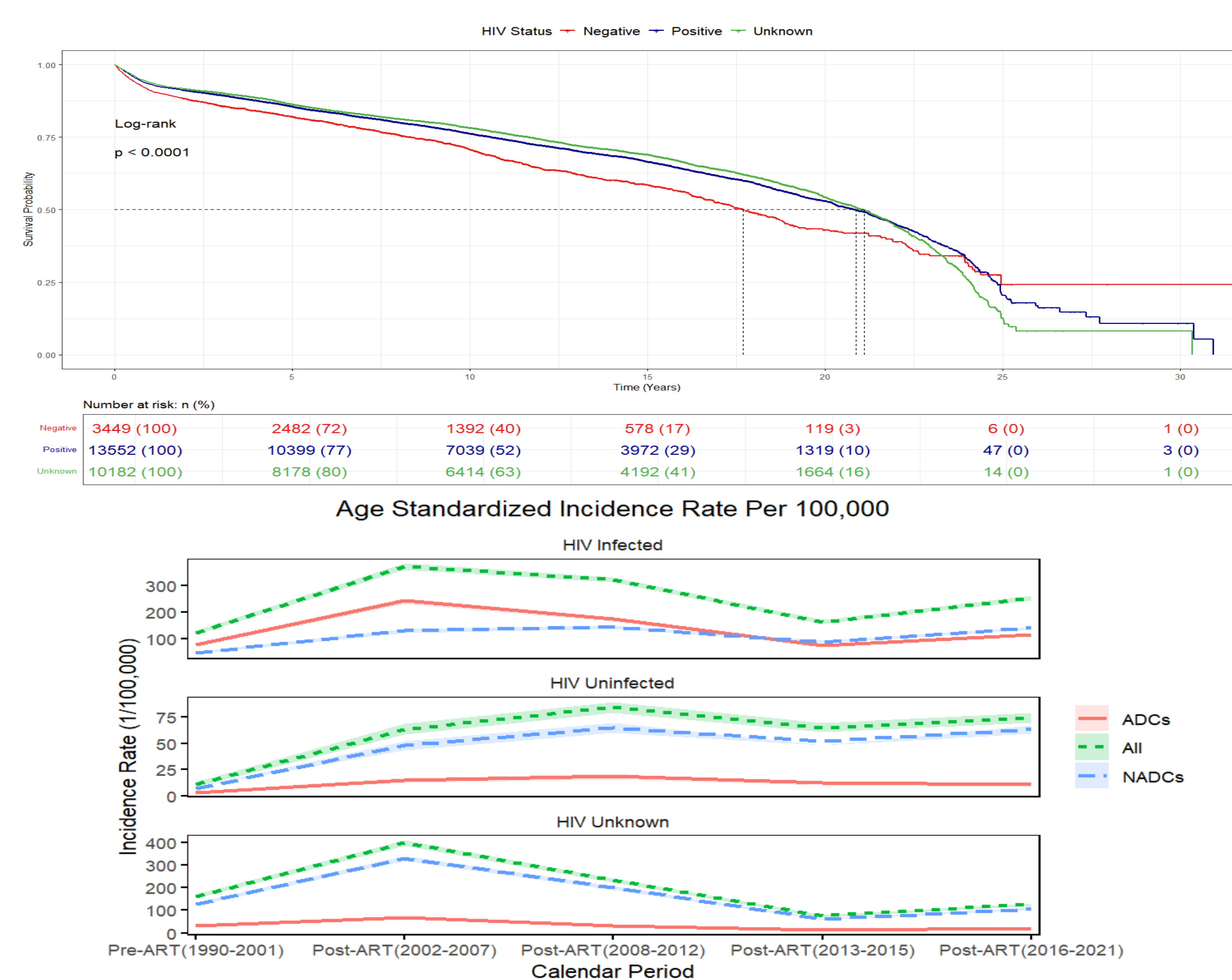
METHODS

- Data for this study were collected from the Botswana National Cancer Registry (BNCR) and the HIV Repository.
- Age-standardized incidence rates (ASIRs) were calculated to compare cancer incidence between PLHIV, the HIV-uninfected and those with unknown HIV-status.
- Standardized Incidence Ratios (SIRs) were calculated to compare relative risk of developing cancer.
- Generalized linear regression (GLM), assuming Gaussian distribution was used to determine time trends of age-standardized cancer incidence rates over time.

RESULTS

- Between 1990 and 2021, a total of 27,726 incident cancers were documented, with a median age of 52 years (IQR: 39-6); 57.8% of cases were females.
- 49.5% of cases were HIV-infected, 6.3% HIV-uninfected, and 37.8% had unknown HIV status.
- The most common ADC was cervical cancer: 4703 (17%) while the leading NADC was breast cancer 3055 (11%).
- When compared with the HIV-uninfected and those with unknown HIV status, the ASIRs for PLHIV showed significant increase over the years for ADCs, especially cervical cancer (P -trend = 0.024), and NADCs, including Breast cancer (P -trend = 0.035) and Skin cancer & melanoma (P -trend = 0.014).
- The SIRs for PLHIV were also elevated for all cancers: 1.52 (1.49-1.55), ADCs: 1.60(1.56-1.64), and NADCs:1.43(1.40-1.47) compared to HIV-uninfected individuals.

RESULTS CONTINUED



CONCLUSIONS

The study highlights three key points;

- The role of immunosuppression in increasing cancer risk for HIV-infected individuals.
- The impact of cART on improving survival and longevity while also driving higher cancer incidence (especially NADCs).
- It also shows persistent survival gap between HIV-infected and uninfected individuals, particularly ADCs.

As Botswana develops a national cancer control plan, these findings underscore the need to integrate HIV care with cancer prevention and treatment efforts, focusing on early detection and access to timely cancer therapies.

The persistent survival gap between the HIV-infected and HIV-uninfected individuals, especially with ADCs, highlights the need for robust cancer prevention, screening, and treatment strategies tailored to PLHIV.

ADDITIONAL KEY INFORMATION

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