

# Incidence and associations of anorectal cancers in persons with HIV infection

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## BACKGROUND

- HIV-infected persons are at increased risk for some types of cancer.
- Anorectal cancer (ARC) may be curable if diagnosed early. Rates of ARC in the general population are low, but increased ARC rates in HIV-infected persons have been reported in case series and in limited cohorts.
- We analyzed data from a large cohort of persons with HIV to determine if ARC rates are higher than in the general population, and to identify factors associated with incident ARC.

## METHODS

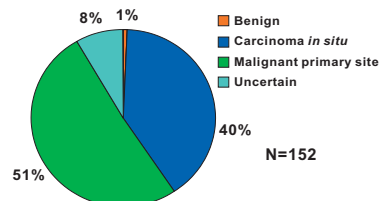
- We used data from a large observational cohort study (the Adult/Adolescent Spectrum of HIV Disease [ASD] project), to calculate rates of ARC diagnoses from 1990-2002 (see Figure 1).
- We described all anorectal cancers as to tumor type and behavior, using information from ICD-9 codes and morphology codes.
- Logistic regression analysis was conducted for 2 groups of patients: Group 1 included patients with carcinomas (epidermoid or unspecified) and patients with unspecified types of tumors, but excluded Kaposi's Sarcomas. Group 2 included only patients with carcinomas.
- We used logistic regression to determine whether age, sex, CD4 cell count, stage of HIV disease, or risk for HIV infection were associated with incident ARC.
- For comparison, we calculated ARC rates in a general population cohort from 1992-2000 using data from the NC's Surveillance, Epidemiology, and End Results (SEER)-12 public-use dataset. We standardized ASD ARC rates on age, and on age and sex, to a standard population from the SEER data.

**Figure 1.**  
**Adult/Adolescent**  
**Spectrum of HIV Disease (ASD) Sites**  
**N ≥ 58,000 persons**



## RESULTS

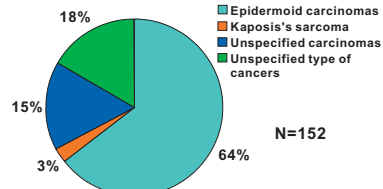
**Figure 3:**  
**Behavior of 152 anorectal cancers diagnosed**  
**among 58,394 persons with HIV infection**  
**observed in the ASD cohort from 1990-2002.**



- Most cancers were malignant in the primary site

## RESULTS

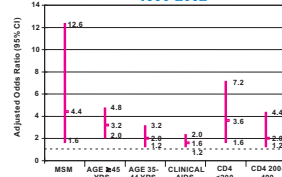
**Figure 2:**  
**Cancer types of 152 anorectal cancers**  
**diagnosed among 58,394 persons with**  
**HIV infection observed in the ASD cohort**  
**from 1990-2002.**



- 152 persons with incident ARC were documented among 58,394 HIV infected persons contributing 232,765 person-years (PY) of followup.
- Most cancers were carcinomas
- Among persons with ARC in ASD, 92% were male, 44% were aged 35-44 years, and 79% were exposed to HIV through male-male sex.

## RESULTS

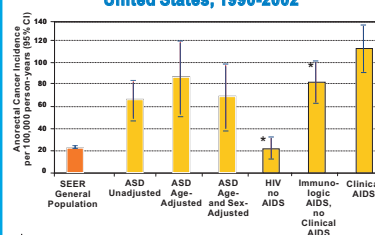
**Figure 4:**  
**Factors associated by logistic regression analysis with**  
**anorectal cancer diagnosis among 58,394 persons**  
**with HIV infection observed in the ASD cohort from**  
**1990-2002**



- For group 1 (see methods), incidence of ARC was associated with exposure to HIV through male-male sex (vs. male-female sex; age > 45 years and 35-44 years versus age < 35 years; clinical AIDS diagnosis; and CD4 count < 200 or 200-499 vs. CD4 > 500).
- When the model was run excluding unspecified types of cancers (group 2), the same factors were significantly associated with ARC diagnosis (data not shown).

## RESULTS

**Figure 5:**  
**Anorectal cancers incidence rates,**  
**SEER data versus ASD data,**  
**United States, 1990-2002<sup>1</sup>**



- <sup>1</sup>SEER data were from 1992-2000  
<sup>2</sup>not age- or sex-adjusted
- Age- and age- sex- adjusted rates of ARC were higher in ASD patients than in the general population (SEER data)
  - Among persons with HIV infection, rates were higher for those with immunologic or clinical AIDS than for those without AIDS.

## Limitations

- ASD sites and patients are not representative of all persons living with HIV infection in the US
- Different time frames were used for the ASD and SEER data
- Not all cancers in ASD were completely characterized by morphology codes

## CONCLUSIONS

- Persons with HIV infection are at substantially increased risk for ARC compared with the general population.
- Most anorectal cancers were carcinomas; a small number of Kaposi's Sarcomas of the anorectal area were identified
- In this cohort, anorectal carcinoma was associated with male-male sex, greater age, and more advanced HIV disease.
- These data suggest that clinicians must be vigilant for ARC during periodic examinations of HIV-infected persons, especially men with a history of male-male sex, older persons, and those at more advanced stages of disease.

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