

# Dramatic Increase in Anal Cancer Diagnosed in the Era of Highly Active Antiretroviral Therapy

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## Abstract

**Background:** We sought to determine how the availability of highly active antiretroviral therapy (HAART) influenced rates of anal cancer among AIDS patients. **Methods:** We performed a match between the AIDS & Cancer Registries for San Diego County. Registry data were complete from 1988-2000 but no cases of anal cancer were diagnosed before 1992. **Results:** We identified 39 cases of anal squamous cell carcinoma. All were men & 38 (97%) were men who have sex with men. The median age was 42 years (range: 25-59); 28 (72%) were white; 2 (5%) were Black; 7 (18%) were Latino & 2 (5%) were unknown race/ethnicity. The median CD4 cell count was 120/MCL (range: 2-551). Among the 36 patients diagnosed with HIV prior to or simultaneous with their anal cancer diagnoses, the median duration of known HIV infection was 78 months (range: 0-175). The median duration of HIV infection in the pre-HAART era (1992-1995) was 29 months while post-HAART (1996-2000) it was 84 months ( $p=.01$ ). Eight cases (21%) were diagnosed pre-HAART, while 31 (79%) were diagnosed post-HAART. Pre-HAART, 3 (38%) of 8 cases were in-situ while post-HAART, 8 (26%) of 31 were in-situ ( $p=.51$ ). Twenty-eight patients (72%) received surgical treatment. One (3%) received radiation therapy & 1 (3%) received chemotherapy; 16 (41%) received both & 21 (54%) received neither. Twenty (51%) were alive at most recent follow-up. Among the 19 deceased, 6 (32%) died of HIV/AIDS; 6 (32%) died of anal cancer & 7 (37%) died of other/unknown causes. The median survival was 37 months (range: 2-104). The number of cases of squamous cell anal cancer among AIDS patients increased each year between 1996-2000 (3 (8%) in 1996; 4 (10%) in 1997; 5 (13%) in 1998; 8 (21%) in 1999 & 11 (28%) in 2000) despite a declining incidence of AIDS in San Diego. Thus, the rate of anal cancer increased from 2.8 per 1000 AIDS cases in 1992 to 24.7 per 1000 AIDS cases in 2000 ( $r=.83, p=.005$ ). The number of male cases of squamous cell anal cancer in the San Diego Cancer Registry increased from 7 in 1992 to 20 in the year 2000. Thus, the age-adjusted rate of squamous cell anal cancer among all men in San Diego increased from 0.8 per 100,000 in 1992 to 1.6 per 100,000 in 2000 ( $r=.68, p=.04$ ). After exclusion of men who were identified through the match as having AIDS & men who were recorded as HIV-infected on their cancer registry abstract, the age-adjusted rate of squamous cell anal cancer among men in San Diego without known HIV/AIDS did not demonstrate a trend ( $r=.04, p=.91$ ). Data limitations include lack of information regarding HAART usage & the HIV status of men with anal cancer who are in the cancer registry but either did not match with AIDS registry or did not have their HIV status recorded on the cancer registry abstract. **Conclusions:** Cases of anal cancer among AIDS patients in San Diego County have increased since the introduction of HAART. This could be due to increased screening for anal cancer or increased longevity with the use of HAART. Fewer in-situ tumors in the post-HAART era argue against a screening phenomenon. The longer duration of HIV infection post-HAART suggests that HAART increases the time at risk for the development of anal cancer. Although age-adjusted rates of anal squamous cell cancer among men have increased in the San Diego cancer registry, when we exclude men with known HIV/AIDS, there is no clear trend.

## Background

We sought to determine how the availability of highly active antiretroviral therapy (HAART) influenced rates of anal cancer among AIDS patients

## Methods

- We performed a match between the AIDS & cancer registries for San Diego County
- Registry data were complete from 1988-2000 but no cases of anal cancer were diagnosed before 1992

## Demographics

- 39 men with squamous cell carcinoma of the anus
- 38 (97%) were men who have sex with men
- Median age was 42 years (range: 25-59)
- 28 (72%) were White; 2 (5%) were Black; 7 (18%) were Latino & 2 (5%) were of unknown race/ethnicity

## Results

### Characteristics of Men with AIDS & Squamous Cell Anal Cancer, San Diego, 1992-2000

Characteristic	Median (Range)
Age	42 years (25-59)
CD4 Cell Count	120/MCL (2-551)
Duration of HIV Infection	78 months (0-175)
Survival	37 months (2-104)

### Characteristics of Men with AIDS & Squamous Cell Anal Cancer in San Diego, Pre-HAART (1992-1995) vs. Post-HAART (1996-2000)

Characteristic	Pre-HAART	Post-HAART
Duration of HIV Infection	29 months	84 months
# Cases of Anal Cancer in People with AIDS	8 (21%)	31 (79%)
# Anal Cancer Cases in Situ	3 (38%)	8 (26%)

### Treatment of Anal Cancer

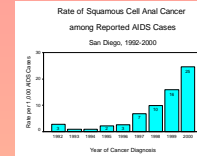
- 28 (72%) received surgical treatment
- 1 (3%) received radiation therapy & 1 (3%) received chemotherapy
- 16 (41%) received both radiation therapy & chemotherapy
- 21 (54%) received neither radiation therapy nor chemotherapy

### Outcomes of Anal Cancer

- 20 (51%) were alive at most recent follow-up
- Median survival was 37 months (range: 2-104)
- Among the 19 deceased,
  - 6 (32%) died of HIV/AIDS
  - 6 (32%) died of anal cancer
  - 7 (37%) died of other/unknown causes

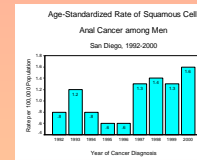
### Anal Cancer Rates among People with AIDS in San Diego County, 1992-2000

- The number of cases of squamous cell anal cancer among people with AIDS increased each year between 1996-2000 despite a declining incidence of AIDS in San Diego County
- Thus, the rate of squamous cell anal cancer increased from 2.8 per 1000 AIDS cases in 1992 to 24.7 per 1000 in 2000 ( $r=.83, p=.005$ )



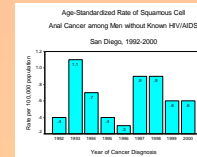
### Anal Cancer Rates among Men in San Diego County, 1992-2000

- The number of male cases of squamous cell anal cancer in the San Diego cancer registry increased from 7 in 1992 to 20 in 2000
- Thus, the age-adjusted rate of squamous cell anal cancer among all men in San Diego increased from 0.8 per 100,000 in 1992 to 1.6 per 100,000 in 2000 ( $r=.68, p=.04$ )



### Anal Cancer Rates among Men without Known HIV/AIDS in San Diego County, 1992-2000

- After exclusion of men who were identified through the match as having AIDS & men who were recorded as HIV-infected on their cancer registry abstract, the age-adjusted rate of squamous cell anal cancer among men in San Diego without known HIV/AIDS did not demonstrate a trend ( $r=.04, p=.91$ )



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## Data Limitations

Lack of information regarding:

- Use of HAART
- HIV status of men with anal cancer who are in the cancer registry but either did not match with AIDS registry or did not have their HIV status recorded on the cancer registry abstract

## Conclusions

- The rate of anal cancer among AIDS patients in San Diego County has increased since the introduction of HAART
- This phenomenon could be related to increased screening for anal cancer or increased longevity with the use of HAART
  - The finding of fewer in-situ tumors in the post-HAART era suggests that it is not simply a screening phenomenon
  - The longer duration of HIV infection post-HAART suggests that use of HAART increases longevity and thus the time at risk for the development of anal cancer

•Although age-adjusted rates of anal squamous cell cancer among men have increased in the San Diego cancer registry, when we exclude men with known HIV/AIDS, there is no clear trend for this rate

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