Survival and prognostic factors associated with non-AIDS defining malignancies (NADM)

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Background

- Introduction of cART decreased morbidity and mortality in HIV infected population (*Mocroft et al, Lancet 2003;362:22*)
- In cART era NADMs cause more death than ADMs in Europe (*Monforte et al AIDS 2008,22:2143*)
- NADMs are one of the leading death cause in cART era (*Sackoff et al, Ann Intern Med 2006;145:397*)
- Some carcinogens are common in HIV infected population (smoking, hepatitis B or C and HPV coinfection)
- Limited data on NADM survival and prognosis
EuroSIDA study

EuroSIDA - prospective, observational cohort study of > 16,000 patients with HIV-1 infection in 103 centers across Europe

Information on the study and data collected can be downloaded at www.cphiv.dk
Objectives

• To determine survival for different types of NADM in cART era

• To identify factors predicting a patient’s risk of death after NADM diagnosis
Type of cancers

- 305 patients had NADM
- 41 different ICD-10 codes
- In this diverse collection it was logical to make few, bigger, more homogenous groups
  - Viral
  - Epithelial
  - Other
Rational for grouping

• Viral group:
  • All ADM have strong viral association
  • Some NADM also have viral associations

• Epithelial group:
  • Incidence rates increase after the age 30 years
  • Incidence rates are rapidly increasing by age
  • Strong association with carcinogens
  • Cause more than 75% of cancer death
Groups of NADMs

Epithelials 40%

Viral 47%

Anal

Prostate

Rest of epithel

GIT

Hodgkin

Lung

Hepatocellular cc

Breast

HPV associated, not anal

Other 13% Hematologic, and rest

Melanoma

EuroSIDA
# Patients’ characteristics at diagnosis of NADM

<table>
<thead>
<tr>
<th>N=305</th>
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<tbody>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Caucasian</td>
</tr>
<tr>
<td>HIV exposure</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Viral hepatites</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Smoking</td>
</tr>
<tr>
<td>Anemia (female:&lt;12g/dl, male:&lt;14g/dl)</td>
</tr>
<tr>
<td>On cART at time of diagnosis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Median (IQR)</th>
</tr>
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<tbody>
<tr>
<td>Calendar year of diagnosis</td>
<td>Sep ’02 (Aug ’99 – Aug ’05)</td>
</tr>
<tr>
<td>Age (years)</td>
<td>42 (33-49)</td>
</tr>
<tr>
<td>CD4 count (cells/mm³)</td>
<td>300 (190-501)</td>
</tr>
</tbody>
</table>

EuroSIDA
Kaplan-Meier estimates of death after NADM diagnosis

129 (42.3%) died under during a median follow-up of 1.5 years

p=0.01

Virus related: 140 36%
Epithelial: 125 40%
Other: 40 49%

EuroSIDA
Hazard ratios (HR) for death after NADM diagnosis in EuroSIDA

<table>
<thead>
<tr>
<th>Comparison</th>
<th>HR</th>
<th>95% CI</th>
<th>unadjusted</th>
<th>adjusted*</th>
</tr>
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<tbody>
<tr>
<td>Epithelial versus Viral Crs</td>
<td>1.84</td>
<td>(1.06-3.22)</td>
<td></td>
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<tr>
<td>Other versus Viral Crs</td>
<td></td>
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<tr>
<td>IDU versus MSM</td>
<td>2.09</td>
<td>(0.97-4.05)</td>
<td></td>
<td></td>
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<tr>
<td>Started cART</td>
<td>2.20</td>
<td>(1.06-4.54)</td>
<td></td>
<td></td>
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<tr>
<td>Ever smoking</td>
<td>2.20</td>
<td>(1.06-4.54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD4 cell count (per doubling)</td>
<td>0.66</td>
<td>(0.55-0.78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anaemia</td>
<td>1.87</td>
<td>(1.0-3.51)</td>
<td></td>
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</tr>
</tbody>
</table>

*Also adjusted for HCV, HBV, gender, race, age, baseline HIV-RNA, AIDS and year of cancer diagnosis
Conclusions

- HIV-patients with non-AIDS defining malignancies have a poor prognosis
- IDU and smoking were both associated with poor prognosis, whereas a higher CD4 cell count was associated with a better prognosis
- Limitations: lack of data on dissemination, chemotherapy, operation, risk factors (e.g., alcohol)
Conclusions

- Viral cancers had a better prognosis compared with epithelial and other cancers
- Probably due to the more invasive nature and fewer treatment options for the two latter types
- As follow-up accumulates, more detailed information including analysis of individual NADMs will emerge
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