Non-AIDS Defining Malignancy Mortality In People Living With HIV

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BACKGROUND

- Non-AIDS-defining malignancies (NADM) represent one of the leading cause of death in people living with HIV (PLWH) with higher rates than in the general population.
- Despite its growing importance, there are no recent population-based estimates of mortality due to NADM in Spain

AIMS: To evaluate rate and prognostic factors of NADM mortality in PLWH using data from the CoRIS cohort.

METHODS

- **CoRIS** is a Spanish, open, multicentre and prospective cohort of PLWH naïve to antiretroviral therapy followed-up between 01/01/2004 and 30/11/2021.
- **Eligible PLWH** were 20 years or older, enrolled between 2004 and 2020.
- **Main outcome** was NADM mortality, which includes all deaths due to cancer, except those due to AIDS defining malignancies such as Kaposi sarcoma, certain types of non-Hodgkin lymphomas and cervical cancer.

Statistical analysis

- Age, sex and calendar year standardized mortality ratios (**SMRs**) and their 95% confidence intervals (95% CI) were estimated using NADM mortality rates from the Spanish general population
- Adjusted hazard ratios (**HRs**) and their 95%CI were estimated using cause-specific multivariable Cox proportional hazard models, accounting for competing risk, and age as time-scale
- Variables included were: sex, transmission route, educational level, region of origin and AIDS diagnosis at enrollment as well as time-updated tobacco use, CD4 count, viral load, and hepatitis B and C infection

RESULTS

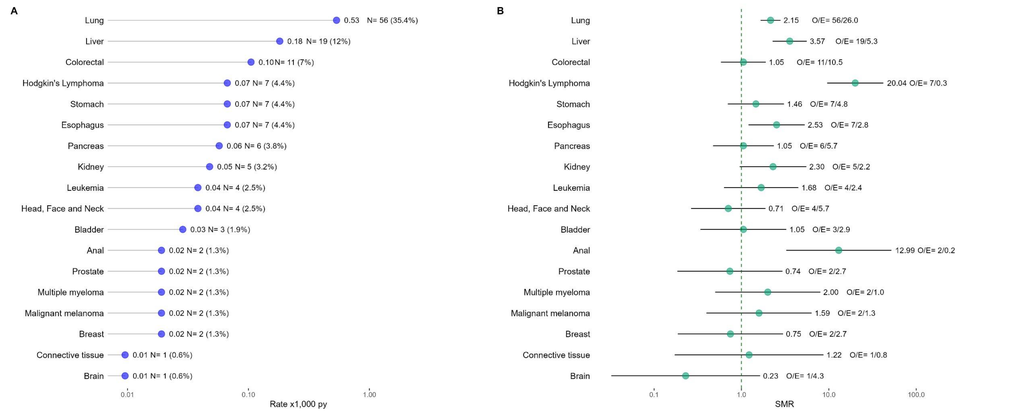
Table 1. Participants characteristics at enrollment 2004-2020 (N=17,329)

- **85%** (N=14,801) males
- **35 years old** median age [IQR 29-43]
- **62%** (N=10,755) HIV transm through homo/bisexual contact
- **69.4%** (N=12,022) from Europe
- **41%** (N= 5,168) current smokers
- **391 cell/µL** median CD4 count [IQR 213-583]
- **34%** (N= 5,877) viral load >100,000 copies/mL
- **13%** (N= 2,168) AIDS diagnosis
- **10%** (N= 1,674) hepatitis C virus antibodies
- **3%** (N= 582) hepatitis B surface antigens

Non-AIDS defining cancer mortality in PLWH is higher than in the general population mainly at younger ages. Smoking, viral hepatitis coinfections and immunosuppression are the main prognostic factors

Out of 790 deaths, 158 (**20%**) were due to a NADM. NADM **mortality rate** was **1.51 (95% CI 1.29, 1.76)** per 1,000 person-years (py), 73% higher as that in the general population [**SMR 1.73 (IC 95% 1.48, 2.02)**].

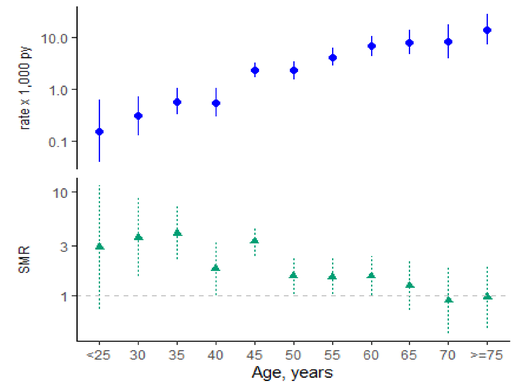
Figure 1. NADM mortality rates (A) and SMRs (B) by tumor type



CONCLUSIONS

- NADM deaths represent 20% of all deaths in PLWH: the highest mortality rates were observed for lung, liver and colorectal cancer.
- NADM mortality is higher in PLWH than in the general population, mainly at younger ages.
- Smoking, viral hepatitis coinfections and immunosuppression independently increased NADM mortality.
- **These findings highlight the importance of prompt diagnosis and linkage to care as well as the need of initiative for effective cancer risk factor management and appropriate screening measures among people living with HIV.**

Figure 2. Mortality rates and SMRs according to age



	<25	30	35	40	45	50	55	60	65	70	>=75
Rate	0.15	0.3	0.57	0.54	2.3	2.26	4.11	6.69	7.88	8.11	13.99
SMR	2.94	3.66	4	1.83	3.35	1.54	1.53	1.53	1.24	0.89	0.96

Table 2. Association between participants characteristics and NADM mortality

Characteristics	Adjusted HR (95%CI)
Male (ref female)	0.93 (0.62, 1.39)
Transmission route (ref homo/bisexual contact)	
Injecting drug use	1.55 (0.87, 2.76)
Heterosexual contact	1.48 (1.07, 2.04)
Other/Unknown	1.32 (0.63, 2.79)
Educational level (ref Primary/none)	
Upper secondary or university	1.41 (0.81, 2.48)
Other/Unknown	1.32 (0.85, 2.05)
Non European region of origin (ref European)	0.63 (0.37, 1.06)
Smoking (ref never smoker) $	
Current smoker	2.25 (0.97, 5.25)
Former smoker	1.73 (0.74, 4.08)
Unknown	1.08 (0.40, 2.95)
AIDS diagnosis	1.01 (0.71, 1.43)
CD4 count (ref ≥500 cell/µL)$	
≤200	8.48 (5.45, 13.18)
201 - 349	4.09 (2.56, 6.54)
350 - 499	2.49 (1.64, 3.79)
Unknown	3.99 (1.21, 13.13)
Viral load (ref <50 copies/mL) $	
51 - 10,000	0.93 (0.51, 1.71)
≥10,000	0.73 (0.41, 1.29)
Unknown	0.40 (0.11, 1.46)
Hepatitis C virus antibodies$	
Yes	1.75 (1.09, 2.80)
Unknown	2.05 (1.27, 3.31)
Hepatitis B virus surface antigen$	
Yes	2.01 (1.12, 3.63)
Unknown	0.72 (0.45, 1.16)

$Modeled as time-updated variables

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