Ten-Year Cancer Survival Rate in an Italian Cohort of People with HIV from 2008 to 2025

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BACKGROUND

- People with HIV (PWH) are at increased risk of developing malignancies[1,2,3].
- This study aimed to estimate long term survival rates in PWH diagnosed with cancer, stratified by virus-related cancer (VRC; anal and invasive cervical cancer, hepatocellular carcinoma, Kaposi sarcoma, Hodgkin and non-Hodgkin lymphoma) and non–virus-related cancer (NVRC)[4].

METHODS

- We included PWH with a VRC or NVRC diagnosis from 2008 onwards, excluding those diagnosed before or within 30 days of HIV infection and those with a cancer diagnosis prior to 2008.
- Baseline characteristics were compared using the Wilcoxon–Mann–Whitney test for continuous variables and chi-square or Fisher's exact test for categorical variables; data were reported as median (interquartile range) or frequency (%).
- Survival curves were estimated with the Kaplan–Meier method and reported with 95% confidence intervals (95%CI).
- Associations with mortality were assessed using univariable and multivariable Cox proportional hazards ratio (HR) models.

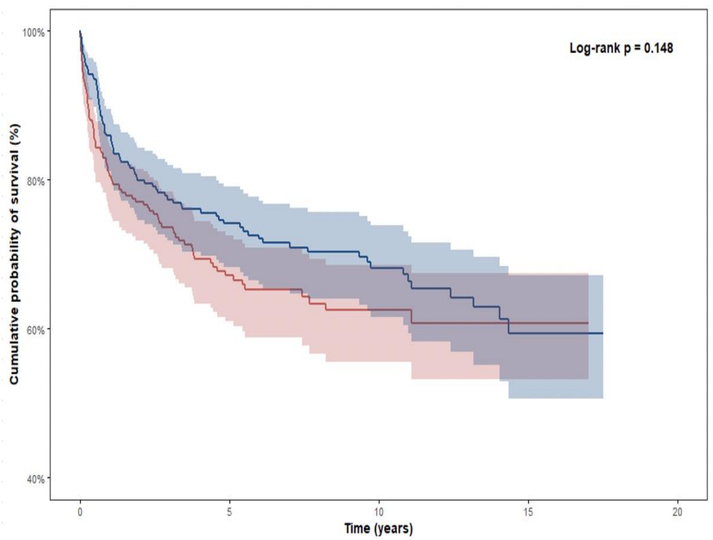
In this large, single-center Italian cohort of people with HIV, ten-year cancer survival was comparable between virus-related and non–virus-related malignancies, while older age at cancer diagnosis, lower CD4 count and HCV coinfection were the primary determinants associated with mortality.

Variable	Non-Virus-Related cancer (N=322)	Virus-Related Cancer (N=280)	p-value
Age (years)	57.3 (51.7;65.1)	49.8 (42.9;55.2)	<0.0001
Duration of HIV Infection (years)	21.2 (14.3;28.1)	16.2 (5.2;24.5)	<0.0001
Duration of Antiretroviral Therapy (years)	17.5 (11;23.1)	9.6 (1.4;17.8)	<0.0001
Duration of viral suppression (years)	8.4 (3.1;13)	1 (0;5.9)	<0.0001
Nadir of CD4 cells (cells/µL)	208 (89;348)	195.5 (87;311)	0.514
CD4 cells at baseline (cells/µL)	658 (477;843)	433 (270;713)	<0.0001
CD4/CD8 ratio at baseline	0.7 (0.5;1.1)	0.4 (0.2;0.8)	<0.0001
CD8 cells at baseline (cells/µL)	878 (581;1215)	844 (555;1276)	0.794
Male Gender	234 (72.67%)	240 (85.71%)	<0.0001
Previous AIDS	83 (25.78%)	56 (20%)	0.089
Current smokers	156 (52%)	141 (58.75%)	0.107
HCV coinfection	88 (29.14%)	78 (30.95%)	0.643
HIV RNA<50 copies/uL	279 (89.14%)	162 (66.12%)	<0.0001

Table 1. Baseline Characteristics of Participants at cancer diagnosis

Parameter	Hazard Ratio (HR)	95% CL		p-value
Type of diagnosis (VRC vs NVRC)	0.946	0.657	1.363	0.7657
Years of HIV infection (per 5-year increase)	0.925	0.836	1.023	0.1302
Age (per 5-year increase)	**1.187**	**1.085**	**1.298**	**0.0002**
Nadir CD4 cells (per 100 cells/µL decrease)	0.926	0.829	1.033	0.1697
Duration of viral suppression (per 5-year increase)	1.141	0.949	1.372	0.1613
CD4 cell count at time of diagnosis (per 100 cells/µL decrease)	**0.943**	**0.893**	**0.995**	**0.033**
Gender (Male vs Female)	1.111	0.738	1.672	0.6142
Previous Major Adverse Cardiovascular Event (MACE)	0.796	0.392	1.615	0.527
Diabetes Mellitus	1.494	0.843	2.648	0.1694
Hypertension	0.945	0.652	1.368	0.7635
Dyslipidemia	0.81	0.563	1.166	0.2569
HCV coinfection	**2.689**	**1.855**	**3.898**	**<0.0001**

Table 2. Parameters Associated with Mortality in a Multivariable Cox Hazard Ratio Model.



Graph 1. Cumulative Probability of Survival in VRC (blue) and NVRC (red)

RESULTS

- Out of 7456 PWH in follow-up, 602 individuals were included: 280 with a VRC and 322 with a NVRC.
- At cancer diagnosis, PWH with VRC were significantly younger (49.8 [42.9–55.3] vs. 57.3 [51.7–65.2] years), were more often male (85.7% vs. 72.7%), had shorter duration of HIV infection (16.2 [5.2–24.5] vs. 21.2 [14.4–28.2] years) and lower CD4 counts (433 [270–713] vs. 658 [477–843] cells/µL), than those with NVRC (Table 1).
- Overall, age at cancer diagnosis increased over time, from a median of 46.1 (40.4–51.8) years in 2008–2010 to 59.3 (55.4–65.2) years in 2023–2025.
- Over a median follow-up of 4 years (1–9), 180 deaths occurred (83 in VRC, 97 in NVRC). Crude 10-year survival was 65.1% [95%CI 60.4%–69.4%] in VRC and 62.5% [55.6%–68.6%] in NVRC, with 5-year survival of 74.1% [68.2%–79.1%] and 67.1% [61.0%–72.6%], respectively (Graph 1). No significant difference between the two groups was observed for either endpoint (p=0.148).
- Older age (HR 1.19 [1.09-1.30], p=0.0002), lower CD4 count (HR 0.94[0.89-1.00], p=0.033), and HCV coinfection (HR 2.69 [1.86-3.90], p<0.0001) were associated with mortality (Table 2).
- A second primary cancer was diagnosed in 67 participants including 35 recurrences of the same tumor (16 VRC, 19 NVRC), with a crude 10-year survival after second diagnosis of 44.8% (23.6%-64.0%).

CONCLUSIONS

- Long-term survival did not differ significantly between VRC and NVRC among PWH in our cohort.
- Over time, an increase in age at cancer diagnosis was observed.

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