Background

- Initiation of combined antiretroviral therapy (cART) has markedly increased survival and quality of life in people living with HIV/AIDS (PLWHA) [1,2].
- In 2017, approximately 36.9 million people were living with HIV. Of those, 21.7 million people were accessing cART [3].
- The durability of cART is measurably by its ability to durably suppress HIV replication and to affect immune system reconstitution, which in turn result in decreased rates of HIV clinical progression, AIDS-related opportunistic diseases, and death [5].
- With the advent of new treatment options, including fixed-dose combinations and an increasing number of single-tablet combinations, the durability of first-line-CART regimes is developing [4].
- These new therapies have been associated with greater efficacy, tolerability, and convenience [4].

Objective

Assessing predictors of first-line CART treatment changes within the German ClinSurv cohort between 2005 and 2017

Methods

- We used data from the prospective multicenter German Clinical Surveillance of HIV Disease (ClinSurv) cohort of the Robert-Koch-Institute (RKI) [5].
- We included PLWHA, aged ≥18 years of age, who initiated cART as first-line therapy between 2005 and 2006.
- Sociodemographic and geographic data were used to characterize our study population (Table 1).
- Time to event was calculated as the time between initiation of first-line cART and cART treatment change or stop, using Kaplan Meyer.
- Differences between groups were analyzed and compared using the log rank test. Pairwise log rank comparisons were used to determine differences within each group.
- To counter multiple comparisons, we applied a Bonferroni correction [6].

Results

A total of 4,210 (47.9%) stopped or changed their first-line cART between 2005 and 06/2017.

- The most frequently used first-line combinations were nucleoside reverse transcriptase inhibitor/protease inhibitor/boosted (NRTI/PI/boosted) (3,683; 41.9%) and nucleoside and non-nucleoside reverse transcriptase inhibitor (NRT/NRTI) (2,951; 33.6%) (Table 1). Changes over time are displayed in Figure 1.

Time to event analysis indicated strong prognostic factors regarding the time to stop/ change cART (Table 1). Illustrated by the Kaplan Meyer curve in Figure 2A by first-line regimen and B) by baseline HIV-1 RNA viral load (VL).

Factors most strongly associated with first-line stop/change in the Cox regression model, were a VL >1Mio. (vs. <10,000 (copies/ml)) and tablet administration twice per day (vs. once per day) (Table 1).

The HR increased markedly with the amount of daily administered tablets from HR 1.42, 99% CI 1.27-1.56 (4 tablets) to HR 2.78, 99% CI 2.53-3.07 (9 tablets).

Conclusion

Our analysis revealed, that the VL at baseline, the number of tablets per day and the amount of daily administered tablets are significantly associated with treatment change.

Understanding the complex interplay of factors more clearly is essential for clinicians and healthcare decision-makers to be able to achieve the level of adherence required to effectively enhance the first-line CART regime.