ONE-YEAR MORTALITY OF PEOPLE WITH HIV AFTER INTENSIVE CARE UNIT ADMISSION

Poster 874

Royal Free London NHS Foundation Trust

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BACKGROUND

- People with HIV continue to experience opportunistic infections and critical illness, increasing their risk of, and mortality after, intensive care unit (ICU) admission.
- Whilst short-term mortality outcomes (in-ICU and in-hospital mortality) following ICU admission for people with HIV have dramatically decreased, partly due to improvements in ICU care and partly as a result of the changing pattern of causes of admission[1], evidence about longer-term outcomes remains unclear[2].

AIM

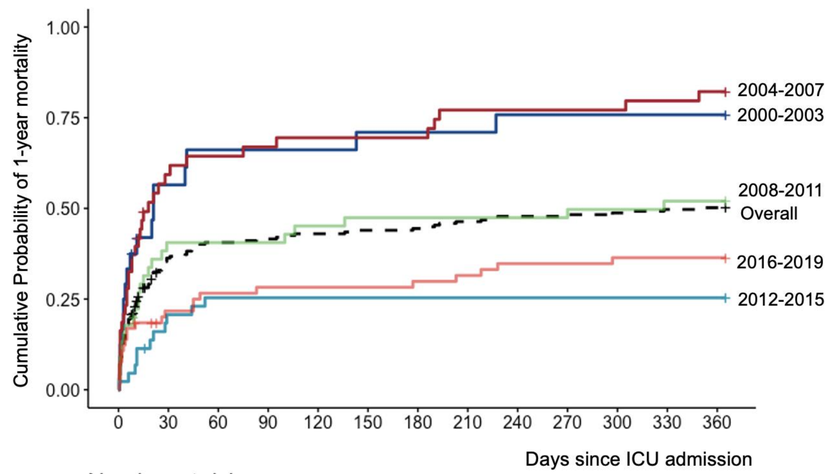
- To describe trends in 1-year mortality among adults with HIV (>18 years) admitted to the Royal Free Hospital ICU from 2000-2019.

METHODS

- Retrospective study (2000-2019) using data on index ICU admissions among people with HIV.
- One-year mortality was calculated from index ICU admission to date of death (including people who died in hospital)
- Follow-up was right-censored at day 365 if the person was known to remain alive at 1 year, or day 7 after ICU discharge if lost to follow-up after discharge.
- Between-group differences in admission characteristics by calendar year of ICU admission (2000-3, 2004-7, 2008-11, 2012-15, 2016-19) were explored using Kruskal-Wallis/Cochran-Armitage tests, and 1-year mortality using Kaplan-Meier/log-rank tests.
- Cox regression was used to describe associations with calendar year (as a continuous covariate) before and after adjustment for ICU admission characteristics:

Demographic Factors
Age
Sex at birth
Clinical Factors
Acute Physiology and Chronic Health Evaluation II (APACHE II) score
CD4+ T-cell count
Recent HIV-1 diagnosis (within 3 months of ICU admission)

Figure. Kaplan-Meier plot of cumulative probability of 1-year mortality, overall (dashed line) and by calendar year of ICU admission (solid lines)



Number at risk

Overall	221	133	124	122	119	117	116	112	109	109	107	105	104
2000-2003	24	9	7	7	7	6	6	6	5	5	5	5	5
2004-2007	43	16	14	13	12	12	12	9	9	9	9	8	7
2008-2011	45	26	26	26	24	23	23	23	23	23	22	21	21
2012-2015	44	34	32	32	32	32	32	32	32	32	32	32	32
2016-2019	65	48	45	44	44	44	43	42	40	40	39	39	39

Table. Summary of patient characteristics measured at ICU admission by calendar year of ICU admission

Characteristic	Year of index admission 2000-2003 (n=24)	2004-2007 (n=43)	2008-2011 (n=45)	2012-2015 (n=44)	2016-2019 (n=65)	p-value
APACHE II score (median)	29	25	17	14	13	<0.001
Age (years, median)	40	44	44	46	49	0.03
CD4+ T-cell count (cells/mm^3, median)	98	52	169	212	128	0.002
Advanced HIV (%)	95	77	66	50	66	0.01
HIV RNA ≤50 copies/mL (%)	17	34	59	46	53	0.02

RESULTS

- In total, 221 people with HIV were admitted (72% male, median [interquartile range (IQR)] age 45 [38, 53] years) of whom 108 had died within 1 year (median survival: 349 days, cumulative 1-year survival: 50%, **Figure**).
- Those admitted in later years had a lower median admission APACHE II (p<0.001) and were older (p=0.03), with higher median blood CD4+ T-cell count (p=0.002), lower percentage with advanced HIV (CD4+ T-cell count <200 cells/mm^3 and/or AIDS at ICU admission; p=0.01) and greater percentage with plasma HIV RNA ≤50 copies/mL (p=0.02; **Table**).
- Cumulative survival increased in later years (**Figure**, p=0.001, log-rank test), with a 10% reduction in the hazard of 1-year mortality per later year (hazard ratio (HR): 0.90 (95% confidence interval (CI): 0.87-0.93)).
- After adjustment, the annual decrease in 1-year mortality was reduced to 7% per later year (adjusted HR: 0.93 (95% CI: 0.89-0.98)).

CONCLUSIONS

- One-year mortality declined significantly in people with HIV admitted to our ICU over a 20-year study period.
- Our findings provide additional evidence that HIV status should not play a role in a clinician's choice of patient selection for admission to ICU and highlight the importance of ongoing medical care post-ICU and hospital-discharge.
- There were several limitations to our study. Most importantly, our findings are confined to a single ICU at an HIV referral centre, limiting generalisability and highlighting a need for a prospective multi-centre prospective UK study with a comparator cohort, where additional data including quality of life indicators following hospital discharge, are captured.

REFERENCES

[1]Turvey SL, et al. *Canadian Journal of Infectious Diseases and Medical Microbiology*; 2017.

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