

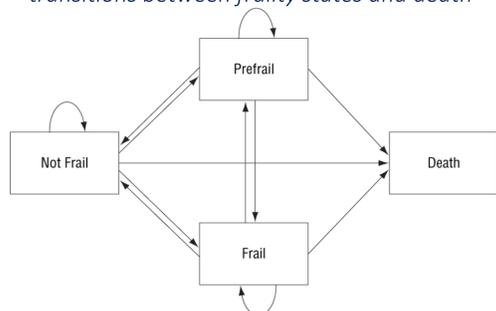
Frailty transitions in older adults with HIV: A one-year prospective follow-up study.

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Background

- The combination of greater survival with combination antiretroviral therapy and continued later life acquisition has led to an increase in the proportion of older patients living with HIV in the UK¹.
- This ageing population is therefore at greater risk of developing age-related syndromes such as frailty².
- Frailty is a clinical syndrome associated with adverse outcomes. Frailty is dynamic; characterised by frequent and complex transitions between any of the different states over time (fig.1)³.

Figure 1. Multistate model demonstrating potential transitions between frailty states and death



- Prospective data investigating transitions in frailty in HIV-infected individuals is lacking. Therefore, we aimed to examine frailty trajectories after one year in older adults with HIV and describe their associated factors.

Methods

- This was a prospective, observational study of HIV-infected individuals aged 50 years or older.
- Between Oct 2014-2015, 253 participants were recruited for a baseline frailty assessment and 223 participants (88%) returned 1 year later for follow-up.
- At both the baseline visit and one year follow-up, participants were assessed for frailty according to the five Fried criteria which include: low physical activity, exhaustion, weight loss, weak grip strength and slow walking speed⁴.
- Participants were classified based on the number of criteria they fulfilled (robust=0, pre-frail=1-2, and frail=3-5)⁴. The presence of criteria were also summed giving an overall frailty score (0-5). Transitions were defined as a move between frailty states (i.e. robust, prefrail, frail) and/or change in frailty phenotype score (0-5) from baseline.
- Predictors of transition towards increasing or decreasing frailty were examined from sociodemographic, clinical and functional data.

Results

- The characteristics of the baseline and follow-up groups were comparable, with the exception that non-Caucasian participants were less likely to attend follow-up after 1 year ($p=0.019$). Baseline frailty status did not influence retention in the study at one year ($p=0.771$).
- At baseline, 48 (19.0%) participants were frail with 111(43.9%) pre-frail and 94 (37.1%) robust. After 1 year, 41 (18.4%) participants were frail with 93 (41.7%) pre-frail and 89 (39.9%) robust.

Table 1: Frailty state as assessed at baseline and year one

N (%)	Year one		
	Robust	Pre-frail	Frail
Baseline			
Robust	64 (76.2)	19 (22.6)	1 (1.2)
Pre-frail	25 (26.0)	62 (64.6)	9 (9.4)
Frail	0 (0)	12 (27.9)	31 (72.1)

Results

- The majority remained in the same frailty state. However, 66 (29.6%) transitioned from baseline status, with 29 (13.0%) and 37 (16.6%) moving to higher and lower frailty states respectively (fig. 1a). Frailty was also dynamic in terms of frailty score (fig. 1b)

Figure 1a: Proportion of transitions in frailty state at year one

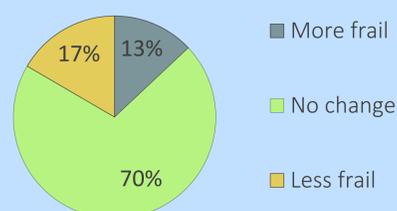
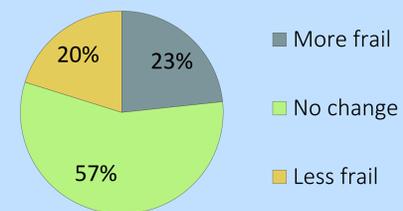


Figure 1b: Proportion of transitions in frailty score at year one



- Table 2 shows the relationship between those increasing score (propensity to frailty) and a variety of baseline parameters.
- Those with increasing frailty score described lesser education, unemployment, greater number of comorbidities and medication use, and greater mood symptoms on the Hospital Anxiety and Depression Scale.
- Those with increasing score also had lower physical activity on the Physical Activity Scale in the Elderly, weaker grip strength and slower walking speed.
- No HIV factors were associated with transition in either direction.

Table 2: Relationship between those with increasing frailty score and baseline parameter

Baseline parameter	Change in frailty score (n=223)		P-value ^a
	No increase N (%)	Increase N (%)	
Age ^b	59.7 (54.8-65.9)	59.2 (55.6-61.5)	0.554
Education (years) ^b	14.0 (11.0-16.5)	12.0 (11.0-16.0)	0.041
Not working	100 (58.5)	40 (75.9)	0.016
No. of comorbidities ^b	2.0 (1.0-3.0)	2.5 (1.0-4.0)	0.009
No. medications ^b	4.0 (3.0-7.0)	6.5 (4.0-9.0)	0.004
Diagnosed depression	41 (24.0)	23 (44.2)	0.005
HADS mood score ^b	4.0 (2.0-7.0)	6.0 (3.0-9.0)	0.033
Grip strength (kg) ^b	39.1 (31.2-44.6)	35.1 (28.2-41.1)	0.037
Walking speed (m/sec) ^c	1.1 ± 0.3	1.0 ± 0.3	0.006
Length of HIV diagnosis	14.8 ± 8.2	14.8 ± 7.3	0.998
CD4 ≥ 350 cells/mm ³ No. (%)	154 (90.1)	45 (86.5)	0.473

^a based on chi-squared unless stated. ^b median (IQR), p-value MWU. ^c mean (sd)

Conclusions

- Over one year, frailty was dynamic in terms of state and absolute score in this cohort. This implies that frailty manifests itself similarly in both HIV-positive and HIV-negative patients³.
- This study has identified some potential risk factors for frailty including comorbidity, mood and lower physical activity. These could be important targets for reversion in frailty.
- HIV factors were not significantly associated with the progression of frailty. This suggests that clinicians should focus their interventions on the non-infectious complications of HIV in this ageing population.
- There should be optimism that frailty can be reversed and proactive case finding in older adults with HIV should be considered.