Background

Setting:

The ANRS 12249 TasP is a cluster-randomised trial implemented in the Haiti subdistrict, located in northern Kayes-Zouda North in South Africa, which is a largely rural area with scattered homesteads and an estimated HIV prevalence of 25%.

Trial primary objective was to estimate the impact of ART on viral suppression and ensure the success of the universal test and treat (UST) strategy.

In September 2016, South Africa adopted the latest World Health Organization (WHO) guidelines on Antiretroviral therapy (ART) suggesting to start ART immediately after HIV diagnosis, irrespective of CD4 count.

Barriers to maintaining patients in care in a UST setting need to be documented so that appropriate actions may be considered to address the difficulties.

The TasP cluster-randomised trial conducted in rural South Africa between 2012 and 2016 provided the opportunity to monitor and assess factors among ART-eligible patients with a large UST programme.

Objectives

✓ To identify care trajectories among patients who linked to care after HIV diagnosis and who were ART-eligible at their first clinic visit.

✓ To investigate factors associated with care trajectories.

Methods

✓ Four trajectory groups were identified:

  Group 1 = patients always in care:
  554/612 (90.6%) patients initiated ART during the period of follow up and 32.2% initiated ART within 1 month
  Median [IQR] number of days between first clinic visit and ART initiation = 23 [11-42]

  Group 2 = patients leaving care then returned:
  51/612 (8.3%) patients left ART followed up and 5.1% initiated ART within 1 month
  Median [IQR] number of days between first clinic visit and ART initiation = 31 [7-44]

  Group 3 = patients leaving care later:
  47/612 (7.6%) patients have left ART followed up and 7.4% initiated ART within 1 month
  Median [IQR] number of days between first clinic visit and ART initiation = 24 [10-42]

  Group 4 = patients leaving care rapidly:
  49/612 (7.7%) patients have left ART followed up and 4.6% initiated ART within 1 month
  Median [IQR] number of days between first clinic visit and ART initiation = 27.5 [10-40.8]

✓ Variables selected and modelled:

- Psychosocial factors:
  - Disclosure
  - Social support

- Economic factors:
  - Household wealth assets
  - Employment

- Geographical accessibility:
  - Distance to TasP clinic

- Modelled for both ART-eligible and non-ART-eligible patients.

Conclusion

✓ About three quarters of patients were retained in care

✓ But a significant proportion of patients exited care at different follow-up times:
  - 12.7% exited care rapidly (in majority within 4-6 months after the first clinic visit)
  - 11.2% exited care later (in majority within 9-13 months after the first clinic visit)
  - 9% exited care and then returned

✓ No arm effect (intervention vs. control arm) but initiating ART rapidly (within the first month after the first clinic visit) was a major protective factor of exiting care

✓ Newly HIV diagnosed and young patients had a higher risk of exiting care

✓ Lack of social support was a risk factor of exiting care rapidly for women

✓ Men were at higher risk of exiting care and returning

Covariates (defined at the first clinic visit except ART status defined at month 1):

✓ Socio-demographic characteristics: gender, age (10-29; 30-39; 40+)

✓ Economic factors: household wealth assets, employment

✓ Psychosocial factors: disclosure, social support

✓ Stigma and treatment perception factors

✓ Clinical variables: newly diagnosed, CD4

✓ Geographical accessibility: distance to TasP clinic, and clusters

✓ Trial arm (intervention versus control)

✓ ART status at N1

Results

✓ The study population included 779 HIV-individuals

✓ Main characteristics of the study population:
  - 66.5% entered in TasP clinic within 1 month after referral
  - 70.5% of women
  - Median [IQR] age = 35 [27.4, 40.4] years at the first clinic visit
  - 11.8% of patients were newly diagnosed at the time of referral
  - 19.5% had CD4 between 350 and 500 cells/mm3 and 26.3% had CD4 < 350 cells/mm3

✓ 55.9% had initiated ART one month after the first clinic visit

✓ Median [IQR] time of leaving care = 4 [4-6] months

✓ Median [IQR] number of days between first clinic visit and ART initiation = 24 [10-42]

✓ Median [IQR] number of days between first clinic visit and ART initiation = 31 [7-44]

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✓ Median [IQR] number of days between first clinic visit and ART initiation = 27.5 [10-40.8]

✓ The optimal number of groups was determined using the Bayesian Information Criterion (BIC)

✓ The final model included 12 factors (p<0.05)

✓ Exclusion of patients having less than 18 months of follow-up (N=376)

✓ Exclusion of patients who died of any cause (N=11)

✓ Exclusion of patients with missing data at month 1 (N=554, 71.1%)

✓ Study population = all HIV-infected patients

✓ The model identified socio-demographic, economic, psychosocial and geographical factors that were significantly associated with the likelihood of being retained in care.

✓ Model fit was adequate as assessed by the Bayesian Information Criterion (BIC), the Average predictive skills improvement (APSI) and visual inspection of the predicted versus observed distributions for each of the four trajectory groups.

✓ The model was validated using cross-validation techniques.

✓ The model explained 76.5% of the outcome variability

✓ The model was interpreted using sensitivity and specificity analysis.

✓ The model was then used to predict the probability of being retained in care at any time during the follow-up period for each individual patient.

✓ The model was applied to the entire study population and to the subset of ART-eligible patients at baseline visit.

✓ The model was used to identify patients at risk of exiting care and to develop targeted interventions.

✓ The model was used to compare the effect of the intervention versus the control arm on care retention.

✓ The model was used to assess the impact of contextual factors on care retention.

✓ The model was used to identify high-risk populations and to develop tailored interventions.

✓ The model was used to inform the design of future trials and to optimize care retention strategies.

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