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Routine IGRA testing of people with HIV provides few opportunities to prevent TB: A Retrospective Audit

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BACKGROUND

- Tuberculosis (TB) is a major health issue for people with HIV (PWH). As immunodeficiency and uncontrolled HIV replication are risk factors for developing TB, efforts to diagnose HIV early and provide antiretroviral therapy (ART) to all are likely to have a major impact on TB incidence. In addition, screening PWH for latent TB infection (LTBI) allows provision of treatment before active TB develops, thus preventing ill health and onward transmission of *Mycobacterium tuberculosis*.
- BHIVA guidelines recommend screening for LTBI of PWH from high- and medium-TB-incidence countries, particularly those with a new HIV diagnosis or recent TB exposure, irrespective of CD4 cell count and use of ART.[1] Interferon-gamma release assay (IGRA) tests are used in the diagnosis of LTBI in PWH. [2]
- The HIV clinic at King's College Hospital, South London, introduced IGRA testing of all individuals who newly presented for care in January 2018. An IGRA test was added to the panel of blood tests of new presenters in 2018, those re-presenting for care after a period of no regular follow up, or transferring care from another centre within or outside of the UK.
- We performed an audit to ascertain:
  1. Whether IGRA tests had been performed
  2. To identify barriers to routine IGRA implementation
  3. The proportion of PWH with positive or indeterminate IGRA tests
  4. How many of those with positive IGRA tests could be targeted for preventive therapy

METHODS

- Retrospective audit.
- PWH who were new to the HIV service at King's College Hospital between 01/01/2018 and 31/12/2018 were identified on the HIV and AIDS Reporting System (HARS).
- Demographic and clinical data were obtained from electronic patient records and entered onto an ACCESS database. These included the dates of first HIV diagnosis and commencing ART; (nadir) CD4 cell count and viral load at the time of IGRA testing; history of TB (treatment); and presence of potential contraindications to preventive therapy (e.g. liver disease).
- A descriptive analysis method was performed; in those with a positive or borderline IGRA test result, we explored opportunities for TB prevention.
- In those with no IGRA test result, we ascertained reasons for this.

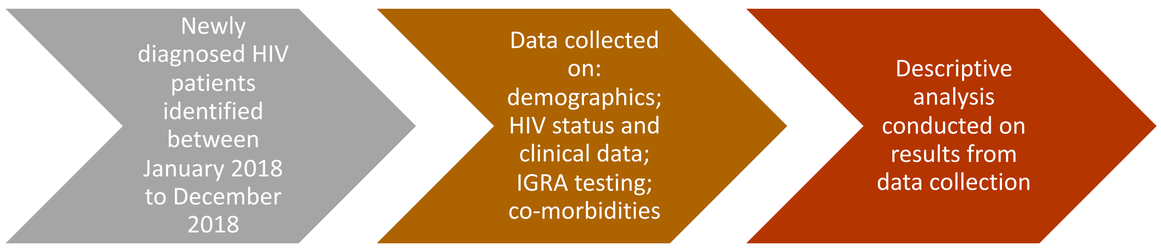

Figure 1. Flow diagram of format of audit completion

RESULTS

- 138 new PWH presented for HIV care at King's between January and December 2018; 61 had a new HIV diagnosis, 9 re-presented for care after a period of default, and 68 had transferred care from another clinic in the UK or abroad.
- The median age was 43 years (IQR: 34, 52); 35% were women and 51% of black ethnicity.
- Of the 138 PWH who presented for care in 2018, 81 (59%) had an IGRA test result. Those with and without IGRA tests did not differ in terms of age, ethnicity, CD4 cell count, or history of IVDU. None of the six individuals in residing in prison, nursing homes or mental health institutions had an IGRA test.
- Of the 81 who had an IGRA test, 4 had a positive test result, 4 individuals had an indeterminate result, and 73 patients had a negative result.

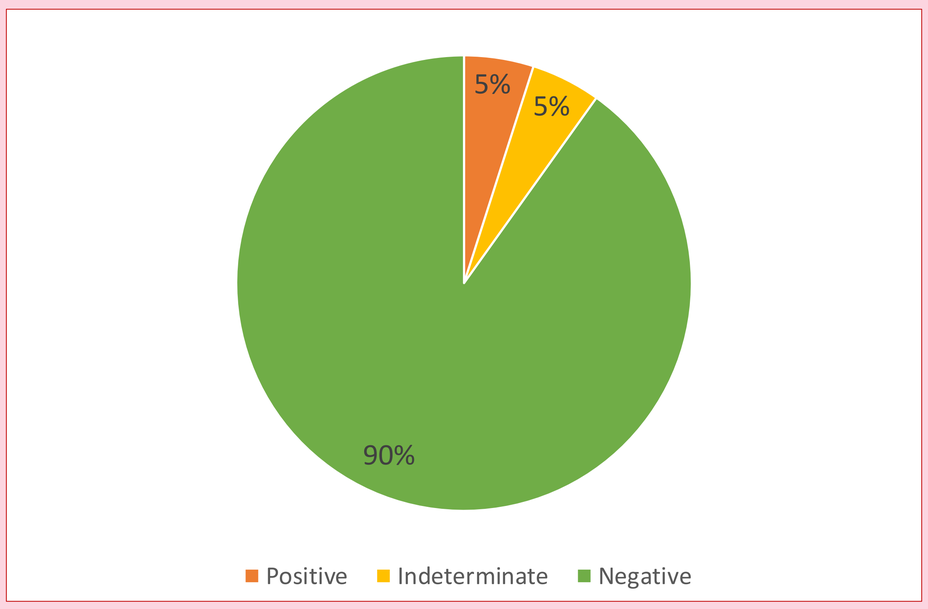

Figure 2. IGRA test results of 81 PWH presenting for care in 2018

- The reasons why 57 individuals did not have an IGRA test were:
  - Logistical issues (e.g. aged samples, incorrect samples taken, etc.): n=17
  - IGRA testing initially not being part of the transfer care pathway: n=19
  - Alternative pathways into care e.g. specialist clinics, outreach service to prisons or nursing homes, inpatient admissions: n=18
  - IGRA testing not indicated (e.g. patients with active TB): n=3

IGRA test result	Sex	Ethnicity	CD4 (cells/mm^3)	Viral Load (copies/mL)	Previous TB Treatment
Positive	Male	African	190	20	Yes
Positive	Male	African	320	33	Yes
Positive	Male	Caucasian	1063	20	Yes
Positive	Male	Caucasian	752	20	Yes
Indeterminate	Female	African	155	53	Yes
Indeterminate	Female	African	207	20	Yes
Indeterminate	Male	Caribbean	240	20	No
Indeterminate	Female	Caribbean	25	99 620	No

Table 1. Demographics and clinical data of the 8 patients who had received a positive or indeterminate IGRA test result

- Of the 8 with a positive or indeterminate result, 6 patients had a history of treated TB.
- Opportunities for TB prevention:
  - The two individuals with positive/indeterminate IGRA tests and no history of prior TB treatment were assessed for preventive therapy:
    - Irregular attender; repeat IGRA awaited (n=1)
    - Severe liver disease; preventive therapy not appropriate

DISCUSSION & CONCLUSIONS

- We report a low IGRA positivity rate (5%) amongst an ethnically diverse population of PWH in South London. Only one individual (1.2%) was identified who could potentially benefit from TB preventive therapy.
- There are substantial logistic challenges to achieving complete IGRA testing coverage. These relate to PWH entering care without an induction clinic visit (e.g. via medical admissions or specialist/outreach clinics) and flexible timing of induction clinic visits (with samples arriving too late for processing).
- It is possible that several individuals with LTBI were missed by IGRA testing. Considerable resources will be required to achieve complete IGRA coverage; these need to be justified in terms of the achieved individual and public health benefits.
- The low returns of IGRA testing may explain why only 57.4% of HIV clinics in the UK offered TB screening in 2016.[3]

REFERENCES

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3. White HA, Miller RF, Pozniak AL, et al. Latent tuberculosis infection screening and treatment in HIV: insights from evaluation of UK practice. Thorax 2017; 72: 180–182.