

***Trypanosoma cruzi* screening in people living with HIV in the UK**

Nadia Ahmed¹ & Sophie Herbert¹, Alejandro Arenas-Pinto^{1,2}, Hannah Rickman^{1,3}, Paul Benn¹, Simon G. Edwards¹, Peter L. Chiodini^{3,4}, Alison D. Grant^{1,3}.

Authors (names, email):

Dr. Nadia Ahmed nadia.ahmed20@nhs.net

Dr. Sophie Herbert sophieherbert@nhs.net

Dr. Alejandro Arenas-Pinto a.arenas-pinto@ucl.ac.uk

Dr. Hannah Rickman hannah.richman@lshtm.ac.uk

Dr. Paul Benn paul.benn@nhs.net

Dr. Simon G. Edwards simon.edwards2@nhs.net

Prof. Peter L. Chiodini p.chiodini@nhs.net

Prof. Alison D. Grant alison.grant@lshtm.ac.uk

Authors' affiliation address:

¹Mortimer Market Centre, Central North West London NHS Trust, Mortimer Market Centre, Off Caper Street, London WC1E 6 JB, United Kingdom.

²Centre for Sexual Health & HIV Research, University College London, Mortimer Market Centre, Off Caper Street, London WC1E 6 JB, United Kingdom.

³London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT, United Kingdom.

⁴Hospital for Tropical Diseases, Mortimer Market Centre, Off Caper Street, London WC1E 6 JB, United Kingdom.

Corresponding author for all stages: Nadia Ahmed: nadia.ahmed20@nhs.net; +44(0)2033175244 or +44(0)7739007500; Mortimer Market Centre, Central North West London NHS Trust, Off Caper Street, London WC1E 6 JB, UK.

Contributions: AG, SH, AAP, PB, SE conceptualised and designed the project; NA, HR and PC additionally supported implementation, data collection and analysis; all authors contributed to the writing and reviewing of the publication.

Acknowledgements: Patients who underwent screening. Staff who supported screening. I confirm that I have listed everyone who contributed significantly to the work.

Funding: No funding was received for this project.

Conflict of interest: The authors have no competing interests to declare.

Keywords: HIV, Chagas disease, *Trypanosoma cruzi*, *T.Cruzi*, Screening.

Abstract

People living with HIV (PLWH) are at higher risk of reactivation of Chagas disease, caused by *Trypanosoma cruzi*. There are no data from UK HIV clinics on the prevalence of *T. cruzi*. We implemented *T. cruzi* screening at our clinic as part of routine care for PLWH with epidemiological risk factors. Among 86 patients screened, none had positive serology: one seropositive patient was identified due to increased clinician awareness. Implementing *T. cruzi* screening as part of routine clinical care was feasible, though labour intensive and identified at-risk individuals.

Introduction

Chagas disease is caused by *Trypanosoma cruzi*, a parasite spread by triatomine bugs. It is endemic in South, Central and parts of North America. In HIV-negative patients, Chagas disease mainly causes a chronic disease leading to cardiomyopathy or to a megacolon/oesophagus. PLWH are at higher risk of reactivation of infection which tends to present with acute disease, mainly neurological, but occasionally affecting the heart (1) HIV clinics in Spain have found *T. cruzi* seroprevalence of up to 10% among PLWH originating from Latin America (2, 3), but there are no equivalent published data from UK HIV clinics. The British HIV Association (BHIVA) guidelines (1) recommend all PLWH with epidemiological risk factors or with a history of blood transfusions or intravenous drug use with contacts from these areas should be screened for *T. cruzi*. We implemented *T. cruzi* screening as part of routine care for PLWH born in Mexico, Central and South America attending a large central London HIV clinic. Our main aim was to determine the yield of screening for co-infection in our cohort

Methods

PLWH born in Central and South America categorized as “currently in care” (attendance within the previous 12 months) at the start of the project, were identified from our clinic database and flagged for screening in our electronic patient record (EPR). The electronic patient record of patients currently in care was updated to include to *T. cruzi* antibody screening at their next attendance/phlebotomy. *T. cruzi* antibodies were tested using an IgG ELISA. Screened patients were asked to complete a questionnaire including questions about geographical history in Central and South America (where they had lived and for how long), family history of Chagas disease, previous symptoms (gastrointestinal, cardiac and neurological) and prior knowledge of Chagas disease and vector. Patients were asked to either self-complete the questionnaire at the time of blood sampling, by the clinician seeing the patient or by a member of the project team via telephone call or email, where permission was granted on the EPR. Data was collated on an Excel spreadsheet. A patient information leaflet was offered to patients, available in both English and Spanish, and designed to be shared with their families. Patients with positive results were referred to the Hospital for Tropical Diseases for further assessment and management. All staff were trained on Chagas disease and *T. cruzi* screening. This was a quality improvement project and ethical approval was therefore not sought.

Results

231 patients were eligible, and 95 were tested over a period of 36 months. Those not tested, did not receive a test due to non-attendance or missed opportunities. 9 were excluded from analysis due to incomplete data, leaving 86 (6, 93% male, median [interquartile range, IQR] age 40 [34-45]) in the analysis. 72/86 (84%) were on antiretrovirals (ARVs) of whom 70 (97%) had HIV viral loads of <50 copies/ml: of the two with HIV viral loads over 50 copies/ml, one had commenced ARVs within the previous month and one patient reported poor adherence. The median CD4 count was 610 cells/mm³ (range 90-1250). Among those not on ARVs (n=8), the median CD4 count was 540 cells/mm³ (range 440-830). Among the 86 patients, 55 (64%) were born in Brazil and 70 (81%) lived in areas deemed endemic according to the World Health Organization criteria. Table 1 shows the country of origin of patients screened for Chagas disease. 48/89 (56%) patients had heard of Chagas disease, with 10 (12%) having a family history of Chagas disease. No patients had been treated for Chagas disease previously. 12 (14%) had seen the vector in real life and 5 (6%) had lived in a thatched house. 14/84 (17%) patients had been tested previously, all results were negative. None of the 86 patients screened tested antibody positive. One individual was tested positive as a result of increased awareness of the clinician who requested the test, as a result of

the *T. cruzi* screening project being implemented at the time. He was born in Bolivia, with well controlled HIV. He was asymptomatic but had a strong family history of Chagas disease. He tested PCR positive and subsequently started treatment with benznidazole.

Country of origin	Number of PLWH screened
Brazil	55
Colombia	12
Argentina	6
Ecuador	3
Peru	3
Guyana	2
Venezuela	2
Bolivia	1
Chile	1
Mexico	1
Total	86

Figure 1. Country of origin of PLWH screened for Chagas disease.

Discussion

To our knowledge this is the first quality improvement project in a UK HIV clinic to systematically screen at-risk patients for *T. cruzi*. While there was no positive serology for *T. cruzi* among 86 patients screened, one person with *T. cruzi* infection was tested by his clinician based on better awareness due to the project rather than by the project screening itself. The lack of positive cases is due, at least in part, to the small number tested overall and in particularly the low number of patients from Bolivia. Of 60 patients at the Hospital for Tropical Diseases with serologically proven Chagas disease between 1995 and 2018, three quarters were originally from Bolivia (4). In addition, with an expected prevalence around 2% for the region as a whole, chance may have contributed to there being no positives out of the 86 patients screened. Data from the USA, Spain and endemic countries (Argentina, Brazil, Bolivia), showed a prevalence of 0%, up to 10.5% (2, 3, 5) and 32% (4, 5), respectively, which may be higher due to different migration patterns.

Our electronic patient records made it easy to identify at-risk individuals. Our co-location with a specialist centre for tropical diseases facilitated referral and management. Screening provides an opportunity to disseminate information to at-risk individuals, their wider communities, and raise awareness of the condition among clinicians. HIV centres serving patient populations from endemic areas should consider routine screening at enrolment into care, particularly among individuals with advanced HIV disease in whom reactivation of Chagas disease is more likely. Hopefully, earlier initiation of ARVs will reduce the incidence of reactivation disease.

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