Attitudes to directly observed antiretroviral treatment in a workplace HIV care programme in South Africa

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Objective: To investigate attitudes to directly observed antiretroviral therapy (DOT ART) among HIV infected adults attending a workplace HIV care programme in South Africa.

Methods: Clients attending workplace HIV clinics in two regions were interviewed using a semi-structured questionnaire.

Results: 100 individuals (99% male, mean age 40.2 years) participated, 61% were already taking ART by self administration. 71% had previous tuberculosis (TB) with the majority having received DOT for TB. 65% of individuals indicated that they would not like to receive ART by DOT—the main reason given was a desire to take responsibility for their own treatment. This contrasted with 79% who thought TB treatment by DOT a good idea. On questioning about disclosure, 70% reported disclosure to their sexual partners and 21% to fellow workers. 78% of individuals indicated willingness to support someone else taking ART.

Conclusion: ART by DOT was not an immediately popular concept with our patients, primarily because of a desire to retain responsibility for their own treatment. More work is needed to understand what key elements of treatment support are needed to promote adherence.

Workers in South African gold mines are severely affected by the HIV epidemic; with a HIV prevalence of 29.4% reported in 2003.¹ In this setting, a gold mining company implemented antiretroviral therapy (ART) to all medically eligible employees in 2003, in a programme which has been described previously.^{2,3}

It is widely acknowledged that successful treatment with ART requires the patient to maintain consistent adherence to the prescribed regimen on a long term basis.⁴ Although self administered ART remains the standard of care for those on ART internationally, there is growing interest in, and evaluation of, directly observed therapy (DOT) as an intervention for improving adherence to treatment for HIV/AIDS. The traditional method of receiving the entire 6-month or 8-month course of tuberculosis (TB) treatment by DOT has been “modified” to cater for the more rigorous and long term demands of ART by giving only some of the ART doses under direct observation. Modified DOT ART has been shown to be beneficial in certain settings^{5,6}; however, the need for randomised trials has been identified.⁶

The successful treatment of TB on the mines relies on a well developed TB programme based on the DOTS (directly observed therapy, short course) strategy,⁷ incorporating direct observation of all TB treatment. The question therefore arose as to whether it would be appropriate to give ART under direct observation in this setting. DOT ART delivered by treatment supporters who are not healthcare staff has been used successfully elsewhere⁸ and could be a useful strategy in this setting. An argument for the use of DOT is that TB poses a public health risk, as does HIV. The effective treatment of HIV should result in lower HIV RNA levels, which has been associated with decreased risk of transmission⁹; in addition, direct observation of treatment may reduce the emergence of HIV drug resistance, as it has for TB.^{9,10} However, the potential public health benefit may be outweighed if a coercive DOT policy forces participants “underground.”⁶

There are important differences between TB and HIV, which include the lifelong duration of ART and a greater need for very

close adherence to treatment. Traditional TB programmes, anticipating a finite duration of treatment, rely on DOT, and do not necessarily promote the patient level commitment essential for successful adherence to ART in the long term.

Not least among the issues around the complexities of DOT ART are those that revolve around client confidentiality and disclosure of HIV status, especially in the mining environment. This study was undertaken to assess clients' attitudes towards directly observed ART, and to disclosure of their HIV status.

METHODS

A cross sectional survey was done at the workplace HIV clinics for gold miners in two regions in South Africa between July and October 2003. Two groups of participants were recruited: those attending the clinic who had received ART by self administration for more than six weeks and those who had received counselling before beginning ART. Individuals under the age of 18 and those not employed by the mining company were excluded. Eligible individuals who consented to be interviewed were enrolled sequentially until a total of 50 interviews in each region were completed. Participants were interviewed by trained research staff using a semi-structured questionnaire. Written informed consent was obtained with the aid of an information sheet and all questionnaires were anonymous.

Demographic information as well as a history of previous experience of chronic medication, including TB treatment, was obtained. Participants were asked about current or expected experiences of taking ART. Attitudes towards disclosure of HIV status and opinions on delivery of TB treatment and ART by DOT were explored.

Data were double entered onto Microsoft Access and imported to Stata 7.0 (Stata Corporation, College Station, TX, USA) for statistical analysis. Pearson's χ^2 and Fisher's exact tests were used to compare categorical variables. A p value of <0.05 was taken as statistically significant.

Abbreviations: ART, antiretroviral treatment; DOT, directly observed therapy; DOTS, directly observed therapy, short course; TB, tuberculosis

Ethical approval was obtained from the research ethics committees of the Anglogold Health Service, Johannesburg, South Africa, the London School of Hygiene and Tropical Medicine, London, and the University of the Witwatersrand, Johannesburg, South Africa.

RESULTS

At the two workplace HIV clinics, 129 individuals were approached and 100, 50 from each region, agreed to participate. Of these 100 participants, 61 were already taking ART by self administration and 39 had received pre-ART counselling but had not yet started ART. All participants on treatment were receiving the standardised first line regimen of zidovudine/lamivudine combination twice daily and efavirenz once daily at night. Of the 61 participants who were already receiving ART, 36 (59%) had been on treatment for between 6 weeks and 3 months, 19 (31%) for between 3 months and 6 months, and six (10%) for longer than 6 months.

All but one client were male with a mean age of 40.2 years and 78 lived in single sex residences on the mine property. Fifty-three participants were educated to no more than primary level and only nine participants had completed secondary schooling. The majority of participants were manual labourers, 91 participants working underground; 78 participants had worked for the company for more than 10 years.

Regarding experience of other medication, 71 of the 100 participants interviewed had a history of previous TB (92% in the previous five years). All except three had received TB treatment by DOT at the primary healthcare centre at the mine. Seventy-five participants had experience of other chronic medication (mainly preventative treatment with isoniazid and cotrimoxazole). Of all 100 participants interviewed, 79 thought that TB DOT was a good idea, the main reason given that TB DOT helped them to remember to take their treatment. The main difficulty with DOT was stated as being the inconvenience of having to go to the primary health centre.

Of all the participants interviewed, 35 indicated they would like to receive ART by DOT and 65 indicated that they would prefer to take treatment by self administration, the main reason being the desire to retain control by keeping their treatment to themselves.

"I know why I am taking theses tablets and it is better if they are with me"

"These tablets are mine and I will always remember to take them"

Five participants did express a desire for secrecy and a fear of disclosure beyond family members as a reason for not taking treatment by DOT:

"My secret. No one should know about my tablets"

"Don't want to disclose to anybody except family"

The majority of participants who wished to receive DOT ART indicated that they would prefer to receive it from the primary healthcare centre or the HIV clinic nurse rather than a colleague or family member.

Figure 1 indicates participants' attitude to TB DOT and DOT ART by previous history of TB. Of the 71 participants who had a previous history of TB, 60 (85%) were in favour of TB DOT. However, only 24 (34%) were in favour of DOT ART. Of the 79 participants who favoured TB DOT, 29 (37%) favoured DOT ART.

When asked about disclosure, 91 of the 100 thought that an HIV infected person should tell his/her partner their status but

Figure 1 Attitude to directly observed therapy for antituberculous drugs and antiretroviral therapy, by history of tuberculosis. TB, tuberculosis; DOT, directly observed treatment; ART, antiretroviral therapy.

only 70 reported that they had done so. The main reason given for revealing their HIV status to their sexual partner was concern for the woman's health.

"For protection against infection and for them to test for HIV"

Of the 14 participants who lived with their families, 11 (79%) had disclosed their HIV status to their wives. Seventy nine of the 100 participants had not told their co-workers their HIV status; 47 (60%) giving secrecy or fear of being mocked as a reason. Attitudes towards disclosure of HIV status, either to partners or to co-workers, was not significantly associated with attitudes to DOT ART.

Among 61 participants already on ART, 21 (34%) acknowledged that they were concerned that their HIV status would be revealed because they were taking ART. However, 44 (72%) had already informed another person of their treatment. Of those yet to start treatment, 12/39 (31%) were concerned that their HIV status would be revealed once they started taking ART.

Despite the negative attitude to DOT ART, the majority (78%) indicated that they would be willing to support others on ART; reasons given included the desire to encourage others and belief in the efficacy of ART.

"Because these tablets work and I am still alive"
"HIV has to stop killing people. I am willing to help"

Seven participants, however, expressed some reluctance to volunteer to support others spontaneously:

"Will support if asked"

Of the participants who indicated that they would not be willing to support someone else; only one mentioned fear of disclosure as his reason; the rest indicated that they felt it was each person's own responsibility, and that they did not wish to interfere. This was not related to their attitudes to DOT ART.

There was no statistically significant difference between age, region of workplace, accommodation, job type, or duration of employment among those who indicated willingness to receive DOT, attitudes to disclosure, or support of other participants. Similarly whether participants were yet to start treatment or were currently receiving ART and length of time on treatment had no influence on their attitude to DOT ART, disclosure, or support. Education level was not associated with attitudes to disclosure or attitudes to DOT. A history of receiving other chronic medication did not influence attitudes to DOT ART.

Key messages

- In a workplace HIV care programme in South Africa, most clients indicated that they would prefer to self administer antiretroviral therapy (ART) than receive directly observed therapy (DOT), despite positive attitudes to DOT for TB treatment
- The main reason for wishing to self administer ART was to take responsibility for their own treatment
- Attitudes to disclosure to sexual partners were positive but most were reluctant to disclose to co-workers
- Despite not desiring DOT ART and fear of disclosure, the majority of participants indicated a willingness to support another person on ART

DISCUSSION

The majority of participants in this gold mining workforce indicated that they wished to take ART by self administration despite many reporting a positive personal experience of TB DOT. Self administration of ART was the method to which participants in this study were accustomed and their reasons to continue were related to the wish to have personal control over their treatment. This was encouraging as one of the key messages of pre-ART counselling is the need to take personal responsibility for their lifelong treatment. However, self administration is the method about which they have been counselled and their response may reflect what they thought the interviewer would like to hear.

The majority of participants were familiar with TB DOT and favoured TB DOT, yet only 35% accepted the idea of DOT ART. Patients who are due to start ART undergo intensive counselling before commencing ART and on an ongoing basis during treatment. This counselling focuses on patient level commitment for the rest of the patient's life. Many patients commencing TB treatment receive little counselling regarding adherence, with medical staff relying on the structured DOT system to ensure adherence, usually for a limited period. The innovative approaches to treatment literacy that have arisen as a result of the need for excellent on ART adherence may provide valuable lessons for TB programmes in the future.

DOT ART was not favoured by majority of participants. This indicates that even though DOT and the support it provides are effective in some settings—rural Haiti,⁶ ¹¹ in methadone clinics in the United States,¹² among non-adherent patients in Vancouver,¹³ incarcerated patients in the United States¹⁴—it may not be a feasible or desirable solution everywhere. Results from a recent qualitative study in South Africa¹⁵ suggest that DOT ART may be effective and feasible using family or friends and that programmes based outside the workplace may be culturally acceptable. This would pose a challenge for the majority of this mining workforce but consideration should be given to offering DOT ART in an individually tailored, patient centred, and flexible⁶ ¹⁶ ¹⁷ manner as an option for clients who would find it helpful.

Attitudes to disclosure of their HIV status to sexual partners were positive although the majority were reluctant to disclose to co-workers and some expressed fear that their status would be known because of taking ART. The levels of self reported disclosure to sexual partners are higher than in other studies in South Africa.¹⁸ We cannot exclude social acceptability bias, as all clinic participants are encouraged to disclose to their partners. Only 21 had disclosed to co-workers and 33 participants expressed concerns that their status would be known because they were taking treatment. This fear of

disclosure in the workplace because of taking ART has been found in other studies¹⁹ and is in keeping with the perceived threat of stigmatisation which is reported in this and other environments.²⁰ Despite not desiring DOT ART and fear of disclosure, the majority of participants indicated a willingness to support another person on ART.

One limitation of this study is its generalisability to other populations. The study was done at two geographically separate sites, and results were similar in the two settings, indicating that it is at least generalisable in the gold mining environment and may be relevant to other populations of migrant workers. This was a small cross sectional study which was questionnaire based; in-depth interviews could complement this study. More work is needed to understand what key elements of treatment support are needed to promote adherence.

In this study DOT ART was not favoured by the majority of participants. Even though TB DOT works well in this environment, DOT ART was not widely supported, and hence the need to explore other ways to support long term adherence to ART.

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