HHS Public Access

Author manuscript

Braz J Infect Dis. Author manuscript; available in PMC 2015 March 30.

Published in final edited form as:

Braz J Infect Dis. 2014 ; 18(6): 669–671. doi:10.1016/j.bjid.2014.07.002.

Trichomonas vaginalis infection among young pregnant women in Brazil

Angelica Espinosa Miranda[a,*], **Valdir M. Pinto**[a], and **Charlotte A. Gaydos**[b]

[a]Post-graduation Program in Infectious Diseases, Federal University of Espírito Santo, Vitória, ES, Brazil

[b]Division of Infectious Diseases, Johns Hopkins University, Baltimore, United States

Abstract

Our goal was to determine the prevalence of *Trichomonas vaginalis* and its associated risk factors in parturient women aged 15–24 years attending Brazilian public maternity units. Participants answered a demographic, behavioral, and clinical data questionnaire. A sample of urine was screened for *T. vaginalis*. A total 299 women participated in this study. The prevalence rate of *T. vaginalis* was 7.7% (95% CI: 4.7–10.7%). The factors associated with *T. vaginalis* were use of illicit drugs [OR = 4.70 (95% CI: 1.63–13.56, $p = 0.004$)] and not attending antenatal care [OR = 5.15 (95% CI: 1.15–23.25, $p = 0.032$)]. These data demonstrate that it is important to discuss how to include routine screening for *T. vaginalis* during antenatal care in Brazil.

Keywords

Trichomonas vaginalis; Pregnancy; Prevalence; Risk factors

Introduction

Trichomonas vaginalis (TV) infections have been associated with poor reproductive outcomes such as low birth weight and premature birth.[1] TV is a flagellate protozoan considered to be sexually transmittable and sometimes related to low socioeconomic levels.[2] It has been associated with adverse pregnancy outcome, manifested by preterm rupture of membranes, preterm delivery, low-birth-weight infants,[3,4] infertility,[5] and cytological abnormalities of the cervix.[5,6]

TV can be difficult to diagnose due to its heterogeneous presentation and problems with diagnostic testing. Many diagnostic tests, especially wet preparations are imperfect, but new nucleic acid molecular amplification tests (NAAT) have been shown to be advantageous for diagnosing the infection.[7,8]

[*]*Corresponding author at:* Programa de Pós-Graduação em Doenças Infecciosas, Av. Marechal Campos, 1468, Vitoria, ES 29040-091, Brazil. espinosa@ndi.ufes.br, espinosa2@uol.com.br (A.E. Miranda).

Conflicts of interest

The authors declare no conflicts of interest.

The prevalence of TV among pregnant women in Brazil is unknown. It appears to be subject to under diagnosis and misdiagnosis in clinical practice because the symptom complex can overlap with other causes of vaginitis. As well, conventional diagnostic tests are often not readily available. The goal of this study was to estimate the prevalence of TV and associated risk factors in parturient women aged 15–24 years attending Brazilian public maternity units.

Methods

These data are sub-sample analysis of a cross-sectional study conducted in 2009 among parturient women attending Brazilian public hospitals. Parturient women attending selected maternity units in five geographic macro-regions of Brazil from March to November 2009 were invited to take part in the study and have been previously tested for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*.[9] Previously frozen aliquots of urine specimens were tested by NAAT for TV (Gen-Probe-Hologic, San Diego, CA).[7,8]

Chi square and Fisher's exact tests were used to assess differences in proportions, and the Student t test and analysis of variance were used for testing differences between mean values. Independent risk factors for *Trichomonas* infection were assessed through multiple logistic regression, with 0.15 as the critical *p*-value for variable entry and 0.10 as the criterion for variable elimination.

This project was submitted to and approved by the Research Ethics Committee of the Health Sciences Centre of the Federal University of Espírito Santo (Committee approval number 112/07) and to the ethical committee of each maternity unit taking part in the study.

Results

A total of 299 women were included in this study. The prevalence rate of TV infection was 7.7% (95% CI: 4.7–10.7%). Mean age was 20.6 (SD = 3.7) years and mean education age was 8.3 (SD = 2.1) years of schooling.

Table 1 describes *Trichomonas* infection prevalence rate by demographic, behavioral and clinic characteristics. Parturient women with a positive *Trichomonas* test result reported illicit drug use more frequently (30.0% vs. 5.2%, $p = 0.001$), reported more prior history of STI (21.7% vs. 6.5%, $p = 0.006$) and attended less frequently antenatal visits (6.6% vs. 17.4%, $p = 0.001$) when compared to the women without *Trichomonas* infection. Attending to six or more antenatal care appointments were significantly less among women with *Trichomonas* infection (4.1% vs. 12.6%, $p = 0.006$).

The factors associated with *Trichomonas* in the multivariate logistic regression analysis were use of illicit drugs [OR = 4.70 (95% CI: 1.63–13.56, $p = 0.004$)] and not attending antenatal care [OR = 5.15 (95% CI: 1.15–23.25, $p = 0.032$)].

Discussion

The prevalence rate of TV among young parturient women in Brazil was 7.7%, showing how frequent TV infection is in this population and the importance of routine monitoring and follow-up of pregnant women. This result was higher than the previously described in a study conducted in Northeast Brazil (4.1%).[10]

Given the high prevalence of TV infection relative to other STIs in various populations of women and its association with reproductive tract sequelae, including pelvic inflammatory disease and adverse outcomes of pregnancy,[1,3,11] TV infection should be included in screening and control programs among pregnant women. Besides its importance in pregnancy, untreated TV infections have been shown to persist for at least three months in a longitudinal study, during which time adverse reproductive health outcomes could occur.[12] Of notable importance also, since TV infection has been statistically associated to both transmission and acquisition of HIV in numerous studies, detection and treatment of TV infections can be an important component of HIV prevention programs.[13]

A limitation to our study is that it is cross-sectional rather than prospective and it used a sub-sample of the population. However, although a cross-sectional study is not the best study for determining risk factors, its application may be justified for assessing the prevalence and the associated factors for TV infection among pregnant women. This study was intended to generate some informative data among young pregnant women, in order to demonstrate the susceptibility of this group of women to the complications of TV infections.

The conditions of services providing care to maternal and child healthcare programs are factors that contribute to the health conditions of the population. These data demonstrate that it is important to discuss how to include routine screening for TV infection during antenatal care in Brazil.

REFERENCES

1. Schwebke JR, Burgess D. Trichomoniasis. Clin Microbiol Rev. 2004; 17:794–803. [PubMed: 15489349]
2. Rughooputh S, Greenwell P. *Trichomonas vaginalis*: paradigm of a successful sexually transmitted organism. Br J Biomed Sci. 2005; 62:193–200. [PubMed: 16411380]
3. Coteh MF, Pastorek JG, Nugent RP, et al. *Trichomonas vaginalis* associated with low birth weights and preterm delivery. Sex Transm Dis. 1997; 24:353–360. [PubMed: 9243743]
4. Johnson HL, Ghanem KG, Zenilman JM, et al. Sexually transmitted infections and adverse pregnancy outcomes among women attending inner city public sexually transmitted diseases clinics. Sex Transm Dis. 2011; 38:167–171. [PubMed: 20852454]
5. Fichorova RN. Impact of *T. vaginalis* infection on innate immune responses and reproductive outcome. J Reprod Immunol. 2009; 83:185–189. [PubMed: 19850356]
6. Donders GGG, Depuydt CE, Bogers J-P, Vereecken AJ. Association of *Trichomonas vaginalis* and cytological abnormalities of the cervix in low risk women. PLoS ONE. 2013; 8:e86266. http://dx.doi.org/10.1371/journal.pone.0086266. [PubMed: 24386492]
7. Schwebke JR, Hobbs MM, Taylor SN, et al. Molecular testing for *Trichomonas vaginalis* in women: results of a pivotal US clinical trial. J Clin Microbiol. 2011; 49:4106–4111. [PubMed: 21940475]
8. Hobbs MM, Seña AC. Modern diagnosis of *Trichomonas vaginalis* infection. Sex Transm Infect. 2013; 89:434–438. http://dx.doi.org/10.1136/sextrans-2013-051057. [PubMed: 23633669]

9. Pinto VM, Szwarcwald CL, Baroni C, Stringari LL, Inocêncio LA, Miranda AE. *Chlamydia trachomatis* prevalence and risk behaviors in parturient women aged 15 to 24 in Brazil. Sex Transm Dis. 2011; 38:957–961. [PubMed: 21934572]

10. Oliveira FA, Pfleger V, Lang K, et al. Sexually transmitted infections, bacterial vaginosis, and candidiasis in women of reproductive age in rural Northeast Brazil: a population-based study. Mem Inst Oswaldo Cruz. 2007; 102:751–726. [PubMed: 17924006]

11. Moodley P, Wilkinson D, Connolly C, Moodley J, Sturm AW. Trichomonas vaginalis is associated with pelvic inflammatory disease in women infected with human immunodeficiency virus. Clin Infect Dis. 2002; 34:519–522. [PubMed: 11797180]

12. Van Der Pol B, Williams JA, Orr DP, Batteiger BE, Fortenberry JD. Prevalence, incidence, natural history, and response to treatment of *Trichomonas vaginalis* infection among adolescent women. J Infect Dis. 2005; 192:2039–2044. [PubMed: 16288365]

13. Kissinger P, Adamski A. Trichomoniasis and HIV interactions: a review. Sex Transm Dis. 2013 http://dx.doi.org/10.1136/sextrans-2012-051005. Published Online First: April 20, 2013.

Table 1

Association of *C. trachomatis* infection with demographic, behavioral and clinical characteristics of parturient women attending Brazilian public maternity units (*n* = 299).

Characteristics	Total *N* (%)	Trichomonas *N* (%)	OR (95% CI) *p* value
Age			
15–19 years	141 (47.2)	15 (10.6)	2.23 (0.92–5.44)
20–24 years	158 (52.8)	8 (5.1)	0.071
Schooling			
Up to 8 years	176 (58.9)	18 (10.2)	2.69 (0.97–7.45)
9 and more years	123 (41.1)	5 (4.1)	0.049
Stable partner			
No	118 (39.5)	12 (10.2)	1.75 (0.75–4.12)
Yes	181 (60.5)	11 (6.1)	0.194
Illicit drug abuse			
Yes	30 (10.0)	9 (30.0)	7.81 (3.02–20.14)
No	269 (90.0)	14 (5.2)	0.001
Previous STIs			
Yes	22 (7.4)	5 (21.7)	4.23 (1.40–12.78)
No	277 (92.6)	18 (6.5)	0.006
Gestational age			
Up to 36 weeks	61 (20.4)	6 (9.8)	1.42 (0.53–3.76)
More than 36 weeks	238 (79.6)	17 (7.1)	0.481
Antenatal care			
No	11 (3.7)	4 (17.4)	8.06 (2.17–30.30)
Yes	288 (96.3)	19 (6.6)	0.001
Vaginal discharge			
Yes	87 (29.1)	7 (8.0)	1.07 (0.43–2.70)
No	212 (70.9)	16 (7.5)	0.883