

## Syndromic diagnosis analysis of patients attending STI clinic, DVL department of a tertiary care hospital

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### Abstract

**Background:** Sexually transmitted infections (STIs) increase the risk of transmission of Human Immunodeficiency Virus (HIV) infection causing immense need to understand the patterns of STIs prevailing in the regions of a country for proper planning and implementation of STI control strategies. Due to resource constraints in the country, information regarding the profile of STIs relies essentially on syndromic diagnosis. Syndromic approach is based on the approach, grouping of a commonality, constellation of symptoms and easily recognised signs associated with a number of well defined aetiologies. Treatment is provided covering the majority of the organisms locally responsible for the syndrome.

**Aims & Objectives:** To study the relative number of STI/RTI syndrome diagnosis made among patients attending STD clinic, OGH, Hyderabad for a period of 2 years from March 2010- February 2012.

**Results:** In the study population, 51.6% were males and 48.4% were females. The overall most common group included other STI's than syndromes depicted by NACO which includes condyloma acuminata, molluscum contagiosum, genital scabies, balanoposthitis etc. (40.5%) followed by vaginal/cervical discharge (24.7%), GUD-H (21.9%), urethral discharge (6.5%), GUD-NH (4.5%), lower abdominal pain (1.7%) in decreasing order. In females most common STI was vagino-cervical discharge while in males other STI's accounted for the maximum.

Among STI syndromes, vaginocervical discharge was the most common STI (41.5%) followed by GUD-H (37%) and urethral discharge (10.9%). In females, the most common STI was combination of cervical and vaginal discharge (41.5%) while in males GUD-H was the commonest (56.8%).

**Conclusion:** Viral STIs such as herpes genitalis and condylomata acuminata are on the rise among STI/RTI clinic attendees due to the occurrence of asymptomatic shedding, no cure for viral STIs, partial treatment or modified course of the bacterial STDs, thereby leading to apparent reduction in the total number of cases of STDs attending STD clinics, as well as a decrease in the proportion of bacterial to viral STDs.

**Key Words:** Syndromic diagnosis STI HIV/AIDS

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### I. Introduction

Sexually transmitted infections (STIs) including HIV, continue to present major health, social, and economic problems in the developing world, leading to considerable morbidity, mortality, and stigma. The prevalence rates apparently are far higher in developing countries because of higher sexual promiscuity, lack of awareness of protective measures and inadequate access to treatment.<sup>[1]</sup>

The signs and symptoms of the various STDs are variable and so making accurate clinical diagnosis is prone for error. Only about 70% of single infections of genital ulcer disease are correctly diagnosed clinically.<sup>[2]</sup> In a recent report of a study in Nairobi, Kenya, only 40% of chancroid and 24% of syphilis infections were correctly diagnosed clinically. Laboratory-confirmed aetiological diagnosis is the usual approach used in the management of many diseases and is therefore considered 'scientific' by many doctors. Involving the use of microscopy, cultures and serology, this approach is expensive and could lead to delays in diagnosis. Laboratory support is often unavailable in many resource-poor countries or may be located in the urban centres and thus serve a limited segment of the population. Patients may have to travel long distances from peripheral health centres to specialist or laboratory facilities in cities. Many patients with STD have mixed infections. The limitations of clinical diagnosis without tests and laboratory-based aetiological diagnosis have led to development of the syndromic approach.

In 1991, Syndromic management approach was developed by World Health Organization (WHO) to address the limitation of etiological and presumptive diagnosis. The syndromic approach does not require identification of the underlying aetiology. Instead, it is based on the identification of a syndrome—that is, a constellation of symptoms and easily recognised signs associated with a number of well defined aetiologies with

a commonality. Treatment is provided for the majority of the organisms locally responsible for the particular syndrome.

Syndromic management of various STD's include:

1. Vaginal discharge syndrome (VDS)
2. Male Urethral discharge syndrome (MUS) - Presenting with Urethral discharge/ Dysuria
3. Lower abdominal pain (LAP)
4. Genital ulcer disease/syndrome (GUD/GUS):
  - GUD-H (Herpetic)
  - GUD-NH (Non-Herpetic)

#### **5. Inguinal bubo syndrome**

#### **6. Scrotal swelling**

It rapidly became clear that the syndromic approach offered enormous advantages compared to the traditional approach, although more evidence is needed to rationalise and convince policy makers.<sup>3</sup> Algorithms based on a syndromic approach were evaluated in many different settings, results of which were reported in the late 1990s—for example in a supplement of *STI*.<sup>4</sup> In a study in South Africa, for instance, the syndromic management protocols provided adequate treatment for more than 90% of patients with genital ulcer syndrome (GUS).<sup>5</sup> By the late 1990s, the syndromic approach was largely promoted and used worldwide.

Advantages of Syndromic case management:

1. Simple, problem-oriented; based on presenting symptoms
2. Rapid initiation of therapy at first visit
3. Immediate treatment reduces complications and further infection transmission
4. High rates of cure
5. Cost effective
6. Can be easily integrated into PHC system
7. Even if clinical diagnosis is wrong treatment will be correct.

There is enough evidence now that the syndromic approach is effective and has had an impact on the STI epidemic. Dramatic declines in STI rates have been observed following control strategies based on the syndromic approach, such as in sex workers in Côte d'Ivoire, Senegal and South Africa, and in STI clinics in Kenya and in Burkina Faso.<sup>8-10</sup> The studies in Mwanza (Tanzania) and Masaka (Uganda) demonstrated the impact of syndromic management beyond the STI clinic attendees they targeted by decreasing STI prevalences in the general population: serological syphilis by 20% and male urethritis by 50% in Mwanza, and gonorrhoea by 70% in Masaka.<sup>11,12</sup> The declining prevalence of bacterial infections in some of the key syndromes in parts of Africa is a testimony to the success of widespread syndromic management use.<sup>9</sup>

## **II. Aims & Objectives:**

To study the relative number of STI/RTI syndromes diagnosis among patients attending STD clinic, OGH, Hyderabad for a period of 2 years from March 2010- February 2012.

## **III. Materials & Methods:**

A total no. of 2917 patients were evaluated from March, 2010- Feb, 2012. Detailed history and clinical features were recorded from all the patients. STIs were categorized in different syndromes as depicted by NACO in the syndromic management of STIs. The syndromes depicted by NACO are urethral discharge, cervicitis, anorectal discharge, vaginal discharge, genital ulcer disease herpetic and nonherpetic (GUD-H and GUD-NH), inguinal bubo, lower abdominal pain, scrotal swelling, etc.<sup>13</sup> STIs, which were not included in the syndromic management such as molluscum contagiosum, condyloma acuminata, genital scabies and balanoposthitis were detected clinically and grouped in other STI. The proportions were calculated for various syndromes and disease prevalence.

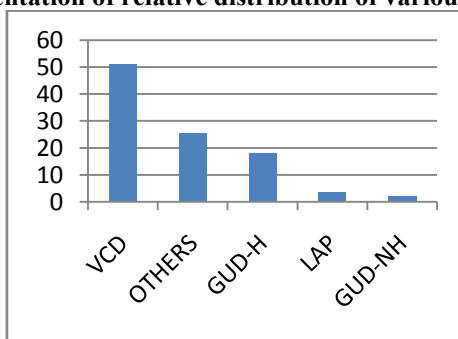
## **IV. Results**

In the study population, 51.6 % (1504/2917) were males and 48.4% (1413/2917) were females. The overall most common group included STI's other than syndromes depicted by NACO which includes condyloma acuminata, molluscum contagiosum, genital scabies, balanoposthitis etc.(40.5%) followed by vaginal/cervical discharge (24.7%), GUD-H (21.9%), urethral discharge (6.5%), GUD-NH (4.5%), lower abdominal pain (1.7%) in decreasing order. In females most common STI was vagino-cervical discharge(50.9%) while in males other STI's accounted for the maximum number of STI (54.8%).

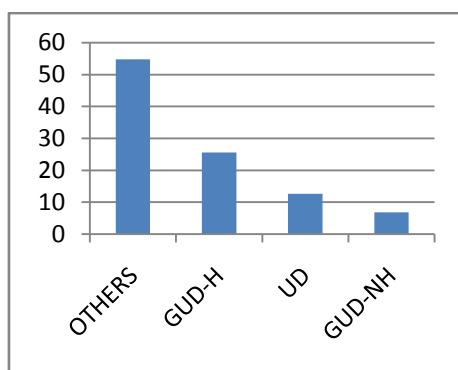
**Table 1: Prevalence of various STD's :**

STI	MALE (%)	FEMALE (%)	TOTAL (%)
VCD	-	720 (50.9)	720 (24.7)
UD	190 (12.6)	-	190 (6.5)
LAP	-	52 (3.6)	52 (1.7)
GUD-H	386 (25.6)	255 (18)	641 (21.9)
GUD-NH	103 (6.8)	28 (1.9)	131 (4.5)
OTHERS	825 (54.8)	358 (25.3)	1183 (40.5)
<b>GRAND TOTAL</b>	<b>1504</b>	<b>1413</b>	<b>2917</b>

**Graphic representation of relative distribution of various STI's in females**



**Graphic representation of relative distribution of various STI's in males**



Among STI syndromes, vagino-cervical discharge was the most common STI (41.5%) followed by GUD-H (37%) and urethral discharge (10.9%). In females, the most common STI was combination of cervical and vaginal discharge (41.5%) while in males GUD-H was the commonest (56.8%).

**Table 2: Prevalence of STI Syndromes**

STI SYNDROME	MALE (%)	FEMALE (%)	TOTAL (%)
VCD	-	720 (68.3)	720 (41.5)
UD	190 (28)	-	190 (10.9)
LAP	-	52 (5)	52 (3)
GUD-H	386 (56.8)	255 (24)	641 (37)
GUD-NH	103 (15.2)	28 (2.7)	131 (7.5)
<b>GRAND TOTAL</b>	<b>679</b>	<b>1055</b>	<b>1734</b>

Genital ulcer disease was more common in males (63.4%) than in females (36.6%). Herpes genitalis was more common than Non-herpetic ulcer disease with a ratio 5:1.

**Table 3 : Sex distribution of Genital ulcer disease**

Genital Ulcer Disease	Males (%)	Females(%)	Total
GUD-H	386 (60.2)	255 (39.8)	641
GUD-NH	103 (78.6)	28 (21.4%)	131
<b>GRAND TOTAL</b>	<b>489 (63.4)</b>	<b>283 (36.6)</b>	<b>772</b>

## V. Discussion

There is a dearth of information regarding the epidemiology of STI's in India due to many reasons such as stigma and discrimination associated with the STI, lack of interdepartmental coordination for studies, poor attendance of STI patients at the public clinics and Government institutions, and availability of limited diagnostic facilities. This analysis offers a view into the burden and pattern of various STIs and on the prevalence of syndromic diagnosis of STI's at a tertiary centre.

In our study, the peak age group of patients ranges from 20 to 30 years (60%). Also, majority of the male patients had promiscuous behavior suggesting that professional prostitution still remains the main source of STI among men having promiscuous behavior. Several other studies reveal high incidence of STI's in the age group of 20-30 yrs.<sup>[16]</sup>

In our study vagino-cervical discharge was the most common STI syndrome which is consistent with the results of Goel SS study where vaginal discharge was found in 43.75% of patients followed by genital ulcer syndrome, lower abdominal pain and urethral discharge.<sup>[14]</sup> R George *et al.* also observed vaginal discharge as the most common syndrome in their study.<sup>[15]</sup> Similar results were observed in Choudhry S *et al.* study.<sup>[16]</sup> Incidence of asymptomatic infections is more likely in females.

In our study, genital discharge syndrome was reported in 31% of patients and genital ulcer syndrome in 26%. This is a matter of concern in the context of HIV transmission as genital ulcer facilitates the transmission of and enhances susceptibility to HIV infection by sexual contact<sup>[17],[18]</sup> while nonulcerative STIs like gonorrhea and chlamydia increase shedding of the HIV virus in the genital tract by recruiting HIV-infected inflammatory cells as part of normal host response.<sup>[17],[19]</sup> In our study, genital and anogenital warts accounted for significant no. of cases (8.9%). Several studies<sup>[6],[7]</sup> have reported an increase in incidence of GW (7.6-25.2%), whereas Ganju and Sharma<sup>[7]</sup> reported only 0.68%. Treatable bacterial STIs are treated at peripheral centres. The reason for these variable results probably lies in the study design, data source and computational method. The data presented by our study is from STI clinics of tertiary care hospital.

A marked decline in bacterial STIs, resulting in an apparent increase in viral STIs, has been reported from different regions of India.<sup>[20],[21],[22]</sup> Our study confirmed a similar pattern of higher incidence of viral STIs which could be due to the increased usage of antibiotics.

## VI. Conclusion

In conclusion, the syndromic approach has been a major step forward in rationalising and improving management of STI, and its impact on the STI epidemic has been observed in various settings. Our study reveals that viral STIs such as herpes genitalis and condylomata acuminata are on the rise among STI/RTI clinic attendees, same observed in other centres. However, syndromic algorithms have some shortcomings, and they should be periodically revised and adapted to the epidemiological patterns of STI in a particular region.

## References

- [1]. Chin J. Public health surveillance of AIDS and HIV infections. Bull World Health Organ. 1990;68:529-36. [[PMC free article](#)] [[PubMed](#)]
- [2]. Dangor Y, Ballard RC, da Exposto FL, Fehler G, Miller SD, Koonhof HJ (1990) Accuracy of clinical diagnosis of genital ulcer disease. Sexually Transmitted Diseases **17**, 184-189. [[CrossRef](#)][[PubMed](#)][[Web of Science](#)]
- [3]. Lush L, Walt G, Ogden J. Transferring policies for treating sexually transmitted infections: what's wrong with global guidelines? Health Policy and Planning 2003;18:18-30. [[Abstract/FREE Full text](#)]
- [4]. STI. Syndromic approach to STD management. Sex Transm Infect 1998;74 (Suppl 1).
- [5]. Htun Y, Morse SA, Dangor Y, et al. Comparison of clinically directed, disease specific, and syndromic protocols for the management of genital ulcer disease in Lesotho. Sex Transm Infect 1998;74 (Suppl 1) :S23-8.
- [6]. Thappa DM, Singh S, Singh A. HIV infection and sexually transmitted diseases in a referral STD centre in south India. Sex Transm Infect 1999;75:191. [[PUBMED](#)]
- [7]. Devi SA, Vetrichevel TP, Pise GA, Thappa DM. Pattern of sexually transmitted infections in a tertiary care centre at Puducherry. Indian J Dermatol 2009;54:347-9. [[PUBMED](#)]
- [8]. Ghys PD, Diallo MO, Ettiegne-Traore V, et al. Increase in condom use and decline in HIV and sexually transmitted diseases among female sex workers in Abidjan, Cote d'Ivoire, 1991-1998. AIDS 2002;16:251-8. [[CrossRef](#)][[Medline](#)][[Web of Science](#)]
- [9]. Steen R. Eradicating chancroid. Bull World Health Organ 2001;79:818-26. [[Medline](#)][[Web of Science](#)]
- [10]. Nagot N, Meda N, Ouangre A, et al. Review of STI and HIV epidemiological data from 1990 to 2001 in urban Burkina Faso: implications for STI and HIV control. Sex Transm Infect 2004;80:124-9. [[Abstract/FREE Full text](#)]
- [11]. Mayaud P, Moshafir F, Todd J, et al. Improved treatment services significantly reduce the prevalence of sexually transmitted diseases in rural Tanzania: results of a randomized controlled trial. AIDS 1997;11:1873-80. [[Medline](#)][[Web of Science](#)]
- [12]. Kamali A, Quigley M, Kakiyungi J, et al. Syndromic management of sexually-transmitted infections and behaviour change interventions on transmission of HIV-1 in rural Uganda: a community randomised trial. Lancet 2003;361:645-52. [[CrossRef](#)][[Medline](#)][[Web of Science](#)]
- [13]. Operational Guidelines for Programme Managers and Service Providers for Strengthening STI/RTI Services, National AIDS Control Organization, Ministry of Health and Family Welfare. New Delhi: Government of India; 2007. p. 18.
- [14]. Goel SS, Goel SS. Study of syndromic management approach in the management of sexually transmitted diseases in rural population. Indian J Sex Transm Dis 2012;33:146-7

- [15]. George R, Thomas K, Thyagarajan SP, Jeyaseelan L, Peedicayil A, Jeyaseelan V, et al. Genital syndromes and Syndromic management of vaginal discharge in a community setting. *Int J STD AIDS* 2004;15:367-70. [\[PUBMED\]](#)
- [16]. Choudhry S, Ramachandran V G, Das S, Bhattacharya S N, Mogha NS. Pattern of sexually transmitted infections and performance of syndromic management against etiological diagnosis in patients attending the sexually transmitted infection clinic of a tertiary care hospital. *Indian J Sex Transm Dis* 2010;31:104-8
- [17]. Sulak PJ. Sexually transmitted diseases. *SeminReprod Med* 2003;21:399-413. [\[PUBMED\]](#) [\[FULLTEXT\]](#)
- [18]. Wald A, Corey L. How does herpes simplex virus type 2 influence human immunodeficiency virus infection and pathogenesis? *J Infect Dis* 2003;187:1509-12. [\[PUBMED\]](#) [\[FULLTEXT\]](#)
- [19]. Jaitley NK, Pathak K, Saojii AM. Bacteriological study of gonococcal and NGV with specific reference to CT. *Indian J Sex Transm Dis* 1993;14:15-7.
- [20]. Narayanan B. A retrospective study of the pattern of sexually transmitted diseases during a ten year period. *Indian J DermatolVenereolLepr* 2005;71:333-7. [\[PUBMED\]](#)
- [21]. Kumar B, Sahoo B, Gupta S, Jain R. Rising incidence of genital herpes over two decades in a sexually transmitted disease clinic in north India. *Int J STD AIDS* 2002;13:115-8.
- [22]. Ray K, Bala M, Gupta SM, Khunger N, Puri P, Muralidhar S, et al. Changing trends in sexually transmitted infections at a Regional STD Centre in north India. *Indian J Med Res* 2006;124:559-68.
- [23]. **Buvé A**, Chagalucha J, Mayaud P, et al. How many patients with a sexually transmitted infection are cured by health services? A study from Mwanza region; Tanzania. *Trop Med Int Health* 2001;6:971-9. [\[CrossRef\]](#)[\[Medline\]](#)[\[Web of Science\]](#)
- [24]. **UNAIDS/WHO**. Sexually transmitted diseases: policies and principles for prevention and care. Geneva: UNAIDS, 1999, UNAIDS/01.11E.