Reappraisal of sexually transmitted infections in children: A hospital-based study from an urban area

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Abstract

Background: Sexually transmitted diseases (STDs) in children can be acquired either by sexual, or non-sexual route. Sexually transmitted infection (STI) in children reflect the pattern of STI in adult population and the knowledge, attitude and practices of the society. They also serve as an indicator of STI control strategies.

Aims: A retrospective study spanning over a period of 5 years from 2007 to 2011) was undertaken to make a detailed analysis of demographic, behavioral, epidemiological and clinical profile of STD among children (<19 years).

Materials and Methods: The medical records of children attending the STI clinic of Smt. Sucheta Kriplani Hospital from year 2007 to 2011 were studied. Results of Gram’s staining, KOH examination, Tzanck smear, culture and serological tests like Venereal Disease Research Laboratory for syphilis and ELISA for human immunodeficiency virus (HIV) wherever performed were recorded along with the final diagnosis.

Results: The study showed a steady rise in the prevalence of STIs from 1% to 4.9% in the initial 4 years. STIs were more commonly observed in girls (M:F ratio - 1:1.13) and in adolescents >16 years of age. Homosexuality was present in 33.3% of males. History of sexual abuse was given by 4 children. 2 children were seropositive for HIV by ELISA technique. Viral STIs (Cyanacumum, molluscum contagiosum, herpes genitalis) were 1.5 times more common than bacterial infections.

Conclusion: The societal sexual practices have undergone tremendous changes, which is reflected in a steady rise in STIs (predominantly viral), sexual abuse and homosexuality in children. There is an urgent need for strengthening of school health programs aiming at adolescent sexual health.

Key words: Children, sexually transmitted diseases, sexually transmitted infections

INTRODUCTION

Reports on sexually transmitted infections (STI) in children are becoming increasingly common.[1,2] The rise in STIs in children could be related to early sexual maturity and activity due to changing societal perspective. Burden of STI in children directly reflects the burden in society and it is a surrogate indicator of success of national STI control programs. Thus, a retrospective study spanning over the last 5 years was undertaken to evaluate the STI profile in children from a tertiary care hospital in an urban area. The acquisition of an STI can be venereal or non-venereal and the pattern of transmission could depend on the age of the child. The possibility of nonsexual route (intrauterine/perinatal) is more common in children less than 2 years, whereas sexual route should be considered as the primary mode of transmission for children between 2 and 10 years.[3] In children near puberty, voluntary sexual activity and sexual abuse represent the main modes of transmission.

MATERIALS AND METHODS

STI records of patients (<19 years) attending the STI clinic of Smt. Sucheta Kriplani Hospital from year
2007-2011 were studied and a detailed analysis of demographic, epidemiological, clinical and behavioral characteristics was done.

Results of Gram's staining, KOH examination, Tzanck smear, culture and serological tests like Venereal Disease Research Laboratory for syphilis and ELISA for human immunodeficiency virus (HIV) (with the pre- and post-test counseling) wherever performed were recorded along with the final diagnosis. Since, these participants attended the hospital for care, a written informed consent was not obtained. The following results and observations were noted.

**OBSERVATIONS AND RESULTS**

There were a total of 1140 cases, out of which 32 cases were <19 years (2.8%). There were a total of 15 males (46.9%) and 17 females (53.1%), with M:F ratio being 1:1.13. The average age of males presenting to the clinic was 14.93 years, which was higher than that of females (average age of females-12.94 years).

Table 1 shows a year-wise increase in prevalence from 1% in 2007 to 4.91% in 2010 followed by a drop to 2.94% in the year 2011. However, the rise in prevalence over these 5 years was not significant ($P = 0.11$). The mean percentage of pediatric cases over the last 5 years was $2.51 \pm 1.51$ (95% confidence interval; 0.63-4.38%).

Table 2 shows the age and sex distribution of pediatric STIs. The highest prevalence of STIs was noted in children >16 years of age (10 boys and 7 girls). This was followed by children of the age 11-15 years (4 boys and 5 girls) and preschool children of age <5 years (1 boy and 3 girls).

The majority of patients (62.5%) were students, 3 of them were of pre-school age, whereas the others were working as laborer, vendor, bottle picker, tailor, or as salesman.

Two of the children (one male and one female) had partners with high risk behavior in the form of multiple sexual partners. Twenty four patients (75%) had used barrier contraceptives during the last sexual intercourse; however the other 25% had a history of unprotected intercourse. Three male patients had indulged in sexual activity with commercial sex workers and one female child had been forced to prostitution at an early age. Five out of 15 males (33.3%) gave a positive history of homosexual behavior.

Addiction was present in seven male patients, with three of them being smokers, other three alcoholic and one tobacco chewer. None of them had a history of intravenous drug abuse, needle stick injury, or any blood transfusions.

History of sexual abuse was given by three females and one male patient, with two of them by strangers, one by neighbor and the other by friends.

Viral STIs were seen in 18 patients (56.2%) with molluscum contagiosum in seven patients, *Cyanea acuminata* in six and herpes genitalis in the other five patients. Bacterial STIs were diagnosed in 12 patients (37.5%), with secondary syphilis in four patients, bacterial vaginosis in the other four, gonococcal infection in three and chancroid in one patient. Candidal vulvovaginitis/balanoposthitis were found in seven patients (21.8%).

Table 3 depicts the prevalence of each STI among children. Twenty five children (78%) were found to have single infection and five of them (15.6%) had mixed infections. A 4-year-old girl, who was a victim of sexual abuse presented with bleeding per vagina and pain in abdomen and was found to be free of STIs. A 15-year-old female patient presented with physiological discharge and irritant contact dermatitis.

Two children were seropositive for HIV by ELISA technique. One was a 5-year-old male, who presented to us with urethral discharge and was diagnosed as candidal balanoposthitis. The other was a 17-year-old female, who was forced to
prostitution in young age and was diagnosed as a case of *C. acuminata* with bacterial vaginosis with molluscum contagiosum.

**DISCUSSION**

The prevalence of sexually transmitted diseases (STDs) in children in these 5 years was 2.8% which was higher than the previous study carried out at the same place.

The rise in prevalence over a span of 5 years was, however, not significant. Since, this study is based on a retrospective analysis of hospital records, this prevalence rate might not reflect the actual burden of STI in children in general population, because at times, the patient is lost to follow-up before the final confirmation of STI. The rising number of dispensaries, primary health centers and other peripheral health services could also be responsible for a decrease in patient attendance at tertiary care centers.

Girls were affected more commonly than boys, unlike some of the previous studies.

Adolescents of age >16 years were most frequently affected followed by children of the age group 11-15 years. This could be explained by the changing sexual practices of society, early puberty, early awareness of sexualities and early onset of sexual maturity. Children of the age group 0-5 years were the next commonly affected group reflecting an increase in sexual abuse cases.

Four children (three girls and one boy) were victims of sexual abuse. Transmission of STD pathogens occurs in 2-10% of abused children and risk becomes even higher if penetration occurs. In the largest national level survey conducted by Ministry of Women and Child Development, Government of India among 17,220 children and adolescents in the age range of 5-18 years, it was found that every second child in the country was sexually abused. Among them, 52.94% were boys and 47.06% were girls, mostly in the age group of 12-15 years. Most common perpetrators are either neighbors or relatives. Myths about cure of STDs by having sex with children were one of the factors initially considered to be responsible for child sexual abuse.

One female child in our study was forced to child prostitution at an early age. A random sample of 28 brothels at G.B. road, Delhi revealed that almost 60% of the prostitutes were children. Studies and surveys sponsored by the ministry of women and child development estimate that there are about 3 million prostitutes in the country, of which an estimated 40% are children.

Viral STIs (*C. acuminata*, molluscum contagiosum and herpes genitalis) were more common than bacterial infections, the prevalence of former being 1.5 times that of bacterial STIs. Similar to the pattern seen in adult STIs, viral STIs have shown an upsurge in the recent past. The prevalence of genital herpes among children with STIs in Delhi has gradually increased from 2.05% (1/43, 1986-95), to 5.6% (1/17, 1998-2002) and 6.4% (3/50, 1996-2000).

The increase in viral STIs may be attributed to the spread of HIV with subsequent behavioral change, greater self-reporting by patients, indiscriminate use of broad-spectrum antibiotics, effectiveness of syndromic approach of treatment and upgradation of health services at the primary level.

Seropositivity for HIV among children has also been on an upward trend. Based on surveillance data, an estimated 1.2 million individuals are living with HIV/acquired immunodeficiency syndrome in the United States, 5% of whom are adolescents and young adults (13-24 years of age).

Concurrent HIV infection has been reported in 1-5% of all pediatric STI patients. Many bacterial and viral STIs can increase the predisposition of children to...
acquire HIV infection, particularly in the setting of homosexuality. This can be attributed to mucosal trauma, local aggregation of inflammatory cells especially lymphocytes at the site of STI and increased risk of bleeding at the site of sexual intercourse. It is of great concern due to high morbidity and mortality of the disease, along with its associated psychological and social stigma.

The limitations of the study include a possible bias in results because it is based on the participants attending a single tertiary care hospital. Moreover, the results cannot be generalized to the normal population.

CONCLUSION

The rising trend of STD in pediatric age group is a cause of concern due to the psychosocial and physical morbidity caused by them. Children with STDs should be fully assessed to screen for child sexual abuse or the circumstances, which brought in the infection. School health programs aiming at safe sexual practices should be strengthened. Comprehensive sexuality education should be provided to each child. Health education along with behavior therapy and regular screening is required for high risk groups like street children and children at work.

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