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Outbreak of early syphilis in an institution for the care of adults with mental disorders

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SUMMARY

This paper describes the features of an outbreak of early syphilis in an institution for the care of adults with mental disorders. A case-note review was performed. In the period June to November 2001, 87 cases of syphilis were diagnosed [25 primary, 21 secondary and 41 early latent syphilis in 983 inmates (crude attack rate 8·9%)]. Among them 82 were heterosexual, four were homosexual or bisexual, and for one case sexual preference was not established. About half the cases were known to be promiscuous. The initial case was not identified. Penicillin therapy was administered to all cases and all known or suspected sexual contacts. Sporadic cases of syphilis have, however, continued to emerge from time to time. Institutions for patients with mental disorders are vulnerable to sexually transmitted diseases, and special strategies should be devised for their control.

INTRODUCTION

Although syphilis meets the basic requirements of a disease susceptible to elimination [1], the fact that it is transmissible sexually, its association with prostitution and substance abuse, and other socio-economic determinants make it difficult to control.

During the last three decades the syphilis incidence in Serbia (without Kosovo and Metohia) showed some variation [2]. It decreased from 14·33/100 000 of population in 1970 to 0·28/100 000 in 1990, when it was at its lowest. From 1991 the incidence began to increase and reached 1·94/100 000 in 1995. After that the number of reported syphilis cases slowed down again to around 1·0/100 000. The exception was in 2001 when 217 cases of syphilis (2·77/100 000) were reported.

Higher syphilis rates in the 1990s compared with the late 1980s could be partly explained by the deteriorated socio-economic conditions in Serbia during the last decade of the 20th century, but the importation of syphilis from the countries of the former Soviet Union, where some people from the Serbian population (mainly men) found employment, had been considered to play a major part in this increase in incidence.

The high rate of syphilis in 2001 was the result of an outbreak, which took place in an institution for the care of adults with mental disorders. This report presents data on that outbreak of syphilis.

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MATERIAL AND METHODS

A case-note review of patients with primary, secondary, and early latent syphilis (referred to as early syphilis) was performed in an institution for the care of adults with mental disorders, situated in Kragujevac (a town in Serbia and Montenegro).

During the observation period the institution provided care to 983 subjects, 533 men and 450 women, of whom 282 had moderate and 200 severe retardation, and 501 had psychotic disorders. The institution was overcrowded with an excess of 150 persons. Men and women had separate bedrooms, but all other areas were used jointly. The institution was of the semi-open type and some residents were allowed to leave at weekends or on occasional days.

The institution personnel comprised 259 persons (66 men and 193 women), of whom two were doctors and 104 were nurses.

Diagnosis of syphilis was confirmed with serological tests, which were performed only in persons suspected of infection by clinical examination and/or contact investigation. Staff members were not screened. For laboratory diagnosis of early syphilis the Venereal Disease Research Laboratory (VDRL) and *Treponema pallidum* haemagglutination (TPHA) tests were used. A high non-treponemal serological test titre (i.e. $\geqslant$1 : 32) in persons suspected of syphilis was considered as early syphilis.

RESULTS

In the period June to November 2001, 87 cases of early syphilis were diagnosed among patients in the institution.

The first case was suspected of syphilis after clinical examination on 26 June 2001. This first (later confirmed) case of primary syphilis, was a 34-year-old bisexual man with psychotic disorder. He had not received any visitors and was not allowed to leave the institution. Persons known or believed to have had sexual contact with him were identified as suspected cases. In the course of time the list of suspected cases grew as new cases with laboratory confirmation of early syphilis or with clinical signs of syphilis were detected. In reality, the occurrence of syphilis was realized as a problem only when the number of secondary syphilis cases, easily recognized by eruption involving skin and mucous membranes, increased. Altogether, sera for laboratory diagnosis were taken from 145 persons considered as suspected cases on the basis of clinical signs and/or sexual contact with those having clinical signs. Most serological tests were performed in September. Of 145 subjects tested, 31 were negative, 27 were treated because they had syphilis in the past, and 87 had early syphilis. Primary syphilis was diagnosed in 25 cases, 21 patients had secondary syphilis, and 41 cases were classified as early latent syphilis (Fig). Testing for HIV and other sexually transmitted diseases (STDs) was not performed. The last case of primary syphilis in this outbreak was diagnosed on 27 September 2001. Four cases in November had early latent syphilis.

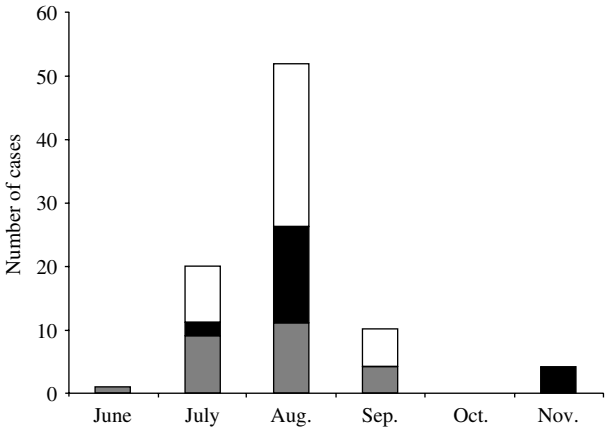

Fig. Cases of early syphilis by month (from an institution for the care of adults with mental disorders, Kragujevac, Serbia and Montenegro, 2001). □, Early latent; ■, secondary; ▩, primary.

Of the syphilis cases 42 were men and 45 were women, the crude attack rate was 7·9% for men and 10·0% for women. The average age of cases was 46 (range 18–78) years. Age-specific attack rates could not be calculated. The underlying disease was schizophrenia in 39 cases, mental retardation in 36, psychosis in nine, and three cases had some other condition (Korsakoff's psychosis, psychosyndrome organic and alcoholism). Among syphilis cases 82 were heterosexual, four were homosexual or bisexual (all of them men), and for one of the cases sexual preference was not established. About half of the cases were known to be promiscuous (having >2 sexual partners at the same time and changing them frequently). Before the outbreak about one third of the syphilis cases were allowed to leave the institution at weekends or on occasional days, more than half were visited by their parents or other relatives and two by their spouses.

In order to prevent the spread of syphilis among the population of Kragujevac, and in addition to treating

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all suspected cases, patients being cared for in the institution were not allowed to leave during the period from the end of June 2001 until the end of June 2002.

In the following period sporadic cases of syphilis continued to emerge from time to time. Serological tests performed on 19 June 2002 showed that out of 87 syphilis cases 79 were cured; in eight cases treatment was not successful or they were re-infected. These eight patients (with signs or symptoms that persisted or with sustained fourfold increase in non-treponemal test titres) were re-treated with three weekly injections of benzathine penicillin G – 2·4 million units.

DISCUSSION

A decreasing trend in syphilis seen during recent years in many countries [1, 3] may have been the result of changes in sexual behaviour in response to the AIDS epidemic. However, with HAART therapy, the fear of AIDS has declined. In spite of existing control measures, increasing incidence, with the occurrence of outbreaks, was observed in some populations [3, 4]. Outbreaks of syphilis have been reported in several large metropolitan US states [5] and European [6, 7] cities, affecting both heterosexual and homosexual populations. Repeated epidemics of syphilis have been previously attributed to social and behavioural changes, although recently it was suggested that immune responses to *Treponema pallidum* (partially protective immunity) might contribute to the 8- to 11-year period oscillations in disease incidence [8].

Even in countries where an increasing trend of syphilis has not yet been observed, outbreaks can occur within subgroups that have a high rate of changing partners.

The purpose of our paper is to alert public health officials to the possibility of the transmission of syphilis and other STDs in persons institutionalized because of retardation and psychotic disorders. Such institutions are especially vulnerable for STDs, as well as for some other infectious diseases.

STD control programmes comprise '4 Cs': contact tracing, condom use, counselling/education and compliance [9]. The crucial part is the patients' education. Patients need to know how and from whom they acquire infection, to know about symptoms so that they can report early for treatment, and about the importance of completing the full course of treatment as well as about measures to prevent a new infection. Since prevention of STDs depends so much on the individual's own attitude to health ('It is not going to happen to me.'), and other people's health ('If I am ill it does not matter if others are too.') it is difficult to control. The problem is worse in institutions for patients with mental disorders. Of the 4 Cs, only need for compliance can be, at least for syphilis infection, bridged by treatment with one single dose. Mutually monogamous relationships, reduced number of sexual partners and of anonymous or casual sexual activities, and correct and constant use of condoms are very difficult or perhaps even impossible to implement in such institutions. Investigation of sexual contacts can also be a problem and information is frequently based on observations made by personnel. Indeed, in this outbreak, all the information needed was obtained from the personnel. In addition, because of the lack of funds, none of the subjects cared for in the institution was screened at admission for syphilis or other diseases. Moreover, the institution was of the semi-open type, which opened further possibilities for the introduction of STDs. Only four cases of syphilis were diagnosed in the population of Kragujevac, outside the institution, during 2001, three cases in April and one in July. All these cases were male and all of them contracted the disease outside Kragujevac, when they were at their field-assignments in the former Soviet Union. Although they were suspected as the source of the outbreak in the institution, they did not provide any information making it possible to connect the outbreak with them.

In this outbreak the primary case of syphilis was not identified. The first recognized case was not allowed to leave the institution and since he received no visitors, it was clear that he acquired the infection in the institution. Because of the lack of funds, most serological tests were performed late, when the epidemic was already diminishing. The epidemic declined either because control measures (therapy of all suspected cases) had produced results or because of exhaustion of susceptible individuals.

The fact that in the period following this outbreak sporadic cases continued to emerge points to the need for a special strategy for STD control among institutionalized patients with mental disorders. One can argue whether this outbreak would have been of shorter duration and with a smaller number of infected subjects had the laboratory diagnosis been performed earlier and had it included all subjects in the institution (patients and personnel). The best solution might have been to give to all subjects long-acting benzathine penicillin as a single dose. When

a serious outbreak of syphilis, which occurred in Vancouver [10] in July 1997, failed to be controlled by enhancement of standard public-health measures, the British Columbia Centre for Disease Control decided, at the beginning of 2000, to deliver >7000 treatment doses for syphilis to persons at risk (single dose of azithromycin dihydrate, given orally), and this measure proved to be successful. After treatment, a maintenance phase was instituted with all the usual preventive measures strengthened.

The outbreak in the institution for patients with mental disorders stresses again the need for the development and evaluation of rapid, sensitive, and specific syphilis diagnostic tests, especially salivary assay, which may allow outreach into affected groups [1, 3]. New treatment regimens for syphilis that are currently being developed could be also of help as they may eliminate the need for injections and the allergic reactions that can complicate penicillin therapy [1, 10].

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DECLARATION OF INTEREST

None.

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