Short Communication

Descriptive analysis of syphilis cases reported in Mato Grosso do Sul, Brazil identifies failure in treatment

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Abstract

Introduction: Syphilis infection remains an alarming public health problem worldwide. Methods: This study analyzed syphilis cases listed in the Information System on Diseases of Compulsory Declaration (SINAN) of Mato Grosso do Sul state in Brazil between January 2013 and December 2014. Results: Most of the evaluated syphilis cases would have been preventable through public education, particularly congenital syphilis in children of previously diagnosed mothers and infection by untreated sexual partners. Conclusions: The incidence rate of syphilis could be reduced by improving prevention through counselling on the risk of infection, improving access to condoms, and increasing the frequency of diagnostic tests.

Keywords: Treponema pallidum. SINAN. Mato Grosso do Sul. Descriptive analysis. Syphilis.
Paraguay and Bolivia. The state has implemented 547 basic health facilities that serve 735,479 inhabitants. Data pertaining to syphilis notification documented between January 2013 and December 2014 in the SINAN of Mato Grosso do Sul was assessed in this retrospective, observational study. Variables collected included age, race, sex, level of education, treatment of patients and partners, serological tests and tests on the liquor (treponemal/non-treponemal), clinical classification, diagnosis of maternal syphilis, case evolution, and clinical manifestations such as changes in the long bones observed by radiology, osteochondritis, cutaneous lesions, jaundice, anemia, splenomegaly, hepatomegaly, and pseudoparalysis. Extracted data was transferred to Excel sheets (Microsoft, Redmond, WA, USA) and analyzed with the Statistical Analysis System (SAS) version 9.2 software (SAS Institute, Cary, NC, USA) using a simple frequency procedure of the reported syphilis cases. The incidence rate of acquired syphilis cases was calculated using population estimates reported for this period by the Fundação Instituto Brasileiro de Geografia e Estatística (IBGE).

In the study period, 2,207 cases of acquired syphilis, 1,497 cases of gestational syphilis and 417 cases of congenital syphilis were reported in the state of Mato Grosso do Sul. The incidence rate of acquired syphilis was 88 cases/100,000 inhabitants, representing 2.4% of all patients reported nationwide2. Of these patients, 36% were older than 40 years, 59% were men, 39% were of mixed race, and 45% were only educated up to primary school (Table 1). Unfortunately, certain clinical characteristics of these patients such as duration of treatment, sexual behavior, and socio-demographics, could not be evaluated because this information had not been provided with the notification.

Out of 1,497 patients with gestational syphilis, 48% were between 20 and 29 years old, 51% were of mixed race, and 71% had only completed primary education. The disease was diagnosed during the primary stage in 36% of these cases, followed by 22% in the tertiary stage and 11% in the latent stage. Nonetheless, only 71% of these patients were properly treated with 7.2 million IU of penicillin G and only 50% of the sexual partners received concurrent treatment (Table 2). Of the patients with congenital syphilis, 52% were boys, with most babies and their mothers being of mixed race (47%/62%). Treponemal and non-treponemal tests were conducted at birth in 37% and 77% of the newborns, respectively. Nonetheless, only 58% of infected newborns had a mother with a confirmed syphilis diagnosis. The most common clinical signs in newborns were jaundice (9%), anemia (3.6%), and changes in the long bones observed in radiological exams (2.64%). Less than 1% of these patients died from syphilis (Table 3).

The “great imitator” syphilis is still a serious concern for the sexually active population in the Midwest region of Brazil. In this retrospective, observational study, data from 2,207 adult patients with acquired syphilis, 1,497 women with gestational syphilis, and 417 children with congenital syphilis were collected. Our study showed an increase in gestational syphilis by 1,265 cases in the assessed region within the last decade6. A similar increase has been reported for other states but Mato Grosso do Sul had the highest incidence rate (16.7 cases/1,000 live births).2

Although the guidelines from the Brazilian Ministry of Health recommend a medical follow-up of the sexual partners of STI patients of the preceding 3 months3, half of the partners of pregnant women with syphilis were not treated according to our findings. This could potentially result in re-infections and additional cases of latent syphilis and demonstrates the inadequacy of public health programs. Furthermore, 58% of mothers whose sons were born with congenital syphilis had been diagnosed with gestational syphilis. This may indicate either a lack of appropriate treatment of the mother or a failure of the employed treatment regimen and the prenatal follow-up. In addition, social and behavioral risk factors may be associated with gestational syphilis and therefore more studies are needed to identify the reasons for the failure to control syphilis in pregnant women.

There is clear evidence that intra-uterine transmission to children and the ensuing adverse outcomes could be avoided by simple and cheap interventions performed by any physician at a primary care clinic8,9. Furthermore, 90% of the treated mothers...

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TABLE 2: Demographic characteristics of patients with gestational syphilis reported between January 2013 and December 2014.

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TABLE 3: Demographic characteristics of patients with congenital syphilis reported between January 2013 and December 2014.

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<td>Non-treponemal test at birth</td>
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<td>Non-treponemal test</td>
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received penicillin G, thereby decreasing the chance of adverse outcomes for the fetus. Our results also revealed that patients with acquired and gestational syphilis (45% and 71% respectively) had a low level of education which has been linked to unprotected sexual practices in previous studies[10,11]. Of note, teenagers tend to have the first sexual experience during the years at primary school[12], indicating the need for sexual education in primary school. These observations are corroborated by similar reports on low educational levels and required treatment of sexual partners among syphilis patients in Olinda (Pernambuco state)[13], Belo Horizonte (Minas Gerais state)[4], and Sumaré (São Paulo state)[14]. Preventive interventions and sexual education on potential risks of transmission associated with sexual practices would encourage this population to practice safer sexual behaviors. We assessed syphilis notifications of 2 years only which prevented statistical analysis of the data obtained in this study. Despite this, data on patients with acquired syphilis missing in the SINAN files such as serological tests and socio-demographic characteristics could be identified. The results of our study highlight the shortcomings of the basic health system and point to a substantial revision of practices to manage and prevent syphilis and other STIs. These may include counseling for risk reduction, increased access to condoms, and frequent testing for syphilis, particularly targeting socioeconomic groups that are at higher risk.

In conclusion, this study revealed a substantial increase in new syphilis cases in this part of Brazil. Furthermore, our results demonstrate that most cases of congenital syphilis could be avoided by effective treatment of the pregnant mother and her partner. Thus, public health strategies to prevent and manage syphilis infections need to be reviewed and improved.

Ethical Considerations

This study was approved by the research ethics committee of the Universidade Federal da Grande Dourados, Dourados, MS (Study number 1.372.627).

Acknowledgements: We are grateful to the Department of Health of Mato Grosso do Sul and the administrators of SINAN for their cooperation in providing the data.

Conflict of Interest: There were no conflicts of interest.

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REFERENCES