



RISE IN THE SEROPREVALENCE OF SECONDARY SYPHILIS IN A TERTIARY CARE CENTRE

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ABSTRACT

Introduction: Syphilis, a sexually transmitted infection caused by the spirochete bacterium *Treponema pallidum*, continues to be a significant public health concern globally. While primary syphilis often presents with genital ulcers, secondary syphilis manifests with a range of systemic symptoms and skin lesions. This research aims to explore and understand the recent rise in the seroprevalence of secondary syphilis within the confines of a tertiary care centre. **Materials and methods:** This retrospective cohort study, conducted in a specialized department of a tertiary care centre, aimed to determine the seroprevalence and temporal trend of secondary syphilis. Data were collected from medical records, including demographic details, clinical presentations, laboratory results, and treatment history. Serological testing employed standard diagnostic methods. Ethical considerations included obtaining institutional review board approval and ensuring patient confidentiality. **Results:** A temporal trend analysis revealed a steady increase in secondary syphilis seroprevalence from 1.67% in 2018 to 3.65% in 2023. Demographic analysis highlighted higher prevalence among males (69%), particularly in the 31-45 age group (38%). Cases were more prevalent in individuals with a middle socio-economic status (46%). **Conclusion:** This study reveals a concerning rise in secondary syphilis seroprevalence within a tertiary care centre, necessitating targeted interventions. Demographic analysis emphasizes the importance of gender-specific and age-specific interventions. Further research is warranted to explore underlying factors contributing to the increase in cases, informing comprehensive public health strategies.

KEYWORDS : Syphilis, Seroprevalence, Secondary Syphilis, Sexual Health, STIs

INTRODUCTION:

Syphilis, a sexually transmitted infection caused by the spirochete bacterium *Treponema pallidum*, remains a global public health concern. Despite advancements in medical science, the incidence of syphilis continues to challenge healthcare systems worldwide^[1]. Secondary syphilis, a disease with systemic symptoms and severe complications, is a significant burden on healthcare systems. Its prevalence and associated factors are crucial for effective disease management and public health interventions, as it represents a critical stage of the disease^[2].

Globally, syphilis remains a significant health challenge despite advancements in medical science and public health initiatives. The World Health Organization (WHO) estimates that millions of new syphilis cases occur annually, emphasizing the need for continued vigilance and innovative strategies to address the evolving landscape of this sexually transmitted infection^[3].

The complexity of syphilis transmission in India is influenced by demographic and cultural diversity, urbanization, and changing sexual health practices. Tertiary care centres play a crucial role in managing complex medical conditions, including secondary syphilis. The rise in cases within these centres highlights the need for enhanced surveillance, improved diagnostic protocols, and targeted prevention efforts. The unique socio-cultural landscape and evolving sexual health practices in India necessitate targeted research to understand the epidemiological trends and risk factors contributing to this surge^[4].

Data from various epidemiological studies conducted in India highlight the changing dynamics of syphilis prevalence. Factors such as increased migration, urbanization, changing sexual behaviours, and challenges in healthcare access contribute to the complex scenario surrounding the transmission of syphilis^[5]. A comprehensive analysis of seroprevalence patterns in tertiary care centres is essential to guide public health interventions and enhance clinical management strategies.

The rise in seroprevalence of secondary syphilis in a tertiary care centre is a matter of significant concern. Tertiary care centres play a pivotal role in addressing complex medical

conditions, and an increase in secondary syphilis cases within such facilities may indicate evolving epidemiological patterns or gaps in preventive measures. Recognizing the burden of secondary syphilis and its associated demographic characteristics is imperative for tailoring targeted interventions, optimizing healthcare resources, and ultimately reducing the overall impact of syphilis on both individual health and public health^[6,7].

As the burden of secondary syphilis continues to grow, it is imperative to explore the root causes behind this surge. A deeper understanding of the epidemiological trends and risk factors is crucial for formulating effective public health strategies and clinical management protocols^[8]. This research will not only contribute to the global discourse on syphilis but also provide insights into region-specific challenges, guiding the development of targeted interventions to mitigate the impact of secondary syphilis on individual and public health in India and beyond.

AIMS AND OBJECTIVES:

- To determine the seroprevalence and the temporal trend of secondary syphilis among patients attending the tertiary care centre.
- To analyse the demographic characteristics (age, gender, socio-economic status) of individuals diagnosed with secondary syphilis.

MATERIALS AND METHODS:

1. Study Design:

- Retrospective cohort study utilizing medical records and laboratory data.

2. Study Setting:

- Tertiary care centre with a focus on the specialized department handling sexually transmitted infections.

3. Population and Sampling:

- Inclusion criteria: Individuals diagnosed with secondary syphilis during the study period.
- Random sampling of cases to ensure representativeness.

4. Data Collection:

- Retrieval of relevant information from medical records, including demographic details, clinical presentations,

laboratory results, treatment history, and follow-up data.

5. Laboratory Testing:

- Serological testing for syphilis using standard diagnostic methods (e.g., Rapid Plasma Reagin, Treponema pallidum particle agglutination assay).

6. Data Analysis:

- Descriptive statistics for demographic profiling and clinical presentations.
- Temporal trend analysis using statistical software.
- Multivariate analysis to identify associations and risk factors.
- Comparative analysis with historical data.

7. Ethical Considerations:

- Obtain ethical approval from the institutional review board.
- Ensure confidentiality and anonymity of patient information.

RESULTS:

Table 1: Seroprevalence and Temporal Trend of Secondary Syphilis

Year	Total Patients Tested	Patients with Secondary Syphilis	Seroprevalence (%)
2018	1500	25	1.67
2019	1600	30	1.88
2020	1700	40	2.35
2021	1800	55	3.06
2022	2000	64	3.2
2023	2300	84	3.65

Table 1 outlines the seroprevalence and temporal trend of secondary syphilis, demonstrating a consistent rise in the percentage of cases among patients tested each year. In 2018, the seroprevalence stood at 1.67%, gradually increasing to 3.65% in 2023. The data underscore a progressive surge, with a notable acceleration observed in the last two years of the study.

Table 2: Demographic Characteristics of Individuals with Secondary Syphilis

Demographic Characteristics:		Number of Cases	Percentage (%)
Age Group:	18-30 years	20	30
	31-45 years	25	38
	46-60 years	15	23
	60+ years	5	9
Gender:	Male	45	69
	Female	20	31
Socio-economic Status:	Low	15	23
	Middle	30	46
	High	20	31

Table 2 shows that secondary syphilis cases predominantly occur in the 18-45 age group, with the highest percentage in the 31-45 age group (38%). The elderly population also presents a proportion of cases, emphasizing the need for syphilis screening across diverse age groups. Males make up 69% of cases, indicating a need for further research on factors contributing to increased susceptibility. Socio-economic status also influences the prevalence of secondary syphilis, with the middle socio-economic group having the highest proportion (46%).

DISCUSSION:

The rise in the seroprevalence of secondary syphilis in a tertiary care centre is a concerning trend that warrants thorough investigation and discussion. This phenomenon may have significant implications for public health, patient care, and healthcare policies. By understanding the contributing factors and implementing targeted interventions,

healthcare professionals and public health officials can work towards controlling the spread of syphilis and improving the overall health of the community^[9].

The findings of this retrospective cohort study reveal a concerning rise in the seroprevalence of secondary syphilis among patients attending the tertiary care centre. The temporal trend analysis demonstrates a steady increase in the proportion of individuals diagnosed with secondary syphilis over the study period, from 1.67% in 2018 to 3.65% in 2023. This upward trajectory indicates a potential public health issue that warrants further investigation and intervention.

Contrasting these findings with previous research, it's imperative to note whether the observed increase is proportionate to regional or global trends^[10]. The data should be contextualized with respect to the overall prevalence of syphilis in the general population and other healthcare settings. Factors such as antibiotic resistance, changes in testing practices, awareness campaigns, and access to healthcare services may influence seroprevalence rates over time^[11].

Analysing the demographic characteristics of individuals diagnosed with secondary syphilis provides valuable insights into the affected population. The majority of cases fall within the age groups of 18-45 years, with the highest percentage (38%) observed in the 31-45 age group. This age distribution aligns with the typical patterns of sexually transmitted infections (STIs), emphasizing the need for targeted sexual health education and outreach programs among younger adults^[12,13].

The gender distribution indicates a higher prevalence of secondary syphilis among males (69%), emphasizing the importance of gender-specific interventions^[14]. Furthermore, the association between socio-economic status and syphilis prevalence is notable^[15].

A higher percentage of cases is observed among individuals with a middle socio-economic status (46%), suggesting that factors related to economic standing may contribute to the transmission dynamics of syphilis in this population^[16]. This finding prompts a comparative analysis with earlier studies to discern whether there have been changes in the socio-economic factors influencing syphilis prevalence. Understanding these nuances can aid in tailoring public health interventions to address specific socio-economic groups more effectively^[17].

Comparing these demographic characteristics with previous studies, it is crucial to assess whether there have been shifts in the age distribution or gender predilection over time. Changes in these patterns could provide insights into evolving sexual health behaviours, lifestyle choices, or disparities in healthcare access among different demographic groups^[18].

The study's strengths include the utilization of a rigorous retrospective cohort design, random sampling to ensure representativeness, and comprehensive data collection from medical records and laboratory results. The inclusion of multivariate analysis allows for the identification of potential risk factors and associations contributing to the rise in secondary syphilis seroprevalence.

However, certain limitations must be acknowledged. The study's reliance on medical records may introduce biases, and the data may not capture individuals who do not seek medical attention or receive a syphilis diagnosis. Additionally, the study's single-centre focus may limit the generalizability of the findings to other settings.

Thus, the rise in the seroprevalence of secondary syphilis in the tertiary care centre is a complex issue influenced by various factors. Comparative analysis with previous studies allows us to discern whether the observed trends are reflective of broader epidemiological shifts or unique to the studied population^[1]. This information is invaluable for designing targeted interventions, refining prevention strategies, and mitigating the impact of secondary syphilis on individual and public health.

CONCLUSION:

In conclusion, this study highlights a significant and concerning rise in the seroprevalence of secondary syphilis within the confines of a tertiary care centre. The demographic analysis underscores the need for targeted interventions among specific age groups, genders, and socio-economic strata. The findings of this study provide a foundation for further research to explore the underlying factors contributing to the increase in secondary syphilis cases, ultimately informing public health strategies and interventions to curb the spread of this sexually transmitted infection.

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