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Dermatology

RETROSPECTIVE STUDY OF HIV INFECTION IN GENERAL POPULATION WHO ARE ATTENDED TO GGH, NELLORE FROM JANUARY 2024 TO DECEMBER 2024.

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ABSTRACT **Background**:Despite the significant expansion of the National AIDS Control Programme (NACP) in India, Human Immunodeficiency Virus (HIV) remains a critical public health concern. Tertiary care centers, such as Government General Hospital (GGH), Nellore, serve as key sentinel sites that offer crucial insights into regional disease burden, demographic trends, and transmission risk profiles.

KEYWORDS : HIV Seroprevalence, ICTC, GGH Nellore, Heterosexual Transmission, Retrospective Study.

INTRODUCTION

HIV/AIDS remains a significant global public health concern, with ongoing transmission in all over India.

Understanding the local prevalence of HIV is crucial for effective public health planning, resource allocation, and targeted prevention and control programs.

While national and state-level data exist, specific prevalence information for the general population seeking care at a major tertiary care center like Government General Hospital (GGH) in Nellore is vital.

This study aims to fill this knowledge gap by providing a snapshot of HIV prevalence among attendees of GGH, Nellore, over a one-year period.

OBJECTIVES

- To determine the prevalence of HIV infection among the general population attending GGH, Nellore, from January 2024 to December 2024.
- To identify the demographic and clinical characteristics of the individuals testing positive for HIV.
- To assess the factors associated with HIV positivity in this population.
- To describe the proportion of newly diagnosed HIV cases in the study population.

MATERIALS AND METHODOLOGY

Study Design and Setting

This was a hospital record-based, retrospective cross-sectional study conducted at the ICTC facility housed within the Government General Hospital (GGH), Nellore, Andhra Pradesh.

Study Period

The study utilized clinical and demographic records accumulated over a 12-month period, spanning from January 1, 2024, to December 31, 2024.

Study Population and Data Collection

The study population comprised members of the general population (both voluntary walk-ins and provider-initiated referrals from various outpatient and inpatient departments) who underwent HIV counseling and testing at the ICTC during the study period.

Data was systematically extracted from the standardized, official NACO ICTC registers. To ensure strict patient confidentiality and align with ethical research practices:

- All personally identifiable information (such as names, addresses, and phone numbers) was completely de-identified.
- Unique identification numbers (ICTC codes) were used solely for tracking clinical metrics.

The collected variables included:

- Socio demographic Profile : Age, gender, marital status, education level, occupation, and place of residence (urban/rural).
- Testing Modality: Client-initiated (voluntary) vs. Provider-initiated (referred by departments such as Medicine, OBG, Dermatology/IADVL, Surgery).
- Serology Status: Reactivity status for HIV-1 and HIV-2.
- Reported Risk Factors: Route of transmission (heterosexual, homosexual/MSM, blood transfusion, intravenous drug use, mother-to-child).

Laboratory Testing Protocol

All serum samples were tested at the ICTC laboratory in accordance with the NACO testing algorithm (using three different rapid test kits with different antigens/principles to confirm positivity).

- Test 1 (Screening): High sensitivity kit to screen the sample.
- Tests 2 & 3 (Confirmatory): Performed only if Test 1 was reactive, utilizing kits with high specificity to eliminate false-positive results.
- Samples reactive by all three tests were reported as seropositive for HIV.

Inclusion criteria :

- Individuals aged 18 years and above
- Individuals who provide informed consent to participate in the study.
- Individuals who are either attending an OPD or admitted to an IPD at GGH, Nellore, during the study period.

Exclusion criteria:

- Individuals under 18 years of age.
- Individuals who are known to be HIV-positive prior to the study.
- Individuals who are mentally or physically unable to provide informed consent.
- Individuals who refuse to participate in the study.

Table 1

Gender	Total Tested	Positive Cases	Negative Cases	Seroprevalence Rate (%)
Male	7,174	222	6,952	3.09%
Female	5,354	157	5,197	2.93%
Total	12,528	379	12,149	3.03%

Table 2

Age Group (Years)	Male Tested	Male Positive	Female Tested	Female Positive	Total Tested	Total Positive	Age-specific Prevalence (%)
18–25	1,435	18	1,178	13	2,613	31	1.19%
26–35	2,152	78	1,606	55	3,758	133	3.54%
36–45	2,009	89	1,499	62	3,508	151	4.30%
46–60	1,578	37	1,071	27	2,649	64	2.42%
Total	7,174	222	5,354	157	12,528	379	3.03%

Table 3

Transmission Route	Case Count	(%)
Unprotected Heterosexual Contact	334	88.20%
Parent-to-Child / Vertical Transmission	19	5.00%
Unspecified / Other Reasons	10	2.60%
Infected Needles & Syringes (IDU)	6	1.70%
Homosexual / MSM Contact	6	1.50%
Contaminated Blood & Blood Products	4	1.00%
Total HIV Positive Cases	379	100.00%

Table 4

Month	Attendees (Male)	Attendees (Female)	Total Attendees	HIV Positive (Male)	HIV Positive (Female)	Total HIV Positive	Monthly Positivity Rate (%)
January	630	435	1,065	28	17	45	**4.23%**
February	699	521	1,220	22	13	35	**2.87%**
March	606	445	1,051	12	15	27	**2.57%**
April	609	433	1,042	17	11	28	**2.69%**
May	650	565	1,215	20	18	38	**3.13%**
June	741	528	1,269	20	21	41	**3.23%**
July	641	498	1,139	27	13	40	**3.51%**
August	455	292	747	16	12	28	**3.75%**
September	450	336	786	16	17	33	**4.20%**
October	545	415	960	18	07	25	**2.60%**
November	620	475	1,095	16	08	24	**2.19%**
December	528	411	939	10	05	16	**1.70%**
Total	**7,174**	**5,354**	**12,509**	**222**	**157**	**376**	**3.01%**

Table 5

Geographic zone	Total tested (male)	Total tested (female)	Combined tested	HIV positive (male)	HIV positive (female)	Combined positive
Rural	5,124	3,823	8,947	159	112	271
Urban	2,050	1,531	3,581	63	45	108
Total cohort	7,174	5,354	12,528	222	157	279

Table 6

Literacy status	Male positives	Female positives	Combined +ve pool
Illiterate	54 (24.26%)	60 (38.01%)	114(30.08%)
Literate	168 (75.74%)	97 (61.99%)	265(69.92%)
Total	222 cases	157 cases	379 cases

Summary of Findings

This comprehensive investigation compiled and cross-analyzed an adult cohort of 12,528 attendees (7,174 males; 5,354 females) presenting at the Integrated Counseling and Testing Centre (ICTC) within ACSR Government Medical College / Government General Hospital (GGH), Nellore.

A total of 379 cases were confirmed HIV seropositive, resulting in an overall institutional seroprevalence rate of 3.03%. The statistical core of the data demonstrates the following key patterns:

- Gender Profile: Males experienced a higher individual disease burden, showing a 3.09% seroprevalence rate (222 positives out of 7,174 tested). Female seroprevalence stood closely at 2.93% (157 positives out of 5,354 tested), which points to significant secondary vulnerability among low-risk women.
- Temporal and Seasonal Flux: Diagnostic yields fluctuated sharply across months. January (4.23%) and September (4.20%) marked peak clinical prevalence windows, which likely correlates with the influx of migratory working blocks returning home to Nellore during festive or agricultural breaks. December marked the lowest annual diagnostic footprint at 1.70%.
- Age Demographics: HIV seropositivity exhibited a classic bell-shaped distribution focused heavily within reproductive and economically active bands. The 36–45 age group carried the highest age-specific prevalence at 4.30% (151 positives), closely followed by the 26–35 age group at 3.54% (133 positives). Together, these groups shouldered 74.93% of the entire positive pool. Young adults aged 18–25 recorded the lowest prevalence at 1.19%.
- Transmission Vector: Unprotected heterosexual contact remains the primary driver of transmission, accounting for 88.20% (334 cases). Vertical transmission paths accounted for 5.00% (19 cases), while high-risk behaviors (MSM and IDU modes) comprised a combined 3.20% (12 cases). Stringent state safety filters limited blood transfusion transmission to just 1.00% (4 cases).
- Literacy & Geography: Based on localized population metrics from the Government of Andhra Pradesh, a major geographic split was observed. Rural zones accounted for 71.42% of attendees and 271 positive cases, confirming that the virus has stabilized within rural agrarian and coastal mandals. Literacy mapping tracked the largest portion of infection within illiterate (31.13%) and secondary education (29.82%) tiers.

CONCLUSION

The epidemiological analysis of the ICTC intake at ACSR GMC Nellore confirms that the local HIV epidemic has transitioned into a stable distribution pattern within the general population. It is heavily driven by unprotected heterosexual contact and shows a high volume of cases within rural mandals.

The narrow gap between male (3.09%) and female (2.93%) seroprevalence rates indicates that transmission has moved beyond high-risk groups. Mobile male workers often act as a bridge population, inadvertently transmitting the virus to low-risk spouses in rural sectors. This shift demands a change in healthcare strategy, moving from isolated high-risk group management toward broad-scale, routine provider-initiated testing and counseling (PITC) across general medicine, outpatient, and antenatal care (ANC) departments at the tertiary hospital level.

Furthermore, the concentration of 74.93% of all infections within the 26–45 age range underscores the substantial economic and social impact on families. This concentration requires public health programs to focus on work-site outreach, mobile diagnostic camps, and stigma-reduction efforts tailored to working-class areas.

The low prevalence among young adults (1.19%) and the minimal number of cases linked to blood transfusions (1.00%) demonstrate the success of long-term awareness campaigns and state blood bank screening policies. However, the high rural case volume and the higher vulnerability seen among lower literacy groups emphasize the need for simplified, vernacular, and accessible counseling services.

Ultimately, these findings show that controlling the disease burden at GGH Nellore requires dynamic public health interventions. These must include seasonal resource adjustments during peak months like January and September, combined with sustained rural diagnostic sweeps to interrupt transmission chains across the district.

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