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PROVIDER INITIATED AND CLIENT INITIATED HIV TESTING: A TEN YEAR ICTC BASED STUDY : 2009-2019

Microbiology

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ABSTRACT

Background: This study describes the changes in HIV testing rates in a tertiary care hospital in jaipur in the period between 2009 to 2019 and compares the Provider initiated with client initiated HIV testing from 2015 to 2019
Aims: To analysis the HIV testing with reference to the type of testing (Provider initiated and client initiated) and the testing rates in a period of 2009 to 2019
Settings and Design: Tertiary Care Hospital, Retrospective analysis
Methods and Material: A retrospective analysis of the monthly reports in ICTC was done from 2009 to 2019 and the prevalence of HIV infection, HIV testing rates with respect to the type of testing was calculated and compared
Statistical analysis used: Chi square test , P value
Results: The no of patients tested in between 2009 to 2013(5 years) was 46,231 and it increased to three fold i.e. 1, 36,285 from 2014 to 2019 post the introduction of provider initiated HIV testing**.** PCT constituted 93.2% percentage of the total HIV testing while VCT was only 6.5% of the total testing There has been a consistent fall in the HIV positivity in total HIV testing from 13.9% (2009) to 2.3% (2019) in our ICTC. The overall % positivity in PCT was1.93% which when converted to numbers was substantial (that is 2457 patients out of the 1, 27,037 patients tested for HIV.
Conclusions: The study demonstrates that access to and uptake of HIV testing were improved by incorporating routine PCT in HIV testing services as well as a significant number of HIV positive patients were detected from the general population which would have been missed otherwise.

KEYWORDS

HIV testing ,PCT ,ICTC ,NACO

INTRODUCTION

HIV counseling and Testing (HCT) services are an important aspect of prevention and are necessary for support, care and to provide treatment to HIV infected. ICTC (Integrated counseling and testing centre) provides these services free of cost in the government health system .[1] It gives individuals an opportunity to correct misconceptions about HIV and receive relevant information. This helps them to assess their risk behavior and change it, if necessary. [2,3]Early diagnosis of HIV is important for receiving effective ART and prophylaxis for opportunistic diseases. ICTC is a facility to help provide social and behavioral benefits for secondary prevention .[4,5] HCT has the potential to encourage openness in discussing individuals sexual behavior which is normally considered a taboo in our society and thus it contributes in reduction of fear and stigma in society.[2,3,6]

The earlier Voluntary Counselling and Testing Centres (VCTCs) and facilities providing Prevention of Parent-to-Child Transmission of HIV/AIDS (PPTCT) services are now remodelled as a hub to deliver integrated services to all clients under one roof and renamed as" Integrated Counselling and Testing Centres" (ICTCs). Earlier known as Client –initiated HIV counseling and testing is now popularly known as Voluntary Counseling and testing (VCT). This is motivated by an individual's right to know his or her status and it takes place when an individual seeks counseling and testing voluntarily at a facility that offers the services . This type of testing and counseling service is offered widely, mainly through facilities integrated in health settings and others.

Routine screening of all patients for HIV in the hospital , that is Provider –initiated HIV testing and counseling (PCT ,or PITC) according to World health Organization (WHO) ,refers to HIV testing and counseling which is recommended by health care providers to persons attending health care facilities as a standard component of medical care. Provider -initiated HIV testing and counseling presents an opportunity to ensure that HIV is more systematically diagnosed in health care facilities in order to facilitate patient access to needed HIV prevention, treatment, and care and support services. As in the present scenario PCT has largely replaced VCT in the ICTC 's .This approach to testing can be offered with an opt-in or an opt- out approach ,the latter being prominent in specialized programs such as Prevention of mother –to –child transmission Programs(PMTCT).The difference between the two is that with the opt-in approach the patients need to affirmatively agree to test before the test is conducted ,whereas in opt-out approaches clients must actively decline after the pre test information is offered ,if they do not want the test to be performed . [7]

Despite the ethical concerns about patients being forced into being tested there is large amount of evidence suggesting that routine PCT plays a important role in scaling up HIV testing services and detecting HIV positivity in general population which would otherwise remain undiagnosed.

Since 2006 ,the United states center for disease control and prevention (CDC) has recommended routine HIV screening for all patients aged 13 to 64 presenting to healthcare facilities where the community HIV prevalence is greater than 1 %. [8] According to sentinel surveillance 2014-2015 the HIV prevalence among general population in India is 0.29%. [9]

Offering testing to all individuals seeking health care facilities is assumed to increase HIV testing rates and early diagnosis. Thus we conducted this retrospective study to compare the HIV testing rates and percentage positivity of HIV infection in relevance with Provider initiated and Client initiated HIV testing from 2009 to 2019 .

MATERIAL AND METHODS

A retrospective study was conducted from available records of all the 1,82,516 patients who attended Integrated Counseling and Testing Centre (ICTC) of Sawai Man Singh Medical college and hospital, Jaipur between January 2009 to December 2019.

1. Provider initiated HIV testing: referred by local health care provider (outpatients) or hospital (inpatients) or mandatory testing for the surgical patients .
2. Client initiated hiv testing: persons coming to ICTC on their own will: HIV testing required for visa, repeated testing after potential exposures ,testing of patients whose blood and other body fluids health care workers were exposed to.

HIV testing

After the consent was taken from the patient his/ her serum sample was tested for HIV1 and 2 infections by rapid tests. This was in accordance with NACO guidelines. [10]

DATAANALYSIS

Aggregated data from registers with patient details from 2009 to 2019 was analyzed year wise. Number of tests performed yearly and percentage positivity was calculated out of the total collected data from 2009 to 2019. Comparable data for different indications as PCT or VCT was available only from 2015 to 2019, thus evaluation of HIV testing and HIV positivity with reference to type of testing could be done only for these five years. Data analysis was performed using Microsoft Excel 2010.

RESULTS

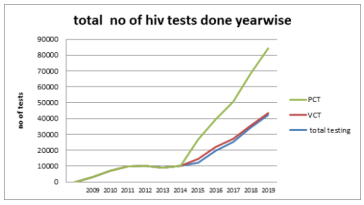
A total of 1,82,516 patients were tested for HIV infection in ICTC ,SMS Medical college ,Jaipur from 2009 to 2019. The no of patients tested in between 2009to 2013(5 years) was 46,231 and it increased three fold i.e. 1,36,285 from 2014 to 2019.(***table I***)

Table 1. Distribution of Hiv testing

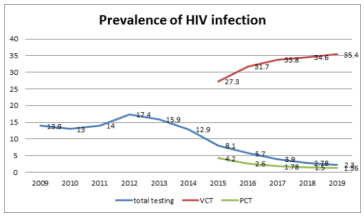
	Total tested for hiv			Hiv positivity		
	Total tested	*Tested in VCT(%)*	*Tested in PCT (%)*	*Total (% positivity)*	*VCT (% positivity)*	PCT (% positivity)
2015	14898	2561	12337	1216 (8.1)	700 (27.3)	516 (4.2)
2016	19748	2090	17658	1128(5.7)	663(31.7)	465(2.6)
2017	25263	1670	23593	988(3.9)	566(33.8)	422(1.78)
2018	34245	1400	32845	980(2.78)	485 (34.6)	495(1.5)
2019	42131	1168	40963	973(2.3	414 (35.4)	559 (1.36)
Total	136286	8889 (6.5%)	127397 (93.4)	5385 (3.9)	2828 (31.8)	2457 (1.93)

[1]Chi-square = 1513.216 with 1 degree of freedom; P<0.001
[2]Chi-square = 2930.786 with 1 degree of freedom; P < 0.001
[3]Chi-square = 4268.809 with 1 degree of freedom; P < 0.001
[4]Chi-square = 5291.742 with 1 degree of freedom; P < 0.001
[5]Chi-square = 5831.376 with 1 degree of freedom; P <0.001
[6]Chi-square = 19840.953 with 1 degree of freedom; P<0.001

The trend shows a significant increase in HIV testing after 2013 i.e. from 2014 to 2019. ***(graph 1).***The percentage HIV positivity increased from 2009 to 2012(13.9% to 17.4%) but since then there has been a consistent fall in the HIV positivity from 2014 till 2019 (15.9 to 2.3%). ***(Graph 2.)***

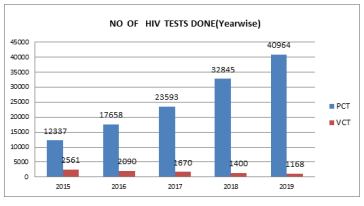


Graph 1.

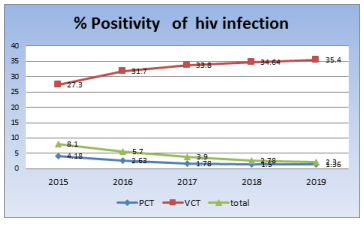


Graph 2.

There was consistent increase in the number of patients tested in PCT(increase by 69.8%) but in VCT there had been a fall in testing rates by 54% .PCT constituted 93.2% percentage of the total HIV testing while VCT was only 6.5% of the total testing ***.(Graph.3.),(table.1)***



Graph 3.



Graph 4

The percentage HIV positivity has shown a constant trend in this period (2010-2019) with respect to the types of HIV testing **(graph 3)**.But In comparison percentage positivity is sixteen fold higher in VCT(31.8%) with respect to PCT(1.93%)which is statistically significant .***(table1)***

The total number of HIV positive patients detected by PCT were 2457 out of 1,27,397 total tested patients which is significant in number. In VCT there has been an increase in HIV positivity(27.3% to 35.4%) which is not significant statistically ,while there has been an decreasing trend in HIV positivity in PCT (4.2% to 1.36%) and in total HIV testing(8.1% to 2.3%) from 2010 to 2019.

The percentage positivity is comparable in males(2.19%) and females(1.42%) in PCT HIV testing but slightly higher in females(39.9%) than males(27.56%) in VCT HIV testing though it is statistically non -significant(p>0.005).***(table2)***

Table 2. Distribution of hiv testing and positivity rates with respect to type of testing

	Client initiated hIv testing						*Provider initiated Hiv Testing*					
	Males			**Females**			**Males**			**Females**		
	Total tested	No of hiv positive	% positivity	Total tested	No of hiv positive	% positivity	Total tested	No of hiv positive	% positivity	Total tested	No of hiv positive	% positivity
2015	1696	400	**23.5**	865	300	**34.6**	8307	370	**4.45**	4030	146	**3.6**
2016	1412	380	26.9	678	283	41.7	11938	363	3.04	5720	102	1.8
2017	1044	300	28.7	626	266	42.4	16096	324	2.01	7497	98	1.3
2018	935	287	30.6	465	198	42.5	21146	374	1.76	11699	121	1
2019	739	239	32.3	428	175	40.8	26100	402	1.54	14864	157	1.05
total	5826	1606	27.56	3062	1222	39.9	83587	1833	2.19	43810	624	1.42

DISCUSSION

Since no vaccine is available for HIV ,counseling and testing becomes an important tool of intervention and control of HIV which is managed by ICTC centre's in hospitals .In 2007 ,the WHO recommended provider initiated HIV testing in health facilities as a standard part of medical care in counseling and testing (VCT).PCT capitalizes on patients contacts with medical systems ,using each as a potential opportunity for HIV testing ,diagnosis and linkage to care .[11]

As a result of PCT the total testing of samples for HIV increased to three fold (300%) in our ICTC. In a similar study conducted in Zambia there was increase in between 11% and 207% in the number of patients who underwent testing for HIV infection from 2008 to 2010 after the addition of PITC to VCT. [12]As we have taken extensive data from 2009 to 2019 the effect of PITC on the coverage of HIV testing services is more extensive and therefore three fold.

The main reason for the increase in testing load was the widespread coverage of HIV testing services through the Provider initiated testing guidelines which recognized the need for additional, innovative and varied approaches to increase the coverage of HIV testing Services. As well as the NACP III which stressed on increasing the coverage of HIV testing facilities by the concept of universal testing. It had played an important role in community mobilization increasing access to service addressing stigma and discrimination and provide valuable insights into developing appropriate societal response. Data from both industrialized and resource constrained settings suggest that many opportunities to diagnose and counsel individuals during routine clinical encounters was missed and that in this regard PITC has facilitated diagnosis and access to HIV testing and counseling services. Our study has further added to the literature in support of PITC . Other reasons for increase in the number of tests in our ICTC was the introduction of MNGY("Mukhyamantri Nishulk Jaanch Yojna") scheme by the state government which have increased the patients inflow under the attraction of free medicines and services from within Rajasthan as well as areas bordering Rajasthan. [13] Another reason is the increase in awareness among clinicians to get their patients tested to prevent accidental acquisition of HIV infection due to high risk involved in their professional work.

Till now ,evidence that PITC can improve the care of HIV positive patients and increase the number who proceed to HIV treatment and care has come primarily from controlled studies. and from specific intervention programs for example ,studies targeting patients with tuberculosis or sexually transmitted infections or programs to prevent mother to child transmission of HIV . [14,15,16]

This study provides support for the routine use of PITC in primary care in accordance with WHO recommendation .The study demonstrates that, access to and uptake of HIV testing was improved by incorporating routine PITC into a program of integrated primary care in urban and per urban population of a country. This is in correlation with other studies conducted in countries with generalized HIV epidemic. [12, 17]

Our study is also first of its kind in a country with low level epidemic where the effect of PCT on HCT services is being studied or analyzed.

In our study PCT constituted 93% of total testing in the period between 2010-2019 while that of VCT is only 6.5% of total HIV testing .This can be explained as the majority of people access VCT services only in a very advanced stage of clinical disease or people who know that there are at a high risk of contracting HIV. [18,19] This shift towards PCT might be because of increase in the number of ICTC 's in the periphery that is decentralization of ICTC thus patients who are HIV or suspected to be one, come through the health care worker (that is through PCT) to save time as well as to avoid social stigma. Another reason may be that with the opening of ICTC 's people are getting educated or more aware about the HIV disease as a whole which have lead to increased consciousness about HIV thus also increasing the social stigma as a result , and so the HIV positive suspected patients take the inconspicuous route of PCT .

The patients coming through VCT are generally those who are engaged in high risk behavior. Though the number of ICTC 's have increased, the ART (Anti retroviral treatment) Centre's are still not decentralized therefore more number of the HIV positive patients come to our ICTC to get tested for HIV as there get medicines also at the same place .The provision of ART services clearly provides an incentive for patients to be tested in this ICTC therefore the positivity is more but tested number is less under VCT at our centre.

The percentage positivity of HIV infection in those who are tested in ICTC has shown a rise from 2009-2007 but then there has been a steady fall in the % positivity from 2008 to 2019 .This can be explained through goals of NACP III (2007-2012) which stressed on increased coverage of HIV testing services as one of the objective which have led to decrease in transmission. HIV estimation 2012 corroborates the fact that HIV epidemic in India continues to decline at the national level from 0.41% in 2001 to 0.35% in 2006 and further to 0.27% in 2011 .There was a reduction of 57% annually in new HIV infections reflecting the scale up of preventive interventions in NACP III . [20] The fall in positivity can also be explained as a paradox also because of a large increase in the number of tests which increased the denominator to a larger magnitude than the numerator because of cumulative affect and it therefore appeared as the fall in positivity. The other reason may be the actual decrease in transmission due to PCT as it detected the hidden or latent cases and disrupted the transmission chain. Most of the patients coming through PCT though emerged HIV negative , were educated in the process and their passed their knowledge to their peers thus increasing the awareness in the society as whole and decreasing the transmission.

The percentage positivity was significantly higher in VCT (31.8%) as compared to PCT (1.93%) which suggests that VCT continued to be used by people who knew or suspected they had a HIV infection because they were engaged in high risk behavior .Secondly as the ICTC 'S have been decentralized to a larger extent but this is not true in the case of ART's centre's so more of the HIV positive patients who get themselves tested come to our ICTC which is very near to and is associated to the ART centre here . Thirdly the fall in positivity can also be explained as a paradox also because in VCT large decrease in the number of tests which decreased the denominator to a larger magnitude than the numerator because of the cumulative affect it therefore appeared as the rise in positivity .

The detection of HIV positivity by PCT was only 1.93% which when converted into numbers (2457 HIV positives) is a significantly important number which cannot be overlooked .As mentioned in other study conducted in Argentina in 2013 this undiagnosed HIV Prevalence was 1.58 %.[21] Thus PCT though increases the load on HIV testing services, but at the same time it detects considerable number of HIV positives in the general population which would be missed otherwise .In the light of above facts PCT analysis should be further done on a larger population and much more extensively.

In PCT the percentage sero- positivity was significantly higher in males than females while In VCT the percentage seropositivity was significantly higher in females than males. Female sex workers are the main source of HIV infection thus it is the source population and males are the bridge population which than transmit it to their spouses . Thus in VCT the seropositive females are the source population and males are the bridge population but this is not true for PCT . In PCT Females are the innocent and they generally get the infection from their spouses, here males are the source population. This can be explained as in our social structure males are engaged more in high risk behavior and the clients coming through PCT represent our general population.

However the present study has some limitations . As this was a retrospective study the results are based on reporting and data collection by counselors of ICTC and hence bias may occur. The data is from ICTC in a tertiary care hospital and thus not a true representation of the community.

The manner in which the new PCT opt out HIV testing model is being implemented was found to have resulted in high neglect of pre and post test counseling .Thus it is necessary to assess that how the opt out testing approaches are implemented in other high prevalence settings and ensured that new strategies attempting to improve access HIV services are implemented in a manner that take care of ethical concerns and retains the trust and minimum of patients rights

In conclusion HIV testing and services play a key role in prevention and control of the spread of the disease and in this aspect data generated in the ICTC s can serve as an important indicator of

prevalence of HIV and its mode of transmission in a given region. Thus it will help the local planners to improve the existing National HIV /AIDS intervention strategies. Secondly as people diagnosed HIV-positive after provider-initiated HIV testing and counseling were introduced at an earlier clinical stage and had higher CD4 counts than those identified beforehand, there were more likely to be referred to treatment at an appropriate time. As ART becomes widely available in resource limited settings as of ours PCT will help in dealing with the challenge of latent case identification from the general population and linking them to the ART. Although there is an urgent need to analyze the this approach to HIV testing in favor of clients autonomy and protect the right to access HIV Testing services.

As this was the retrospective study and percentage positivity was calculated from total number of tested samples, this can be extended over per 1000 population of the given area to make the data more authentic.

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