

Original Article

Are physicians aware of current HIV / AIDS diagnostic practices? A study from a tertiary centre in Turkey

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Abstract

Introduction: Early diagnosis of HIV infection is essential for the reduction of morbidity/mortality rates, health expenditures and the prevention of infection spread. In this study we aimed to test the knowledge of physicians regarding HIV risk groups, AIDS indicator diseases and their current practices about screening.

Methodology: A questionnaire was used to collect data from physicians working in a multidisciplinary 170-bed tertiary university hospital in Istanbul, Turkey. The questionnaire measured physician knowledge of the above-mentioned points.

Results: Ninety-six physicians replied to the questionnaire. "Preoperative screening" was found to be the most common (65.6%) indication for HIV testing. A large portion of physicians (72.9%) felt comfortable with an HIV test and 71.9% of the physicians had no impeding condition for HIV testing. Physicians were mostly (67.7%) unaware of the current guidelines for HIV testing.

Conclusions: Teaching programs are essential to increase knowledge of HIV screening for physicians as this is an essential part of early diagnosis and therefore important for decreasing morbidity and mortality.

Key words: HIV; AIDS; HIV diagnosis; diagnostic guidelines.

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Introduction

HIV is one of the leading causes of preventable mortal infectious diseases globally, with more than 1.8 million new infections and 1 million deaths from AIDS-related pathologies reported in 2016 [1]. Despite a global reduction in mortality, the number of new infections has been increasing in Central Asia, Eastern Europe, the Middle East, and North, West, and Central Africa [2].

While a majority of HIV positive patients know their HIV status, globally, around 30% have yet had access to a HIV test [3]. The goal of HIV testing with both screening and confirmatory tests is to diagnose the infected individual before AIDS develops [4]. At this point knowing the risk groups, sources of infection and diagnostic algorithms is critical. Early diagnosis is undoubtedly important in the reduction of morbidity/mortality rates and health expenditures, as well as in the prevention of infection spread [5]. There are several international and national guidelines regarding the approach to HIV testing [5-9], available for both clinicians and laboratory physicians.

According to December 2016 data of Ministry of Health of Turkey, there are 14695 HIV / AIDS patients in Turkey, with the number of HIV infected patients increasing each year. The actual number of cases is thought to be higher than what is reported, due to factors such as the length of the asymptomatic period and late admission to health care facilities [10]. As possible HIV infected persons have access to diagnostic tests through their healthcare providers, it is important that these providers are knowledgeable with regards to up-to-date practices for HIV diagnosis and screening. Moreover, healthcare providers should not have a prejudice against such patients, especially in countries such as Turkey, where the HIV incidence is increasing.

Our aim in this study was to use a structured questionnaire in order to measure the knowledge and attitude of physicians in our tertiary care center with regards to correct diagnostic procedures for HIV.

Methodology

The study was designed to collect data using a questionnaire from all physicians from a

multidisciplinary 170-bed university teaching hospital in Istanbul, Turkey.

Physicians were informed about the study and gave their written informed consent to participate. A multiple-choice questionnaire was organized, evaluating 6 main topics including indications for requesting HIV testing, reasons not to perform HIV testing, information about indicator diseases in HIV infection, knowledge about the HIV testing algorithm, the approach to interpreting HIV test results and information about guidelines. The age, gender, department and academic title of the participating physicians were recorded.

The questionnaire was disclosed and distributed to the physicians' outpatient clinics. Later, self-administered questionnaires were collected. For comparison, physicians were divided into three divisions: surgical sciences, medical sciences and emergency medicine. Medical microbiology, medical biochemistry and medical genetics consultants were evaluated within medical sciences. While physicians in these departments do not see patients, they plan an important consulting role for clinicians in Turkey.

Statistical analysis was performed using the Statistical Package for the Social Sciences version 23.0 for Windows (SPSS Inc., Chicago, IL, USA). Descriptive analyses (frequencies and percentage) were used to summarize the results. Categorical variables were compared using χ^2 test and Fisher's exact test. The "p" values lower than 0.05 ($p < 0.05$) were considered as statistically significant.

Results

The survey was distributed to all 116 physicians. Ninety-six physicians (return rate 82.8%) consisting of 41 (42.7%) female and 55 (57.3%) male returned the survey in the allotted time. The physicians - aged between 25 to 56 were evaluated in four groups. These groups and demographic information are shown in Table 1. The majority of physicians (45.83%) were aged between 36-45 years old, 55.2% held academic titles and most (60.4%) were from surgical science departments.

Forty-nine (51%) of the physicians stated that they had ordered 1 to 100 HIV tests during the past year. Indications for HIV testing are shown in Table 2. The most common causes for ordering a HIV test were preoperative screening (65.6%), suspicious sexual intercourse (46.9%) and a history of sexually transmitted diseases (40.6%). Seventy-three percent of the physicians felt comfortable with carrying out an HIV. There was no correlation between the age of the

physicians and their self-perceived comfort level for ordering HIV screening tests (Table 3). Seventy-two percent of physicians stated that they had no prejudice against HIV testing. Nineteen percent of the physicians stated that they preferred to refer the patient to an infectious diseases specialist or a microbiologist instead of ordering the screening test themselves.

Nearly forty-three percent of the physicians stated that they prefer third generation anti-HIV ELISA testing as the first screening test, while 29.2% physicians preferred the fourth generation p24 and the

Table 1. Age, titles and divisions of physicians.

Age groups	n (%)
25-35	26 (27.08%)
36-45	44 (45.83%)
46-55	25 (26.04%)
56+	1 (1.04%)
Number of physicians according to their titles	n (%)
Professor	12 (12.5%)
Associate Professor	20 (20.8%)
Assistant Professor	22 (22.9%)
Specialist Physician	18 (18.8%)
Resident Physician	24 (25.0%)
Departments of physicians	n (%)
Surgical Sciences	58 (60.4%)
Medical Sciences	37 (38.5%)
Emergency Medicine	1 (1.0%)

Table 2. Indications for HIV testing.

Indications for HIV testing	n (%)
Preoperative Screening	63 (65.6)
Suspicious Sexual Intercourse	45 (46.9)
Sexually Transmitted Disease History	39 (40.6)
Immunosuppression Related Conditions	38 (39.6)
Donor Screening	34 (35.4)
History of Sexual Intercourse in Countries with High HIV Prevalence	31 (32.3)
Drug Addiction	30 (31.3)
Health Care Workers	27 (28.1)
Premarital Screening	24 (25.0)
Medical Treatment Story (Dental Exam, Tattoo, Hair Transplant, Acupuncture...)	21 (21.9)
Tuberculosis Diagnosis	14 (14.6)
Pregnancy	11 (11.5)

Table 3. Percentage of physicians who feel comfortable with performing HIV tests according to age groups.

Age	Those feeling comfortable with performing HIV tests (%)
25-35	53.84
36-45	77.27
46-55	76.00

Table 4. Physicians' answers to the question "What do you prefer to do when a HIV screening test result is reactive?"

Question	n	%
I would inform the patient of the result	24	25.0
I would NOT inform the patient of the result	10	10.4
I would repeat the test 1-2 weeks later	15	15.6
I would immediately repeat the test at another center	7	7.3
I would use Western Blot for confirmation	21	21.9
I would use HIV-RNA for confirmation	17	17.7
I would direct the patient to an infectious diseases specialist, without giving any further information	43	44.8
I would accept the result as HIV positive, inform the patient of this result and direct the patient for appropriate treatment	1	1.0
In a patient with low risk for HIV, I would accept the result as false-positive	0	0

anti-HIV ELISA test for screening. Twenty-three (24%) of physicians ordered the first HIV test immediately after possible HIV exposure while 10 physicians (10.4%) ordered the test after two weeks had passed. With regards to the time between possible infection and obtaining a HIV test, 2 (2.1%) of the physicians preferred 6 weeks, 14 (14.6%) of them preferred 3 months, 25 (26%) of them preferred 6 months while 33 (34.4%) of the physicians did not respond to the question.

Only twenty-three (24%) physicians preferred to do HIV testing immediately after possible HIV exposure and just 2 (2.1%) said they would repeat the test at 6 weeks to confirm a negative result (using fourth generation assays).

Forty-three (44.8%) physicians preferred to refer their patients to infectious disease specialists without giving any explanation about their reactive HIV test results. Of the physicians, 36.5% preferred to refer their patients after giving the confirmed positive results, while 34.4% of them preferred to refer their patients to infectious disease specialists without giving the results (Table 4).

When asked about the clinical indicator diseases for adult HIV infection, the most recognized options were; weight loss of unknown etiology (76.0%), fever of unknown origin (62.5%) chronic diarrhea with

unknown etiology (43.8%), lymphoma (41.7%), herpes zoster (39.6%) and infectious mononucleosis disease (39.6%). One physician selected all indicator diseases and seven physicians left the question blank. Sixty-five (67.7%) of physicians indicated they were unaware about the guidelines for HIV testing. Five of the physicians (5.20%) were able to provide the title of an HIV guideline.

Comparison of survey answers between surgical and medical departments are presented in Table 5. Physicians from surgical departments performed more HIV tests when compared to medical departments. Only 39.7% of physicians from medical departments and 13.5% of physicians from surgical departments reported ordering 4th generation test for screening after suspicious contact, despite guideline recommendations. Physicians from surgical departments were more likely (62.2%) to refer the patient after a reactive result when compared to medical departments (34.5%). More physicians from medical departments preferred to inform their patients of a positive test result when compared to those from surgical departments (29.3% vs 5.4%, $p < 0.001$).

Discussion

While the number of people living with HIV in Turkey was 661 in 2011, this number has increased

Table 5. Comparison of answers from medical and surgical departments.

Answers to the questionnaire	Medical sciences (n = 58)	Surgical sciences (n = 37)	P value
	n (%)	n (%)	
I asked for more than 100 HIV tests in the past year.	9 (15.5)	17 (45.9)	$p < 0.001$
I take informed consent from the patient before HIV testing.	36 (62.1)	10 (27.0)	$p < 0.001$
I use fourth generation p24 and the anti-HIV ELISA test for HIV screening or as the first test after suspicious contact.	23 (39.7)	5 (13.5)	$p < 0.001$
I want western blot test immediately when HIV test result is reactive.	18 (31.0)	3 (8.1)	$p < 0.001$
I refer the patient to department of Infectious Diseases and Clinical Microbiology or microbiology laboratory after the reactive result.	20 (34.5)	23 (62.2)	$p < 0.001$
I personally inform the patient about the positive HIV test result, transmission routes and treatment.	17 (29.3)	2 (5.4)	$p < 0.001$

more than four-fold in 2016 to 2470 [11]. Along with the increase in the number of HIV cases in Turkey, the attitude and knowledge of all physicians regarding HIV screening has gained importance [10]. Physicians reported "preoperative screening" as the most common (65.6%) indication for HIV testing, while common risk factors such as history of sexual intercourse in countries with high prevalence, drug addiction, being a health care worker *etc.* were less common indications. This is probably due to most physicians (38.5%) being surgeons. Clearly, physicians should pay more attention to indications such as pregnancy (11.5%) and diagnosis of tuberculosis (14.6%) for HIV testing. Increasing HIV screening rates in risk groups is possible by increasing the knowledge and awareness of health workers, who have the authority to request tests. A survey of changing HIV testing rates among patients with tuberculosis from Birmingham showed increase from 14% in 2005 to 43% in 2008/09 after publication of the British HIV Association HIV testing guidelines (2008) [12]. Also, risk-based testing has a risk to miss individuals from high risk populations such as men who have sex with men that conceal their sexual orientation [13]. CDC's recommendation is routine HIV testing between the age of 13-64 years old [14].

Guidelines recommend that 4th generation screening tests for anti-HIV antibodies and p24 antigen detection are used. While this is the test used at our institute, only 29.2% of physicians participating in our survey were actually aware that this is the test of choice. Forty three percent of physicians (n=41) stated that they would order third generation screening tests that are of limited value for detecting antibodies in early HIV infection. Most participating physicians were not able to correctly state the correct time for HIV screening after suspicious contact according to guidelines. Nearly thirty-five percent of those given the questionnaire did not respond to any questions regarding this timing. It is therefore likely that most physicians are unaware of recent guidelines. Guidelines state that in patients with no symptoms of primary HIV infection or a history of high-risk exposure, negative screening results should be accepted as being uninfected. However, before confirming uninfected status, those with symptoms of primary HIV infection or history of recent high-risk exposure, should undergo repeated tests at sixth week for fourth generation assays or twelfth week for other assays. In any case, positive screening results must be verified with a confirmatory test. For indeterminate or unconfirmed results, a follow-up specimen should be taken one week after initial testing and seroconversion with fourth generation tests is needed to report a

positivity. Laboratories can prefer to test for HIV-1 RNA from the initial specimen as well. Weakly reactive screening test results that cannot be confirmed are accepted as being false-positive [5]. Clinicians should know the process of confirming a reactive or positive screening test result and when to refer the patient to a specialist as timely diagnosis and knowledge of HIV status reduces transmission and patients have the chance to start antiretroviral therapy as soon as possible [15].

There are a few published surveys about the attitude of health care personnel towards people living with HIV [16-18]. While Cekin *et al.* found that healthcare workers were positive towards patients with HIV/AIDS, Gokengin *et al.* found a high level of internalized stigma among their participants. Also, in a review of epidemiological studies regarding HIV positive individuals in Turkey, Hekimoglu *et al.* found that researchers used stigmatizing statements in 33.8% of articles. While we did not specifically measure stigma in our questionnaire, 70 (72.9%) of physicians felt comfortable carrying out an HIV test and 69 (71.9%) of physicians reported that they had no prejudice against screening for HIV.

Health care professionals' judgement of patients' behaviors, sexuality, or ethnicity can lead to unwillingness of offering HIV testing which can therefore lead to late diagnosis, increased transmission rates and increased health care costs [19]. According to our survey results, lack of knowledge may also be a barrier to HIV testing among health care professionals and this is also associated with undiagnosed HIV infections. The majority of physicians were unaware of the guidelines for HIV testing. A report on the barriers to the implementation of HIV testing guidelines in secondary care showed that only eight out of 108 (7.4%) respondents were aware of the HIV testing guidelines in the United Kingdom [20]. Education should target non-HIV specialists and HIV testing can be incorporated into other clinical guidelines [12]. For that reason it is an important issue to train physicians about pretest discussion and consent process [21].

Our study has several limitations. The survey was held at a single university teaching hospital and only includes 96 participants. The survey could be expanded to include physicians from primary and secondary care. While a university hospital does not include any primary healthcare physicians, the group represents, for example, those who would be consulted or who would be the first point of access to medical care should any medical procedure be required. This group of physicians are also representative of a tertiary setting in

the most populous and cosmopolitan city of Turkey. While the survey was conducted in the physicians' mother tongue, we did not check the internal or external validity of our survey.

Conclusion

Despite an increase in HIV infections in Turkey, Turkish physicians are aware of only a very narrow range of indications for performing HIV screening. They also do not have adequate knowledge with regards to when a HIV infection can be ruled out and what algorithm to follow when a screening test is found to be reactive. Physicians should be up to date on HIV management and screening guidelines.

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