

Short report / Kısa rapor**Seroprevalence of hepatitis B, hepatitis C, HIV, and syphilis infections among non-injecting drug users**Elif Aktan MUTLU,¹ A. Ender ALTINTOPRAK,² Levent TOKUCOGLU,³**ABSTRACT**

Background: While injection drug use is clearly a significant risk factor for the acquisition of certain infectious diseases, non-injection drug users (NIDUs) may also have higher risk than the general population, due to their involvement in risky behaviors. This study aimed to examine the prevalence of anti-HIV, anti-HCV, and HBsAg and VDRL seropositivity among a sample of non-injecting drug users. **Methods:** Medical records of the drug users who attended to our psychiatry clinics between April 2010 and April 2011 were reviewed and 55 non-injecting drug users without a previous history of intravenous drug use were identified. Anti-HIV, anti-HCV, HBsAg and VDRL assay results have been extracted and seroprevalence rates were calculated. **Results:** All but one NIDUs were male (n=54; 98.2%); 28 (50.9%) were between 15 and 25 years of age. Serologically, only one patient (a heroin user) was tested positive for HBsAg (1.8%) and one patient (a heroin user) was anti-HCV positive. None of the patients screened for anti-HIV or VDRL were tested positive. **Conclusions:** This study found low seropositivity rates for HBV, HCV, HIV and VDRL among a group of NIDUs, which might be related to the cultural characteristics of the region. (*Anatolian Journal of Psychiatry* 2015; 16(1):65-68)

Key words: hepatitis B, hepatitis C, human immunodeficiency virus (HIV), Venereal Disease Research Laboratory (VDRL) test, seroprevalence, substance abuse, non-injecting drug use

Damar dışı yollardan madde kullanıcılarında hepatit B, hepatit C, HIV ve sifiliz enfeksiyonlarının yaygınlığı**ÖZET**

Amaç: Damar içi madde enjekte etmek bazı enfeksiyöz hastalıklara yakalanmak için belirgin risk etkeni iken, damar dışı yollarla madde kullanan kullanıcılarının da genel popülasyondan, riskli davranış biçimlerine bağlı olarak, daha fazla riske sahip olduğu söylenebilir. Bu çalışma damar dışı yollardan madde kullanan bir örneklemede anti HIV, anti HCV, HBsAg ve VDRL yaygınlığını ölçmeyi hedeflemektedir. **Yöntem:** Psikiyatri kliniğimize Nisan 2010 - Nisan 2011 arasında başvuran madde kullanıcılarının tıbbi kayıtları incelenmiş, 55 damar dışı yollarla madde kullanan ve damardan hiç madde kullanmamış olan kullanıcılar tanımlanmıştır. Anti HIV, anti HCV, HBsAg ve VDRL ölçümleri çıkarılmış ve seroprevalans oranları hesaplanmıştır. **Sonuçlar:** Damar dışı yollarla madde kullanan kullanıcıların çoğu erkek (s=54, 98.2%); 28'i ise (50.9%) 15-25 yaş arasındadır. Serolojik olarak sadece 1 hasta (eroine kullanıcısı) HBsAg açısından pozitif (1.8%) ve 1 hasta da (eroine kullanıcısı) anti-HCV pozitif. Hiçbir hastada anti HIV veya VDRL pozitif olarak gözlenmedi. **Tartışma:** Bu çalışma bize damar dışı yollarla madde kullanan kullanıcı grubunda anti HIV, anti HCV, HBsAg ve VDRL seropozitivite oranlarının düşük olduğunu, bunun da bölgenin karakteristik kültürel yapısı ile ilişkili olabileceğini göstermektedir. (*Anadolu Psikiyatri Derg* 2015; 16(1):65-68)

Anahtar sözcükler: Hepatit B, hepatit C, HIV, VDRL, seroprevalans, madde kötüye kullanımı, damar dışı yolla madde kullanımı

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INTRODUCTION

Drug use represents an increasing global public health problem that may be associated with diverse and multi-faceted consequences. According to estimates from World Drug Report 2011, approximately 210 million people were using illicit drugs, the number of problem drug users was between 15 and 39 million, and 15.9 million injecting drug users (estimated range: 11.0-21.2 million) were present worldwide at the time the report was issued. These figures suggest that nearly 60% of all problem drug users inject drugs, while 40% of the problem drug users do not practice injection and prefer other administration routes.

It is a well-established fact that for most of the injecting drug users (IDUs) the initial stages of drug use involves non-injecting routes such as the intranasal, oral, or inhalational routes, with a consequent switch to injecting drug use. In addition, the majority of opiate, cocaine, or amphetamine-related stimulate users prefer not to inject these drugs.¹ On the other hand, recent studies have reported increasingly more frequent use of non-injection routes of heroin administration (e.g. intranasal route) in the United States and in other countries.² Similarly, a study conducted in New York City has found that the percentage of heroin users who report intranasal use as their primary route of administration has increased in the half of 1998, since then the proportions declined slightly to 60% in 1999 to 2002.³

The prevalence of certain infectious disorders in drug users, particularly in IDUs, is higher as compared to that in the general population.⁴⁻⁷ Accordingly, around one in five IDUs is HIV positive, half of all IDUs are infected with hepatitis C virus, and more than 20% of IDUs are infected with hepatitis B virus. The single most important factor associated with transmission of HIV in IDUs is the multi-person re-use or sharing of syringes and needles.⁸ Other possible contributing factors to the higher HIV prevalence in this population include the indirect sharing of other items such as water, cotton, cookers and other drug preparation equipment, as well as unprotected sexual behavior.⁹ Sexually transmitted diseases such as syphilis also occur at a higher rate among drug users. While injection drug use is clearly a significant risk factor for hepatitis C virus infection, non-injection drug users (e.g. intranasal heroin or cocaine users and crack smokers) also have higher rates of HCV infection as compared to the general population (5-12% versus 2%).^{6,10,11} Possible mecha-

nisms for the acquisition of HCV among non-injecting drug users include sharing of non-injecting drug equipment, nail or hair clippers, electric or non-electric razors, toothbrushes, non-commercial tattoo and piercing materials or involvement in high-risk sexual behaviors.⁵

Despite the presence of studies examining the prevalence of hepatitis B, hepatitis C, HIV or syphilis in the samples representative of the general population^{12,13} or IDUs in Turkey,¹⁴ data for these conditions in non-injecting drug users (NIDUs) is scarce. Therefore, this study was conducted in the provincial city of Van, Turkey, where the frequency of heroin use is one of the highest in Turkey, in order to examine the prevalence of anti-HIV, anti-HCV, and HBsAg and VDRL seropositivity among a sample of NIDUs in Turkey for the first time.

METHODS

This study was conducted at the Psychiatric Outpatient Unit of Van Training and Research Hospital, Turkey. The study protocol was approved by the Ethics Committee of Yüzüncü Yıl University. Medical records of the drug users attending to our Psychiatry clinics between April 2010 and April 2011 were reviewed in order to exclude patients with any history of intravenous drug use. Our search revealed a total of 55 non-injecting drug users with no previous history of intravenous drug use. Sociodemographic data, and anti-HIV, anti-HCV, HBs-Ag, VDRL assay results have been extracted and seroprevalence rates were calculated based on the medical record data.

ELISA was used to determine the Anti-HCV, HBs-Ag, and Anti-HIV status in the sera (COI unit >1 positive, and <1 negative), and VDRL card test was used to test the presence of syphilis.

RESULTS

All but one NIDUs were male (n=54; 98.2%); 28 (50.9%) were between 15 and 25 years of age; 35 (63.6%) were single; 26 (47.3%) had an education between grades 6 and 10; and 24 (43.6%) were unemployed at the time of study.

Majority of the sample reported that their first drug of choice was heroin (n=37, 67.3%). Cannabis (n=7, 12.7%) alcohol (n=3, 5.5%), and volatile substances (n=3, 5.5%) were the other most frequently used drugs. Three subjects were multidrug users (5.5%). Fifty-two point seven

percent (n=29) of the sample reported that they wrapped drugs with cigarettes and 41.9% (n=23) reported that they vaporized drugs on an aluminium foil for inhalation or they snorted the drugs. Three reported oral ingestion (5.5%). A history of antisocial behavior such as involvement in crime or violence was present in 23% (n=23) of the sample and 47.3% (n=26) reported at least one drug user among other family members.

Serologically, only one patient (1.8%, a heroin user) tested positive for HBsAg. Information on Anti-HCV status could be obtained in 53 subjects, among whom there was only a single patient with anti-HCV positivity (1.9%, a heroin user). None of the 54 patients screened for anti-HIV and none of the 45 patients screened for VDRL tested positive.

DISCUSSION

Drug use in general and injecting drug use in particular is associated with a number of adverse life events and outcomes affecting the individuals, families, and communities. Drug users are more likely to be involved in crime and violence acts and to experience social problems.

Despite relatively lower rates of drug use in Turkey in comparison with certain other countries, a steady increase has been recorded in the number of drug users in recent years. In this regard, urban areas in the eastern and south-eastern borders of Turkey deserve a special mention in terms of the prevalence of drug use. Van, a provincial city of Turkey at the Iranian border running along the southeast Turkey, exemplifies an interesting pattern of drug use where smoking, but not injecting, heroin is more acceptable, mainly due to sociocultural norms of the area. This unique pattern of drug use in Van city has given us the opportunity to test the incidence of blood- and secretion-born infections, which are common in IDUs, in a group of subjects in whom the principal form of drug use involved non-injecting routes.

Although non-injecting routes of drug use is widely recognized as a risk factor for HCV and other viral infections,¹ risk levels vary according to geographical location. For instance, in a study by Scheinmann et al.⁶ the incidence of HCV positivity among non-injecting drug users in different European countries were found to vary between 2.4 and 35.3%. In a community sample from the northern Italy,¹⁵ the prevalence of HCV and HBV infection among youngsters were 2.6% and 1%, respectively whereas a prevalence rate

of 20% for HCV infection was detected in Italian participants in a former study who were non-injection drug users. In another recent study from Mexico¹⁶, the prevalence of HCV, HBV and HIV infection in NIDUs users were 4.1%, 5.7%, and 1.6%, respectively. This indicates a higher prevalence for HCV in contrast to the 1 to 2.5% HCV prevalence in the general Mexican population.¹⁷

The only published study examining the prevalence of HIV, HBV, HCV and VDRL positivity among drug users in Turkey was conducted by Mirsal et al. in a group of IDUs attending to an addiction center in Istanbul, the most populated city in Turkey.¹⁴ These authors found positive test results for HBsAg, Anti-HBs, Anti-HCV, and Anti-HIV I-II in 2.8%, 29.9%, 44.9%, and 4.7% of the 107 participants, respectively, and these figures clearly pointed out a higher prevalence rates than in our study and general population.

Most of the Turkish studies on the prevalence of blood-borne diseases have involved blood donors. For example, in a study by Oner et al.¹³ from a medical center in the southern-coastal city of Mersin examined a total of 30,716 blood donors, among whom HBsAg, anti-HCV, and VDRL positivity were detected in 2.2%, 0.4%, and 0.1%, respectively. Of the 54 subjects (0.2%) with an initial anti-HIV positivity, only one had a positive confirmatory test result. A second study was conducted in the same city, i.e. Van province, as in our study, where 39,002 blood donors were examined by Dilek et al. who found seropositivity rates of 2.55%, 0.17%, 0.036%, and 0.057% for HBsAg, anti-HCV, anti-HIV, and VDRL in the overall donor group.¹² These authors pointed out to the lower seropositivity rates for HBsAg, anti-HCV, anti-HIV and VDRL among the participants from this region in comparison with many other Turkish sample populations.¹²

A comparison of our study with the Dilek et al.'s study reveals some similarities between the two. In our study, none of the NIDUs had anti-HIV or VDRL positivity, which generated a prevalence rate that is even lower than that observed in a sample of blood donors. On the other hand, percentage of subjects with HBsAg and anti-HCV positivity (i.e. 1.81% and 1.9%, respectively) was also lower than that reported by Mirsal et al. in an IDU sample, but higher than that reported in blood donors. Relatively lower rates of HBsAg, anti-HCV, anti-HIV and VDRL positivity in these two studies conducted in the same geographical area in Turkey, i.e. Van province, points out to probable effects of conservative social attitudes on the patterns of drug

use and seroprevalence.

To the best of our knowledge, our study is the first to report on seroprevalence of HBsAg, anti-HCV, anti-HIV and VDRL in a sample of Turkish NDIUs. However, several limitations of our study should be mentioned. Firstly, our sample size was small. In addition, information on risky behaviors including unprotected sexual intercourse, other high-risk sexual behaviors, commercial tattooing, and sharing of non-injecting drug equipment, nail or hair clippers, electric or non-electric razors, toothbrushes, or piercing materials were not collected. However, it is obvious that this type of information would have been more relevant and useful if higher prevalence rates had been detected.

Despite low rates of blood- and secretion- borne infectious diseases both in general population and NIDU samples from the same region, preventive strategies can still help increase the general awareness at a societal level. In addition,

larger epidemiological field studies on drug use attitudes may assist in designing more effective prevention strategies. Certainly, IDUs who are consistently engaged in risky behaviors are more likely to be infected with these conditions and strategies targeting behavioral changes and maintenance of low-risk practice may be effective in the reduction of the spread of infection.

CONCLUSION

The low seropositivity for HBV, HCV, HIV and VDRL among a group of NIDUs in this study might be related to the cultural characteristics of the region in which the study was conducted. Despite the low seropositivity of infectious diseases, NIDUs is still at high risk of transition to injecting drugs, with a consequent change their lifestyle. Prevention strategies may increase the awareness level regarding infectious diseases among drug users.

REFERENCES

1. Neaigus A, Gyarmathy VA, Zhao M, Miller M, Friedman SR, Des Jarlais DC. Sexual and other noninjection risks for HBV and HCV seroconversions among noninjecting heroin users. *J Infect Dis* 2007; 195:1052-1061.
2. Strang J, Griffiths P, Powis B, Gossop M. First use of heroin: changes in route of administration over time. *BMJ* 1992; 304:1222-1223.
3. Marel R, Galea J, Smith RB. New York City: Drug use trends in New York City. NIDA Community epidemiology work group. http://archives.drugabuse.gov/pdf/cewg/Vol2_603.pdf.
4. Camoni L, Regine V, Salfa MC, Nicoletti G, Canuzzi P, Magliocchetti N, et al. Continued high prevalence of HIV, HBV and HCV among injecting and noninjecting drug users in Italy. *Ann Ist Super Sanita* 2010; 46:59-65.
5. Howe CJ, Fuller CM, Ompad DC, Galea S, Koblin B, Thomas D, et al. Association of sex, hygiene and drug equipment sharing with hepatitis C virus infection among non-injecting drug users in New York City. *Drug Alcohol Depend* 2005; 79:389-395.
6. Scheinmann R, Hagan H, Lelutiu-Weinberger C, Stern R, Des Jarlais DC, Flom PL, et al. Non-injection drug use and Hepatitis C Virus: a systematic review. *Drug Alcohol Depend* 2007; 89:1-12.
7. Wu J, Huang J, Xu D, Lu C, Deng X, Zhou X. Infection status and risk factors of HIV, HBV, HCV, and syphilis among drug users in Guangdong, China--a cross-sectional study. *BMC Public Health* 2010; 10:657.
8. Brogly SB, Bruneau J, Vincelette J, Lamothe F, Franco EL. Risk behaviour change and HIV infection among injection drug users in Montreal. *AIDS* 2000; 14(Suppl. 16):2575-2582.
9. McCoy CB, Metsch LR, Chitwood DD, Shapshak P, Comerford ST. Parenteral transmission of HIV among injection drug users: assessing the frequency of multi-person use of needles, syringes, cookers, cotton and water. *J Acquir Immune Defic Syndr Hum Retrovirol* 1998; 18(Suppl. 1):S25-S29.
10. Armstrong GL, Wasley A, Simard EP, McQuillan GM, Kuhnert WL, Alter MJ. The prevalence of hepatitis C virus infection in the United States, 1999 through 2002. *Ann Intern Med* 2006; 144:705-714.
11. Tortu S, Neaigus A, McMahon J, Hagen D. Hepatitis C among noninjecting drug users: a report. *Subst Use Misuse* 2001; 36:523-534.
12. Dilek I, Demir C, Bay A, Akdeniz H, Öner AF. Seropositivity rates of HBsAg, anti-HCV, anti-HIV and VDRL in blood donors in Eastern Turkey. *Turk J Hematol* 2007; 24:4-7.
13. Oner S, Yapıcı G, Sasmaz CT, Kurt AO, Bugdayci R. Hepatitis B, hepatitis C, HIV, and VDRL seroprevalence of blood donors in Mersin, Turkey. *Turk J Med Sci* 2011; 41:335-341.
14. Mirsal H, Kalyoncu OA, Pektaş O, Tan D, Beyazyürek M. The prevalence of hepatitis B, C and HIV seropositivity among inpatient IV heroin users. *Bagimlilik Dergisi* 2003; 4:10-14.
15. Fabris P, Baldo V, Baldovin T, Bellotti E, Rassu M, Trivello R, et al. Changing epidemiology of HCV and HBV infections in Northern Italy: a survey in the general population. *J Clin Gastroenterol* 2008; 42:527-532.
16. Campollo O, Roman S, Panduro A, Hernandez G, Diaz-Barriga L, Balanzario MC, et al. Non-injection drug use and hepatitis C among drug treatment clients in west central Mexico. *Drug Alcohol Depend* 2012; 123:269-272.
17. Santos-Lopez G, Sosa-Jurado F, Vallejo-Ruiz V, Melendez-Mena D, Reyes-Leyva J. Prevalence of hepatitis C virus in the Mexican population: a systematic review. *J Infect* 2008; 56:281-290.

World Drug Report, 2011. <https://www.unodc.org/unodc/en/data-and-analysis/WDR-2011.html>.