

DETECTION OF HIV-ANTIBODIES IN COLLECTED SYRINGES/NEEDLES (S/N) FROM INTRAVENOUS DRUG USERS (IDUs) IN THE FRAMES OF S/N EXCHANGE PROGRAMME (SNEP) IN BULGARIA

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SUMMARY

After 1989, increase of IDUs is an emerging factor with regard to HIV/AIDS in Bulgaria (269 registered seropositives in the end of 1999, 9 out of them – 3,35% infected as IDUs). S/N testing for HIV-antibodies with prior informed consensus was broadly used in other countries to: 1) evaluate HIV prevalence/incidence among IDUs and the recent trends in the communities; 2) find out the factors facilitating/impeding consequent intervention programmes; 3) evaluate the effectiveness of community-based interventions – SNEP was established in Bulgaria, in 1998. Needle exchange (N/X) is an outreach mobile programme with three N/X in Sofia – two in the central part of the city, one – in an area where Roma minority lives and one – in Bourgas on the Black Sea coast. Objective of the study was to present the first conducted in Bulgaria and in Southeastern Europe HIV-testing of used S/N in the frames of SNEP, organized by Initiative for Health NGO (IFH).

Altogether 377 used S/N collected from three sites in Sofia and 1 – in Bourgas were tested. No HIV-positive result was found. The experience gained stimulated IFH to establish a network throughout the country and to extend the HIV prevention activities through outreach needle exchange and assistance to gaining access to treatment and healthcare to IDU community members.

INTRODUCTION

It seems stimulating that a growing number of studies demonstrates the efficiency of HIV prevention and harm reduction interventions directed to IDUs (Hankins, C. et al., 1998). HIV-testing of IDUs increases our understanding of HIV-transmission and spread (Abdala et al., 1999, Heimer, R. et. al, 1996, Myers, S.S. et al., 1993). It is well known that mandatory testing may hamper the enrollment of IDUs (the participants in the study) into epidemiological studies and compromise them. Because of that non-intrusive methodologies should be introduced. HIV-antibodies detection in S/N used with prior informed consensus is today broadly used as an important part of many legal SNEPs.

The research project is a part of SNEP – supported by UNAIDS in the frames of “Touching Reality” Project.

SNEP was established in Bulgaria in December 1998 with the support of the Open Society Foundation, Sofia and the International Harm Reduction Development Programme, New York. The needle exchange (N/X) programme is an outreach mobile programme with three NX sites in

Sofia (two in the central part of the city and one – where Roma minority lives) and one – in Bourgas, a city on Black Sea coast.

Bulgaria is still a low HIV-prevalent country – altogether, 269 HIV-seropositives were registered as of end'99, 9 out of them – 3,35% were infected IDUs.

The aims of HIV-testing of S/N as a part of longer-termed SNEP were: 1) to evaluate HIV prevalence/incidence among IDUs; 2) to assess recent trends of the same parameters in the communities; 3) to find out the factors facilitating/impeding consequent interventions programmes; 4) to evaluate the effectiveness of community-based interventions.

MATERIALS AND METHODS

The S/N were collected at the NX sites of the SNEP by NX project participants after explaining the goals of the research. Direct contact with IDUs and client friendly approach based on trust and respect were used. Anonymity and confidentiality were guaranteed by the researchers and informational agreements were achieved with the IDUs. Special “research containers” were used for S/N collection. Only one S/N from a client was collected. The containers were sent the same day to the laboratory without being washed or cleaned before that. Extraction of residual blood from S/N was done by washing with 0,5 ml phosphate-buffered saline (PBS). Extracts were stored at -20°C until tested. Antibodies to HIV-1,2 were detected using viral-based ELISA test of Vironostika (HIV-Uniform II plus 0) of Organon Teknika. All primary reactive extracts were retested with the same test and only those showing repeatedly positive results were tested in Western blot (WB) (Argirova, R. et al. 1993, HIV Testing Methods: UNAIDS Best Practice Collection, 1997).

RESULTS AND DISCUSSION

In the period February – June'99 550 used S/N were collected but only 377 out of them were tested by ELISA. Six extracts showed repeatedly positive results in ELISA – none of them was confirmed by WB (Table 1).

Table 1. HIV antibodies in collected S/N (ELISA positives – SA/CO* \geq 1).

| Site | Month'99 | | | | | Total studies / ELISA (+) | WB result |
|--------------------------|--------------|-------------|-------------|-------------|--------------|------------------------------|-----------------|
| | 02 | 03 | 04 | 05 | 06 | | |
| 1. Sofia “Pharmacy” | - | 8/1 | 10/2 | 9/0 | 41/0 | 68/3 | Negative |
| 2. Sofia “Exhibition” | 127/1 | 31/0 | 28/0 | 15/0 | - | 201/1 | Negative |
| 3. Sofia Roma Tatarly | - | - | - | 38/2 | - | 38/2 | Negative |
| 4. Bourgas | - | - | - | - | 80/0 | 80/0 | - |
| TOTAL | 127/1 | 39/1 | 38/2 | 62/2 | 121/0 | 377/6 | Negative |

* - SA - Sample absorbance in ELISA
CO – cut off value

The lack of HIV(+) results in our survey, alongside with the growing number of IDUs throughout the country only encourages us to develop longer-term exchange programmes.

The number of S/N which can be tested in relatively short period is higher than the number of people voluntarily tested in healthcare services. Additionally, the S/N number reflects groups that can not be reached otherwise.

It has been recently shown (Myers, S.S. et al., 1993) that viral-based ELISA and WB proved most sensitive for HIV-antibodies detection. DNA-based ELISA, as well as HIV-1 proviral DNA showed less sensitivity for this type of studies (Myers, S.S. et al., 1993). This was the reason to use Organon Teknika viral-based test. It is worth mentioning the high Positive Predictive Value (PPV) of the test when used for this population. As known, PPV of a test is a ratio between true and false positives and expresses the probability for a person with positive result to be truly infected. PPV and NPV (Negative Predictive Value) change with the changes in specificity and sensitivity of the test and under different seroprevalence of the population studies. Theoretically, the PPV is the highest when a test with maximum specificity is applied in population with higher prevalence (HIV Testing Methods: UNAIDS Best Practice Collection, 1997). As far as according to registration documents, the Vironostika test has a 99,9% specificity, it is clear that in 10 000 tested 10 persons will show false positive results. As the HIV-seroprevalence in Bulgaria is low (0,07%) we can anticipate more false positive results which should be confirmed by WB. The use of ELISA tests only, without confirmation by WB, is not feasible for HIV low-prevalent countries (Argirova, R. et al., 1993).

The results of the confirmatory WB tests present another indirect evidence for the low HIV-prevalence in Bulgaria.

CONCLUSION

Performing the SNEP further we hope to obtain a real figure of HIV-seroprevalence/incidence among IDUs and to follow-up the trends concerning efficacy and behavioral changes in this useful for the Public Health programme. The experience gained stimulated IFH to establish a network throughout the country and to extend the HIV prevention activities through outreach needle exchange and assistance to gaining access to treatment and healthcare to IDU community members.

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