

AN UPDATE OF HIV INFECTION IN ROMANIA

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ABSTRACT

HIV infection in Romania remains an important public health problem. In this paper we aimed to analyze the current situation of HIV infection in Romania in sociopolitical context, in terms of laboratory diagnosis. HIV epidemic in the years 1980-1990 had serious consequences on the Romanian society. After a period of decline of the infection, the development of new HIV cases in 2011 provided a warning to the Romanian society. The problem can be solved through the close cooperation of all social classes, from health professionals to politicians.

Keywords: HIV infection, Romania, analysis

INTRODUCTION

The early outbreaks of HIV infection came into view in Romania in the late 1990s, when 683 AIDS cases were reported. These were abandoned infants and children less than 4 years of age, who were living in public institutions. 493 (45.1%) mothers of children with AIDS had been tested, but only 37 (7.5%) were positive for HIV (1). In 1990, a cross-sectional study conducted in 101 children aged between 0 and 4 years, who lived in Romanian orphanages, concluded that HIV-positive children (20%) had received more therapeutic injections (mean, 280; median, 231) than age-matched HIV-negative children (mean, 142; median, 155; $p = 0.02$) (2). After a while, Centers for Disease Control and Prevention (CDC) reported that in Romania and other countries, therapeutic injections were associated with the transmission of HIV-1 infection (3). Romanian and French researchers noted that subtype F largely dominates the epidemiology of

HIV-1 infection in both children and adults in Romania (4). Subtype F viruses can be distinguished by phylogenetic tree analysis of various parts of the HIV genome. Phylogenetic analysis of HIV genome from 71 Romanian patients failing highly active antiretroviral therapy (HAART) showed that 70 patients were infected with subtype F1 and one with subtype C (5). In 2011, twenty-four out of 31 European countries participated in a survey on HIV testing policies conducted by Belgium, which assessed the level of exceptionalism and normalization based on defined attributes. The authors explained that in the absence of treatment and in the context of discrimination, HIV testing was embedded within exceptional procedures. With increasing treatment effectiveness, early HIV diagnosis became important, calling for the normalization of testing. Taking together all attributes of HIV testing, 14 countries obtained a high score for exceptionalism, while only 3 achieved a high score on normalization. Italy, Lithuania and Romania had

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primarily exceptional procedures; Norway leaned more towards normalization; Netherlands, the United Kingdom, and Denmark scored high in both. (6).

In this socio-political context, the latest United Nations Programme on HIV/AIDS (UNAIDS) estimates are at 34.2 millions people globally living with HIV in 2011 (7). Therefore a question about Romania arises: what is the current situation of HIV infections in Romania? We aim to discuss that out in our study.

ANALYSIS OF THE CURRENT SITUATION

In Romania two unique particularities of HIV-1 epidemics were noted: (1) the large pediatric population infected in the late 1980s and early 1990s (2) the high prevalence of subtype F1 strains (8).

Romania had a major epidemic of AIDS associated with transfusions in children (over 30 cases per million children in 1988-90) (9). Recent studies on HIV infection in Romania (10) characterized the situation as follows: "For over a decade after the fall of the Communism, Romania accounted for over 50% of the total pediatric cases in Europe with an estimated 10,000 children infected in hospital (nosocomial) settings between 1986 and 1992. Although about 3000 of these children died of AIDS, many of them have survived almost 20 years". These children represent a great challenge for the public health system and for their integration in the civil society (11).

During 1996 alone, Romania has 4000 children with AIDS, who were predominantly infected via nonsterile syringes and blood transfusion (12). Later, Eastern European countries, including Romania, had high rates of HIV among migrant sex workers (13). A Romanian researcher concluded that structural collapse in Eastern Europe sets the scene for the rapid spread of HIV/AIDS among young people and the lack of information may contribute to an unexpected rebound of the epidemic (14). The epidemic of HIV has not recurred. Information from an iatrogenic HIV outbreak in a Romanian orphanage suggested a transmission efficiency of HIV-1 through unsafe medical injections of 2-7% (15). Study groups decreased during these years: 238 HIV-infected children between 1998 and 2001 (16), 325 HIV-infected children with HAART in 2007 (17). In 2006, 523 adolescents living with HIV/AIDS were registered with medical services in Romania (10). In 2009, The United Nations Children's Fund (UNICEF) Romania estimated a number between 12,000 and 20,000 people of all ages living with HIV (18).

Studies on the prevalence of HIV infection in pregnant women were done since 1990 (19). A pilot prevention of mother-to-child transmission programme was implemented in Constanta County, Romania, between 2000 and 2002. A total of 11,423 pregnant women were tested during the pilot, at a median of 24 weeks' gestation. Overall seroprevalence was 1.75 per 1,000 (95% confidence interval (CI) 1.07-2.70 per 1,000) (20). Vertical transmission rate from mother to child decreased in stages, from 45% in 2005 to 17% in 2010 (21).

A current study (22) found that the Romanian subtype F1 lineage displayed a short and explosive dissemination phase, with a much higher median growth rate than that estimated for adult populations. The authors of the study concluded that this result supported the idea that the AIDS epidemic affecting the Romanian children was mainly caused by the spread of HIV through highly efficient parenteral transmission networks.

Subtype F1 sequences from Angola are closely related to those described in Romania, and only distantly related to the subtype F1 lineage circulating in South America (23). Also, subtype F is widely circulating in parts of South America (frequently within BF recombinant forms) and in Romania. However, the geographic source and origins of this epidemic remain unclear (24). The most common ancestor of the Romanian sequences was dated to 1978 (1972-1983) with pediatric and adolescent sequences interspersed throughout the lineage. Since historical records note that the Romanian pediatric epidemic did not begin until the late 1980s, the inferred time of the most recent common ancestor of the Romanian lineage of 1978 suggests that there were multiple introductions of subtype F into the pediatric population from HIV already circulating in Romania. In conclusion, the analysis of the subtype F HIV-1 epidemic in a historical context allows for a deeper appreciation of how the HIV pandemic was influenced by socio-political events, namely, the fall of communism in the early 1990s and after this the free movement of workers in the European Union (25).

In order to gain some preliminary insight into HIV-1 diversity in the Balkan region, a review was conducted on the available molecular epidemiological data on HIV-1 diversity in 10 countries of the region: Albania, Bulgaria, Croatia, Greece, Montenegro, Romania, Slovenia, Serbia, Turkey, and Hungary. In some countries subtype B was predominant (e.g. Serbia, Slovenia, and Hungary), while in others the proportion of non-B subtypes was much higher (Albania subtype A, Romania

subtype F) (26). The slower post-highly active antiretroviral therapy progression of the mutational pattern of HIV-1 subtype F1 in long term survivors may also influence viral replicative fitness, a fact that can explain its steady prevalence in Romania (27). Phylogenetic reconstruction using the sequences and other publicly available global subtype F sequences showed that 79% of Romanian F1 sequences formed a statistically robust monophyletic cluster. Furthermore, phylogeographic analysis suggested that the root location of the parenteral epidemic was Bucharest (28).

Among the studies published in 2012, there is one in which the authors investigated the prevalence of subtype B. In this study, from 2003 to 2010, 71 patients (6.3%) were identified to be infected with subtype B strains (29).

THE ESTIMATES FROM WORLD HEALTH ORGANIZATION

The latest statistics developed by the World Health Organization (WHO) regarding Romania show the following: (1) HIV prevalence among adults aged 15-49 years is 0.1%, a low prevalence compared to other European countries; (2) antiretroviral therapy coverage among people with advanced HIV infection is 81%, a prevalence that places us first in Europe (30). The data from these statistics do not draw attention to Romania (31).

NEW CHANGES RELATED TO INFECTED PEOPLE

On October 31, 1990 WHO data indicated that a total of 298,914 AIDS cases with heterosexual transmission and vertical transmission from seropositive mothers to fetuses had been reported. There were 999 reported cases in Romania (32). Today there are few reports about heterosexual transmission. Paraschiv et al. identified 37 infected patients whose the main route of transmission for the adult subjects was by heterosexual contact (8).

A paper reports aimed to identify risk factors among MSM in Bulgaria, Kosovo, Macedonia and Romania. Risk behaviours identified were unprotected sex within multiple partnerships, inconsistent condom use and the use of oil-based lubricants that compromise the integrity of condoms (33). The first epidemiological data among men who have sex with men (MSM) appeared in Eastern Europe in 2009. The authors found that a much higher proportion of HIV cases in Central Europe are attrib-

uted to homosexual transmission than in Eastern Europe, although this proportion is on the rise in Eastern Europe (34). The most frequent route of infection identified in Romania was MSM transmission (39.6%). The authors reported that many of the patients acquired the infection abroad, mainly in Western European countries. Phylogenetic analysis indicated the presence of a local transmission network (monophyletic clade) including 14 patients, mainly MSM living in the Bucharest area. The authors of the study dated the origin of the local transmission network to the early 90s (29).

A significant increase of newly diagnosed HIV infections among injecting drug users (IDUs) during 2011 was reported to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) based on the information provided by routine monitoring and case reporting coordinated by the Romanian Ministry of Health (35). While three to five cases per year were reported from 2007 to 2009, HIV infections among IDUs increased to 12 cases in 2010 and to 62 cases in the first nine months of 2011. The cases reported in 2011 were mostly residents of Bucharest and the surrounding area (56/62), predominantly males (55/62), and younger than 34 years old (55/62). The employees of the European Centre for Disease Prevention and Control concluded that these indicated a potential risk for increased HIV transmission and future outbreaks unless adequate prevention was implemented (36).

SUGGESTIONS FOR IMPROVING THE SITUATION

Prevention activities have varied by region, from country to country, depending upon historical traditions and prevailing public health practices, social values and political priorities (37). Late diagnosis of HIV infection, between 15 and 38% of all HIV cases, represented one of the public health challenges in Europe. This reflects on the need to review surveillance and testing policies (38).

In Romania, the HIV epidemic was too high to ignore the fact that prevention programs seemed to work. Preventive measures were proposed after the first outbreak (39). However, a standardized protocol for the preclinical testing of adjuvants for AIDS vaccines was a priority task, after the HIV epidemic (40). In Eastern European nongovernmental organizations offered needle exchange (41). In February 2008, the National Administration of Penitentiaries and United Nations Office of Drug

and Crime Project Office in Romania officially launched the common initiative of introducing harm reduction measures for IDUs in three Romanian penitentiaries (42). One of the most important lessons learnt was the importance of teamwork and cooperation between the epidemiologists and clinicians involved in HIV/AIDS surveillance (43). Also, the close cooperation between the team of doctors and psychologists assisting the infectious patient, on the one hand, and specialists in other medical fields that interact with the patient, on the other hand, can enhance the quality of life of the HIV patient and maintain it at a comfortable level (44). In this regard, a recent study evaluated the adherence to antiretroviral treatment during adolescence and young adulthood. The authors noted that adherence is particularly associated with experiencing side effects and emotional distress, as well as perceptions of high treatment difficulty and time demands, low self-efficacy, low treatment efficacy and low treatment satisfaction (45).

In Romania, a new perspective in drug prevention was required (46) but evidence-based interventions to reduce transmission such as safe injection zones do not exist. The social and political context can serve to enable or disable a country to implement HIV policy. What are the resources for the implementation of these policies? **The Romanian Angel Appeal Foundation (RAA)** is launching an appeal to all political decision-makers, to the governmental and non-governmental sectors, asking

them to consider the **need to provide adequate funding from the national budget that will make it possible to continue the program to fight HIV/AIDS**. Over the past three years this program has been funded by the **Global Fund to Fight AIDS, Tuberculosis and Malaria**. The budget of this institution was approved by Emergency Ordinance of the Romanian Government no. 99 of 16 November 2011.

Health is a key component of human development (47). States have a duty to protect and provide for the health, life and safety of their people. There is a real need for states to fulfill their duties under international law and implement legislation decriminalising HIV/AIDS transmission (48).

CONCLUSIONS

HIV infection in Romania remains a major public health problem. HIV epidemic among children at the end of 1989 has left deep traces in the Romanian society. From a large number of children in the 1990s, today only in adults we find HIV infection. We found new cases, such as those among MSM, heterosexuals and injecting drug users. At political level, the setting up of public health programs for the integration into society of these people is required. At clinical level, there is a need to develop laboratory techniques to determine the subtypes and to monitor the evolution of these patients.

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