

THE INCIDENCE OF HIV INFECTIONS IN ARGES POPULATION IN 2012 - 2013

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Abstract

Human immunodeficiency virus (HIV) from Retroviridae family was isolated in early 80's but his presence in Africa is much older than we previously thought, before the pandemic spread because of the social changes of 70's (Cernescu, 1998).

The incidence of HIV infections is a constant concern for public health specialists, with inferences for whole population.

In this paper we presented the incidence of HIV infections in 2012/2013 period in Arges County, Romania. Studies were made in Laboratories of Public Health Department Arges. Immunoenzymatic methods were used for anti-HIV antibodies detection (Genscreen ULTRA HIV Ag-Ab kit from BIO RAD). The results of the immunoenzymatic tests were presented in order to age and gender of the tested people. New cases of HIV infection were 1.73% in 2012 and 1.10% in 2013 from all investigated samples. The positive samples were frequent in male population, and for 25 -34 years and 35-44 years age groups.

Prophylaxis is the best weapon in fight against HIV/AIDS. But the properly way to stop the spread of HIV infections may be the development of vaccine or drugs to stop progression to AIDS (Al-Jabri, 2007).

Keywords: HIV/AIDS, immunoenzymatic test, incidence

1. INTRODUCTION

The HIV (Human Immunodeficiency Virus) infections had origin in central Africa, where HIV was widespread, and the primate-to-man transfer was suspected from the beginning. The development of society, the social changes, the increased migration of people to cities, and moving of blood products for medical aims induced the worldwide spread of this virus (Gallo, 2006).

HIV was first isolated in 1983 by Françoise Barré-Sinoussi and his colleagues, from the patients with large lymph nodes, and the first cases of AIDS (Acquired Immune Deficiency Syndrome) in children were reported in 1982 in New York, New Jersey, San Francisco and Florida. In Romania the first case of HIV infection was diagnosed in 1985 (42 year old male patient) and the investigations were made in Vienna (Austria) by ELISA and Western Blot tests.

HIV is a retrovirus from Retroviridae family, and the acquired immune deficiency syndrome (AIDS) is the third stage of infection with this virus, characterized especially by opportunistic infections. The virus can be transmitted during any stage of infection, but especially during the first stage, acute HIV infection.

The cell-surface receptors for the human immunodeficiency virus were found on cells expressing CD4 antigen (Dalglish *et al.*, 1984). Also, some cell receptors may be used as a target for the specific drugs which can block the entry of virus in the host cell (Lusso, 2006).

Were elaborated many studies about the steps of HIV infections, the link between the HIV infection and some opportunistic infections emergence, the success of treatments with analogue reverse transcriptase inhibitors or protease inhibitors. For instance, it was been revealed the time between the first AIDS events and death for some patients, 6 - 19 months (Zwahlen and Egger, 2006), but nowadays this period can even increase to three years.

Romania was a special example of HIV epidemiology because of appreciable number of HIV infection in children between 1986 and 1991; now Romania has a low prevalence of HIV infection and a high survival rate of the infected people thanks to modern treatments (Șerban, 2013).

The prevention is the most important mean to control the spread of HIV infections. The people must know about the risk of infection, the most efficient prevention and control methods.

2. MATERIAL AND METHOD

This study was realised in 2012-2013 period in the Laboratory of Diagnostic and Investigation in Public Health, Department of Public Health, Arges County. 2154 people were investigated, 1155 during the year 2012 and 999 in 2013 (Table 1). The investigated people were men and women, from a few months to 85 years old.

The laboratory method consisted of immunoenzymatic reaction (ELISA) for anti-HIV antibodies detection (Genscreen ULTRA HIV Ag-Ab kit from BIO RAD). The sandwich immunoenzymatic test presumes using of purified antigens of HIV1 and HIV2 for detection of antibodies IgG, IgM or IgA from serum. The peroxidase-conjugated antigens and substrate (TMB - tetramethylbenzidine/peroxide) were used. The reaction was stopped with sulphuric acid (as a stop solution). The positive and negative control samples were used.

Absorbance measurements were made by spectrophotometer (wavelength range 450/620 - 700 nm) and the results were interpreted as positive or negative depend on absorbance average of control samples.

The confirmation of positive results as HIV infections must be done by Western blot test.

3. RESULTS AND DISCUSSIONS

The results of this study are presented in next figures and tables. The percentage of positive cases from 1155 samples in 2012 was 1.73%, and from 999 samples in 2013 was 1.10% (Figure 1 and Figure 2). Only 20 positive cases in 2012 and 11 positive cases in 2013 were found by immunoenzymatic test while in Europe the number of new cases of HIV infection in 2012 was over 55000.

The age and gender of patients were appreciated for positive cases (Figure 3 and Figure 4). The highest number of positive cases was determined in 2012 for 35 - 44 years old group (11 cases), other age group had been represented only by one positive case. The age groups 25 - 34 years old and 35 - 44 years old had the most numerous positive cases both in 2012 and 2013. These results suggest the HIV transmission especially by sexual contact.

Table 1. Samples investigated in 2012-2013 period

<i>Period</i>	<i>Number of investigated serum samples</i>	<i>Number of positive cases</i>
2012	1155	20
2013	999	11
Total	2154	31

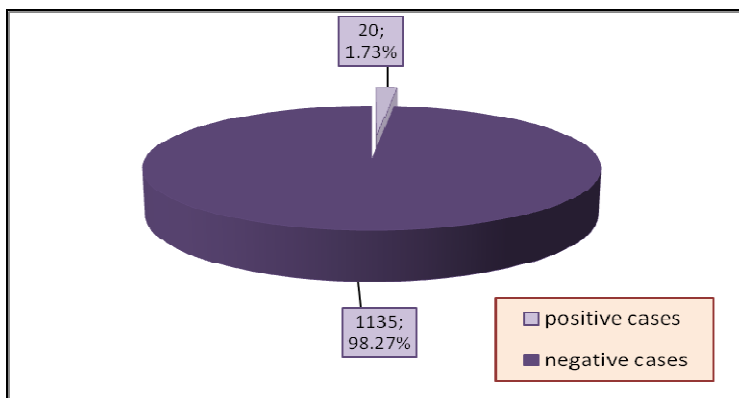


Figure 1. HIV positive cases in 2012

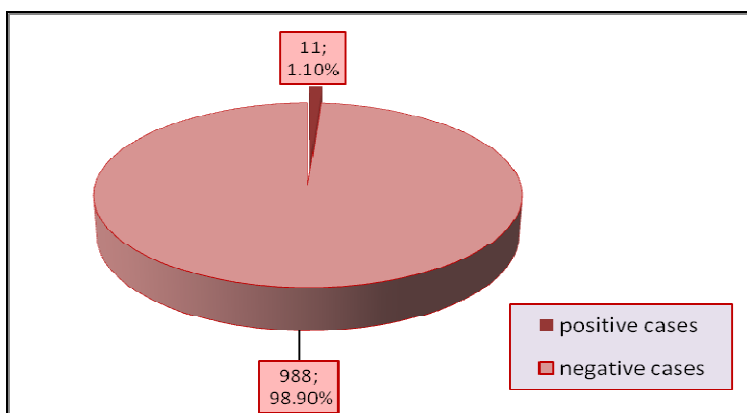


Figure 2. HIV positive cases in 2013

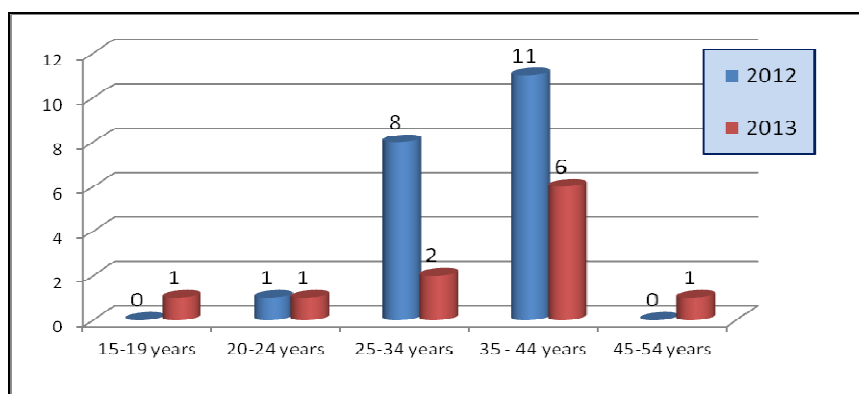


Figure 3. HIV positive cases according to patient's age

The highest number of positive cases was determined in male patients (12 cases in 2012 and 7 cases in 2013), according to general data for Romania, for instance, in 2013, 70% of new HIV infection were in male and only 30% in female patients (URL 1).

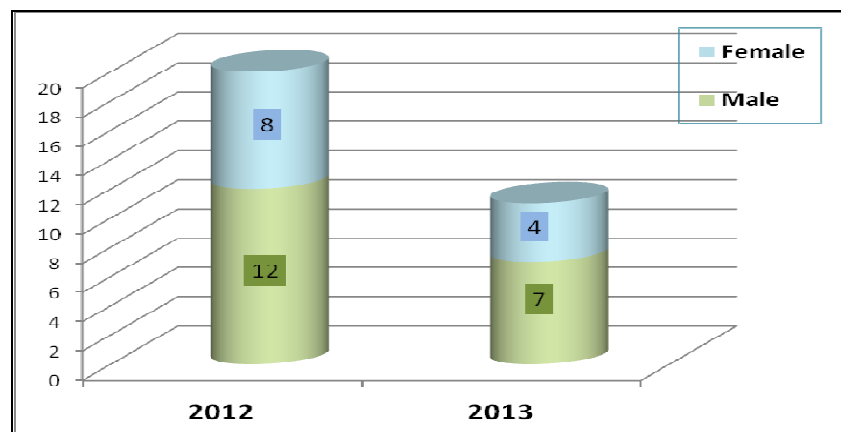


Figure 4. HIV positive cases according to patient's gender

4. CONCLUSIONS

In this study, 1.73% of 1155 samples and 1.10% of 999 samples were detected with anti-HIV antibodies, the value of HIV infection incidence was 3.14‰ in 2012 and 1.72‰ in 2013 for Arges County population (636643 inhabitants).

The infection was more obvious in young people (25-34 and 35-44 years old), the number of positive cases in male was higher than in female patients.

Although the number of new cases of HIV infection decreases, the HIV infection is an important concern for public health. The public education about the risk of infection, about the ways of HIV transmission will contribute to people's safety and the expectation of efficient treatment and vaccine will be matter of fact.

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