IISJ CZ-WNS
INTERNATIONAL INTERDISCIPLINARY SCIENTIFIC JOURNAL CZ-WNS
internationalscientificjournalnews.eu

Volume 5, pp. 26-38

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Reviews and research on HIV and AIDS in Poland in 1983-1993

Abstract

The aim of this paper is to present the history of research on HIV and AIDS in Poland on the basis of analysis of scientific publications from 1983-1993. At that time the unknown disease caused fear and social unrest. Worldwide research was conducted in a wide range of areas. Within ten years, the causative agent was detected, the principles of prevention were developed, new generations of people were raised in awareness of the risks associated with risky sexual contacts. Thanks to the awareness and diagnostic tests examining the genetic material of the virus, the prognosis of disease and epidemiological forecasts were changed. Modern retro viral drugs prolonged the carrier' life – from infection to full-blown AIDS. However, despite the passage of years and enormous progress in science, AIDS is still an incurable disease.

In Poland, due to the isolation of population associated with martial law and later with restrictions on migration – in the 80s of the 20th century, no epidemiological threat associated with HIV was observed.

Keywords: Disease, virus, epidemic, HIV, AIDS, history

Introduction

In the early 1980s, an unidentified disease was first described in the world medical literature, which mostly affected young men, caused immune system malfunction and led to death. The publications described cases of pneumonia caused by opportunistic microorganisms (e.g. Pneumocystis carninii) and the occurrence of Kaposi's sarcomas and others. In the cases described above, usually mild diseases led to severe conditions and death of patients [1].

The course and final stage of a disease called – AIDS acquired immune deficiency syndrome with its symptomatology was described in 1981 in the United States [2]. It was suspected that it was transmitted with blood. In 1983, the International Congress on Hemophilia was held in Stockholm, where the main topic was AIDS in hemophilia patients [3].

It is difficult to determine when the first cases of hemophilia occurred. The disease affecting young men was observed in the 70s of the 20th century in the United States and Europe. The first cases were described by the Disease Control Centre in 1979. Disease symptoms included: weight loss, night sweats, general weakness, joint and muscle pains, later generalized lymphadenopathy [3]. By the end of 1981, 159 cases of opportunistic infections, i.e. those that are not dangerous for patients with a well-functioning immune system, were reported, whereas in patients with immunological deficiency they lead to severe diseases

and/or death (Herpes zoster infections, toxoplasmosis attacking the central nervous system, generalized mycoses, etc.) [4].

In 1984, the agent causing the disease was unknown. Viral aetiology was suspected. It was only known that it was transmitted through sexual intercourse and blood, which was determined on the basis of an interview with patients (75% of homosexuals and bisexuals with multiple sexual partners, 16% of patients addicted to intravenous injection drugs). Statistics from the USA were reported, which showed that it spreads rapidly and doubles every six months [3]. By May 1983, 1480 cases had been reported in the United States and it was predicted that within two years the disease level would reach 20,000.

The first publications containing statistical data on the incidence of disease came mainly from the United States, later from Europe [3].

The first described cases of AIDS acquired immune deficiency syndrome concerned homosexual environments, which caused social unrest and stigma for many years. It should be clearly emphasized that the publications describing AIDS cases from Haiti and Africa provided different data. Patients from these regions of the world were mostly infected by heterosexual contacts. However, this was not relevant to the stigmatization and panic of the early 80s of the 20th century.

1. Infections by blood transfusion

The first case of transfusion-transmitted AIDS was described in 1982 in a child who had transfusion after birth due to a hemolytic disease. The blood donor later died of full-blown AIDS. Subsequent cases concerned haemophilia patients, which led scientists to assume that the infection was caused by blood products [4].

Hemophiliac patients quickly became the subject of research. Firstly, because the disease itself, without HIV infection, causes cellular

immune deficiency, and secondly, one of the earliest patients described (1982) with opportunistic infection Pnemocystis arninii was haemophiliac [5].

By March 1984, 33 patients with hemophilia had been diagnosed with full-blown AIDS in the United States. By June 1984, 20 patients had died. The symptoms and diseases causing deaths included pneumonia (Pneumocystis carnini, esophageal candidiasis, disseminated histoplasmosis, meningitis caused by fungi, pneumonia caused by cytomegalovirus, Mycobacterium avium infections and others) [5].

A retrospective analysis of the knowledge acquired in the 1980s showed that HIV was already present in the 1970s at the end of decade. The infection for a long time is asymptomatic, and the incubation period – from the virus infection to the first symptoms of AIDS – ranges from several months up to 5 or more years [5].

2. Etiology search

In the 80s of the 20th century, work on AIDS and HIV was carried out all over the world. In 1984 it was suspected that the disease was caused by an infectious agent, possibly a virus. Man was described as a reservoir of germs and a source of infection. The viruses that may affect the human immune system were listed – Cytomegalovirus, retrovirus, Epstein-Barra virus, Herpes simplex virus, human T-cell leukemia virus-1 [6].

A clinically similar disease had been observed in animals before – in the 60s of the 20th century. While searching for the agent causing AIDS in humans, animals were examined. Monkeys (Macaques) were diagnosed with a clinical image similar to that of humans. It also caused immune deficiencies and lymphocyte dysfunction. It was described in the primates already in 1969. Experiments on monkeys were also conducted.

Lymphomas present in Macaques were transplanted to healthy animals and the effect of lymphoma infection was obtained or full symptoms of AIDS were obtained. AIDS also occurred when healthy individuals were injected with a cell-free filtrate from these neoplasms [7].

It should be noted that experimental transplantation of neoplastic diseases to healthy individuals, animals and humans for scientific purposes has been used since the 19th century [8]. Particularly often seeking the etiology of neoplastic diseases. The theory of viral origin of leukemia was present in world medicine until the 1970s. Experiments were conducted with the participation of people who attempted to transplant leukemia [9].

Studies based on administering blood of infected animals to healthy animals in the 80s of the 20th century did not explain why some monkeys had developed lymphoma and others had full symptoms of AIDS. However, it encouraged further search for viral aetiology [7].

Analytical work was carried out on serum samples stored and frozen in laboratories around the world in search of the patient “0”, i.e. the one with whom the disease causing the epidemic began. It was found that HIV originated in West Africa and the first diseases and infections occurred in Africa most probably in the 50s of the 20th century [2].

3.Virus isolation

Many researchers in the world have been simultaneously working on viruses affecting the hematopoietic and immune systems of humans. HIV was detected almost at the same time by teams of scientists from France and America. Therefore, the dispute over the primacy of discovery lasted for many years [6].

The earliest HIV variant – Lymphadenopathy associated virus (LAV) – was isolated by the French under the leadership of Luc Montagnier in 1983 [10].

A few months later, American scientists, led by Robert Gallo, isolated the virus, which was marked HTLV-III (Human T-lymphotropic virus type III), but it was also proven to be associated with AIDS [11].

Another group of American researchers, led by Jay Levy, succeeded in isolating another ARV/AIDS – associated retrovirus in the same year [12].

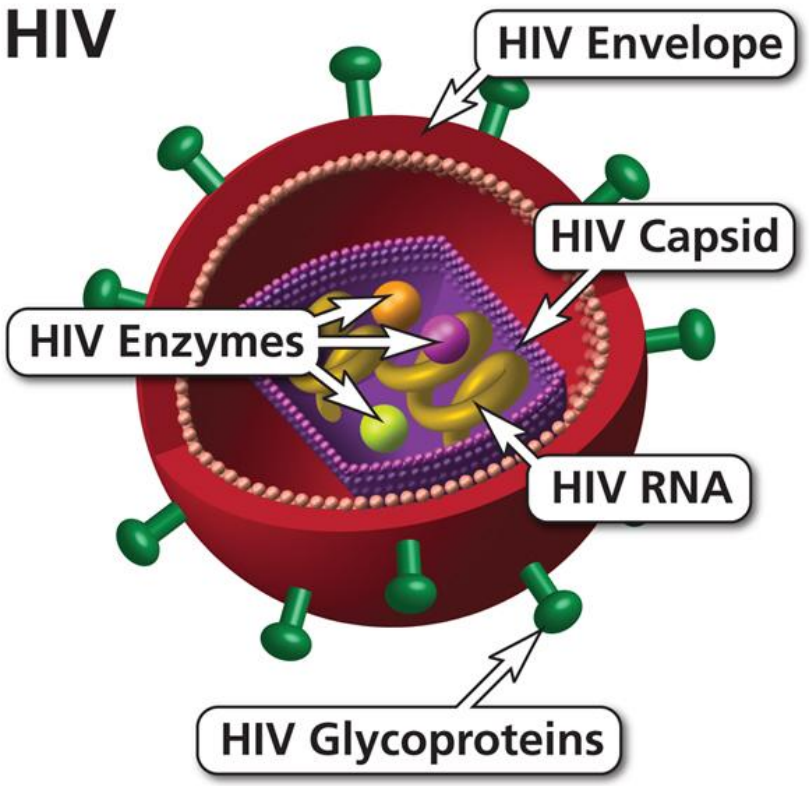

Figure 1. HIV structure chart; https://aidsinfo.nih.gov/understanding-hiv-aids/glossary/325/human-immunodeficiency-virus; access 6.03.2019

Isolation of the virus and the possibility of its culture (H-9, T lymphocytes), recognition of its biological properties, caused enormous progress in the development of diagnostic tests for infection detection.

Already in 1984, the United States introduced methods of physical inactivation of the virus during the production of clotting agent preparations in order to eliminate the risk of blood transmission [2].

In 1985 and 1986, both mentioned research teams – led by R. Gallo and Luc Montagnier isolated a second variant of the virus, which was similarly named as the previous ones: LAV-2 and HTLV-IV.

In 1986, the International Committee on Taxonomy of Viruses (ICTV) established a common name for the viruses that cause AIDS. The name is still valid today – HIV [13].

4. Epidemiology and epidemiological forecasts

The epidemic spreading rate in the United States has raised justified concerns. In 1988, an official publication of the CMKP (Medical Centre for Postgraduate Education) in Poland announced quotation: the number of infected people increases dramatically in almost all regions of the world, in the United States it is about 1.5 – 2 million (1987) and in other countries affected by the epidemic about 5-10 million. According to the WHO, last year in 104 countries of the world there were 50.000 AIDS cases reported, including 41.000 in the United States; in Europe, the highest number of AIDS cases was reported in France and Germany (author: West Germany – Federal Republic of Germany) [2]. By the end of 1988, 81433 AIDS cases had been reported to the World Health Organization (WHO) registry. It was written that the number of patients increases by 1 thousand cases per week. At the same time, it was speculated that the data were not reliable and the actual number of patients was 100-150 thousand [5].

It was suspected that the actual number of AIDS patients is higher than the published data, which for various reasons are underestimated. It was predicted that in 1991 the number of patients in the world would reach one million [5].

Table 1. Increase in AIDS incidence in the United States and Europe, data according to WHO

YEAR	EUROPE	U.S.
1980	57	22
1981	239	23
1982	747	82
1983	2124	263
1984	4569	559
1985	8406	1033
1986	12950	2344
1987	21173	4489
TOTAL	8815	50265

[Skotnicki A, B, Kornaszewski W, AAIDS origin, clinical image, treatment attempts, epidemiology, Ossolineum, Wrocław 1988, p. 139].

At the end of the 1980s, the incidence of AIDS and HIV infection in the United States and Europe was described mainly in groups at risk – homosexuals, drug addicts or haemophiliac patients. Despite the spread of this epidemic, the percentage composition of risk groups for AIDS was similar. In Africa, where in 1988 the incidence of half of the infected people in spreading routes was described, heterosexual contacts were mentioned [5].

5. Knowledge on AIDS and HIV, as well as research on the virus in Poland in the 80s of the 20th century

At the beginning of the 1980s, due to political and economic factors, as well as martial law, there could be no question of working on HIV in Poland. Physicians propagated knowledge about the new epidemic on the basis of foreign research and reports.

Due to the infections occurring among blood recipients, the research on AIDS and HIV was carried out by the employees of the Institute of Haematology in Warsaw [14]. Dermatologists were also lively interested in this disease, because they were visited by patients with symptoms suggesting AIDS, and they also conducted prophylaxis. The "Dermatological Review", a leading medical journal devoted to dermatological diseases, was one of the first in Poland to report a new, unknown disease in 1984 [15].

Physicians who went on internships abroad and were incorporated into research teams dealing with immune deficiency after returning to Poland announced their research and described practical experiences in the fight against this disease. It is worth mentioning here Prof. Aleksander Bartłomiej Skotnicki, who during his foreign scholarship in Washington in 1983 participated in research on T lymphocytes in people at risk of AIDS. He was incorporated into Prof. A.L. Goldstein's team at the Institute of Biochemistry of the G. Washington University. His research also included research on AIDS patients and the first attempts to treat the disease [5].

6. Diagnostic tests

An important problem was the inability to detect the virus in blood donated by blood donors, and the inability to detect the virus carrier in humans. In the first case, blood transfusion, commonly used as a life-saving procedure, became potentially fatal, in the second case, the inability to prevent the spread of epidemic through sexual intercourse.

A breakthrough was made thanks to the work of Robert Gallo, who developed an immunochemical test that allows a review of the presence of anti-HIV antibodies. This test was registered in the United States and Europe already in 1985. It quickly became an obligatory test for testing blood donors. The first tests detected anti-HIV antibodies on average 42 days after infection [4]. The window period, i.e. a period when the blood donor was infected, but the infection could not be detected and the carrier was relatively long.

The real diagnostic progress was made by testing the presence of virus genetic material. In Poland, it has been obligatory since 2005 for every donation of blood and blood components [4].

7. Legal and organizational regulations in Poland in the 80s of the 20th century

In 1985, the Minister of Health and Social Welfare of the People's Republic of Poland appointed Professor Jerzy Bończak to the position of AIDS Plenipotentiary.

Relatively late, compared to other European countries, in April 1987, the AIDS Council was established, which included scientists, physicians, representatives of the ministry and the mass media. The National Institute of Hygiene in Warsaw was appointed as a diagnostic centre, the Institute of Infectious and Parasitic Diseases

in Warsaw as a central treatment centre, the Institute of Haematology in Warsaw was obliged to ensure blood safety [5].

8. Treatment of AIDS and HIV in the 80s of the 20th century

In 1984, the "ineffectiveness" in the treatment of infections with known drugs was described. Attempts were made to treat the infections with interferon. Interferon aroused great hopes at that time. The attempts of treatment with Interferon gamma, tyrosine and interleukin 2 were observed and described [3].

In 1988, in Poland, the most commonly used dideoxinucleotide analog – 3'– Izydo-2'3'– dideoxytymidine – azidomidine (AZT, Retrovir, Zidovudine) was used for the treatment. The drug inhibits HIV replication in vitro. The report from the Medical Center for Postgraduate Education stated: two years of experience with AZT shows that in about 30% of patients this drug significantly increases the number of T4 lymphocytes, improves immune response, reduces the HIV antigen titre [2].

The same study reported on the use of Peptide T and Ampligen, Foscarnet, HPA-23, Interferon gamma and Interferon alpha. No benefits were reported after Interleukin 2 or bone marrow transplantation, thymus, lymphocyte transfusion, thymus hormone administration and isoprinazine administration [2]. From the moment the virus was isolated, work on the development of vaccine has continued.

Conclusions

On the basis of analysis of the source material and studies, it should be stated that shortly after the description of the first cases related to an unknown disease, the causative agent was isolated, risk groups were identified, organizational solutions were implemented, and institutions

were established that took interdisciplinary action to prevent its spread. Thanks to international projects, treatment schemes have been developed and the duration of carrier time has been extended – from infection to full-blown AIDS. The principles of prevention were developed, educational and awareness-raising activities were undertaken. Due to historical and political factors in Poland in the 80s of the 20th century no epidemiological threat was recorded.

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