Reasons for hospitalisation of HIV-infected patients in ICUs — a single-centre observational study

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Abstract

Background: There are no Polish data regarding the reasons for and incidence of ICU hospitalisations of HIV-infected patients. The aim of the study was to determine the reasons for and incidence of hospitalisations of HIV-infected patients in the Department of Anaesthesiology and Intensive Therapy of the Dr W. Biegański Regional Specialist Hospital in Łódź in the years 2010–2014.

Methods: Preliminary research enabled to identify all the patients with laboratory-confirmed HIV, including those hospitalised in the ICU. Patients’ medical records were analysed. Analysis involved epidemiological data, underlying diagnosis, coexisting diseases and conditions, as well as biochemical, hematologic, virusologic, bacteriologic, mycologic and immunologic tests.

Results: In the years 2010–2014, new HIV infections were diagnosed in 224 individuals; 8 of them required ICU hospitalization (10 hospitalisations) — 5 men (62.5%) and 3 women (37.5%). The age of patients ranged from 24 to 46 years. All the patients were diagnosed with AIDS. Three of them died. The patients with HIV constituted 1.30% of all patients hospitalised in the ICU over the period of 5 years.

Conclusions: Low number of HIV-infected patients hospitalised in the ICU in the years 2010–2014 was associated with low HIV incidence rates in the Łódź province and generally available modern antiretroviral therapy rather than restrictive admission policy. Reasons for admission as well as coexisting diseases and conditions, including opportunistic infections, of patients hospitalised in the ICU in 2010–2014 are similar to those in West European countries and the United Stated.

Key words: HIV infection, complications, opportunistic infections; AIDS; critical care
most common reason for ICU hospitalization of HIV patients was acute respiratory failure [5, 6]. At present, due to popularization of HAART, sepsis is an increasingly common reason for ICU admission [1]. Acute respiratory failure and Pneumocystis jiroveci-induced pneumonia, as the reasons for ICU hospitalisations, show a tendency to fall [1].

The literature lacks Polish data regarding reasons for and incidence of ICU hospitalizations of HIV-infected patients. Therefore, the aim of the study was to determine the reasons for and incidence rates of hospitalisations of HIV patients in the Department of Anaesthesiology and Intensive Therapy of the Dr W. Bieganski Regional Specialist Hospital (RSH) in Łódź in the years 2010–2014.

METHODS
The retrospective study design was approved by the Bioethics Committee of the Medical University of Łódź (RNN/673/14/KB). Based on preliminary research, all the patients whose diagnostic tests performed in the RSH in Łódź in the years 2010–2014 confirmed HIV infections were identified. Medical records of HIV-infected patients hospitalized in the ICU were analysed. Analysis involved epidemiological data, underlying diagnosis, concomitant diseases and conditions, as well as biochemical, hematologic, virusologic, bacteriologic, mycologic and immunologic tests.

RESULTS
In the years 2010–2014, HIV infections were diagnosed in 224 patients of the Regional Specialist Hospital in Łódź. Amongst those patients, 8 required ICU hospitalization (10 hospitalisations) — 5 men (62.5%) and 3 women (37.5%). Their age ranged from 24 to 46 years. All were diagnosed with AIDS. Three patients died. HIV-infected patients constituted 1.30% of all the patients hospitalised in the ICU in 2010–2014.

Detailed data regarding the diagnosis of sepsis, organ/system dysfunction and concomitant opportunistic infections in HIV-infected patients hospitalised in the ICU in 2010–2014 are presented in Table 1.

The selected laboratory results, information about retroviral therapy during hospitalization and outcomes of hospitalisation are presented in Table 2.

DISCUSSION
The reasons for ICU admission of HIV–infected patients and their survival have changed during recent decades. Until the mid-90 ties, respiratory failure associated predominantly with Pneumocystis pneumonia (PCP) was the main reason for ICU hospitalization of HIV patients associated with high mortality [5, 6]. Further studies, connected with the introduction of HAART, have demonstrated improved survival,
even amongst PCP patients [7, 8]. At present, respiratory failure is still the most common indication for ICU admission [9, 10], although PCP as a cause of respiratory failure is substantially less common. After the introduction of HAART, the number of hospitalizations related to AIDS decreased, while the incidence of sepsis as a reason for ICU admission increased [11]. Severe sepsis is the major risk factor of hospital mortality in the group of septic patients with HIV/AIDS, significantly affecting short- and long-term mortality. The mortality in this group was found to be more dependent on such factors as sepsis or increased organ/system dysfunction than on HIV/AIDS-associated factors, i.e. the level of resistance, use of HAART therapy or time from AIDS diagnosis [12].

To date, only a few studies evaluated prospectively the factors affecting survival of septic patients with HIV/AIDS [12]. Analysis of a large US database has revealed that septic patients infected with HIV are less frequently hospitalised in ICUs, compared to septic patients uninfected with HIV [13]. Despite markedly increased survival rates and improved quality of life, HIV/AIDS patients were consistently excluded from studies on sepsis, which significantly limits the understanding of sepsis in this population.

The course of disease and prognosis in HIV-infected patients are also affected by concomitant non-opportunistic infections, e.g. HBV, HCV or syphilis. HCV infections contribute to increased risk of death, in the presence of severe sepsis or otherwise [14] and are associated with increased risk of hospitalization and higher mortality [15, 16].

Since the number of HIV patients hospitalised in the ICU in the years 2010–2014 was small, statistical analysis was very limited.

 Patients with HIV infections constituted 1.3% of all patients hospitalized in the ICU. The data from the American and West European countries disclose that 5–12% of HIV patients are hospitalised in ICUs [17]. What was this low percentage in our ICU caused by? The ICU in the RSH in Łódź is part of the reference unit in case of necessary hospitalization of HIV/AIDS patients, and therefore each HIV/AIDS patient requiring hospitalization from the Łódź region is referred or transported to the RSH in Łódź. The data regarding the hospital in question are 90% identical with the data concerning the entire Łódź province.

In the years 2010–2014, the average annual incidence of HIV infections detected in the Łódź province was 1.9/100.000 individuals whereas the average annual AIDS incidence was 0.7/100.000 individuals. In recent years, the number of new HIV infections detected in Poland has been increasing. In 2012, their number remained comparable to that in 2011 yet about 30% higher than the average in the years 2006–2010. In 2012, the percentage of individuals with HIV detected simultaneously with AIDS decreased, as compared to 2011 [18].

Considering the above data as well as free and wide availability of HAART, it should be stated that the number of hospitalizations in the ICU of the RSH in Łódź seems to correspond to the number of HIV/AIDS individuals living in the Łódź province. The only alarming observation is the number of ICU hospitalizations in 2014. Such a significant increase in hospitalizations is difficult to explain.

The majority of HIV-infected patients hospitalised in our ICU in the years 2010–2014 had dysfunction of at least three essential organs/systems, the respiratory system, liver, clotting and circulatory system were predominantly affected. Moreover, half of hospitalizations was associated with the diagnosis of sepsis, severe sepsis or septic shock. The reasons for hospitalizations as well as concomitant diseases and conditions found in our patients, including opportunistic ones, correlate with the observations of other authors [5–11].
According to the current reports, the mortality in HIV-infected patients hospitalised in ITUs is about 30% [19]. A similar mortality was observed in our study. However, two facts are worth emphasising. All patients infected with HIV hospitalized in the ICU of the Regional Specialist Hospital in Łódź were diagnosed with AIDS. They were usually receiving early HAART. Compared to literature data from other centres, mostly American and European, where the percentage of patients with AIDS not receiving HAART does not exceed 40%, our findings are highly alarming.

CONCLUSIONS

1. A low number of HIV-infected patients hospitalised in the ICU of the Regional Specialist Hospital in Łódź was associated with a low HIV incidence rate in the Łódź province as well as widely available and free HAART rather than restrictive admission policy.
2. Reasons for admission, concomitant diseases and conditions, including the opportunistic ones, of HIV-infected patients hospitalised in our ICU are similar to those in the West European and American countries.

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References:


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