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ORIGINAL RESEARCH

Analysis of selected factors influencing mortality of patients with COVID-19 treated in a community hospital in a rural region of Poland

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ABSTRACT:

Introduction: Factors influencing mortality in patients with COVID-19 treated in a community hospital in a rural region in south-eastern Poland during the first and the second wave of the pandemic were analyzed.

Methods: A retrospective observational study based on a hospital-based registry of Holy Spirit Specialist Hospital in Sandomierz was conducted. The study population consisted of patients treated between 1 March 2020 and 31 May 2021.

Results: We analyzed data of 24 057 Caucasian patients including 798 patients with COVID-19. During both waves of the COVID-19 pandemic 22.4% of patients hospitalized in the community hospital in Sandomierz died due to COVID-19. The multivariate logistic regression model showed that older age ($p<0.001$), fever ($p<0.001$), diagnosis of sepsis ($p<0.001$) and high levels of C-reactive protein ($p=0.041$) were factors related to mortality. In the group of patients in whom oxygen therapy ($p<0.001$) and invasive mechanical ventilation ($p<0.001$) were used more frequently, mortality was higher, whereas treatment with convalescent plasma increased the chance of survival ($p<0.001$).

Conclusion: Fever and high laboratory values of inflammation, in particular coexisting sepsis, worsened the prognosis in patients with COVID-19. Most traditional methods of treating the infection did not affect the course of the disease.

Keywords:

community hospital, COVID-19, factor increasing mortality, pandemic, Poland.

FULL ARTICLE:

Introduction

The global pandemic of coronavirus disease 2019 (COVID-19) until May 2020 affected more than 60 million people with more than six million deaths[1]. The pandemic led to healthcare service–related behavioral changes and disrupted the function of healthcare systems in many countries. As a consequence, there was a reduction in specialist health services[2]. The pandemic also had significant implications for patients with various other diseases[3].

Most individuals with COVID-19 are asymptomatic or have mild symptoms; however, for some the disease is fatal. The pandemic was characterized by high morbidity and mortality, but it varied in severity in each country or region[4,5]. Elderly people, men, and those with comorbidities such as diabetes, obesity, hypertension and with most cardiovascular risk factors, suffer from COVID-19 most severely[6-8].

As in other countries, hospital wards and entire hospitals in Poland were designated for the treatment of patients infected with the SARS-CoV-2 virus, and later, due to a rapidly growing number of patients, special COVID hospitals were established. Over time, this system became inefficient and each region had to independently organize care for infected patients and patients with other diseases. Taking all this into account, published treatment results and mortality among COVID-19 patients should be approached with caution, as time from symptoms to diagnosis, treatment conditions and availability of drugs are not comparable[9-12].

In the present article, we investigate risk factors for COVID-19 deaths among patients treated in a community hospital located in a rural region in south-eastern Poland.

Methods

A retrospective observational study based on a hospital registry of Holy Spirit Specialist Hospital in Sandomierz was conducted. The hospital in Sandomierz is a community hospital located in a rural region. We defined our region as a micro area with an urban core of 25 000 inhabitants according to the Office of Management and Budget[13]. Sandomierz is a small town located in south-eastern Poland near the border between the European Union and Ukraine. The hospital consists of 20 departments including 14 departments providing a 24-hour service seven days a week and equipped with proper monitoring and diagnostic facilities. Six of them are surgical departments and in two of these endovascular procedures are performed. The hospital in Sandomierz was not specifically dedicated to the treatment of patients with COVID-19 during the pandemic; patients with all diseases, including COVID-19, were admitted. The number of patients in all regions was so large that the infectious diseases hospitals, and hospitals specially constructed to treat COVID-19 patients, were unable to admit all those in need. Therefore, patients with COVID-19 had to be treated in our community hospital.

The emergency department (ED) physician examined each patient at the time of admission, and decided on consultations required by other specialists. During medical examinations, patients were interviewed about comorbidities and medications, and basic vital functions were assessed. The ED physician, alone or together with a specialist physician, decided which ward to refer the patient.

Laboratory exams evaluated inflammatory processes, coagulation status and ECG in all patients. Where needed, X-ray, CT, MRI and ultrasonography were performed. These laboratory and radiological examinations were repeated during hospitalization, if necessary. All results were available for all evaluated patients.

At the beginning of the first wave of pandemic we did not have any tests to detect infection. Only later in the pandemic did the hospital have antigen tests and antibody level tests. During the time of limited availability of diagnostic tests, only selected patients suspected of being infected with the virus SARS-CoV-2 had the test performed upon admission to the hospital, or at the time of suspicion of infection during hospitalization. After diagnostic tests became widely available, all patients admitted to the hospital have been tested. All patients included in this retrospective study were tested for COVID-19 using RT-PCR.

In our study, we did not take into account the impact of vaccinations on mortality, because in our region vaccinations started late and at the beginning of the vaccination campaign they were not considered acceptable by the public. Therefore, the number of vaccinated people was marginal.

Definition of patients with SARS-CoV-2

At the beginning of the pandemic, patients were enrolled in the study based on clinical symptoms. As the pandemic progressed, only patients with a positive test on admission or during hospitalization were included in the study group.

Definition of sepsis

Sepsis was defined as life-threatening organ dysfunction caused by a dysregulated host response to infection, identified as an acute change (≥2 points) in total Sequential Organ Failure Assessment score in response to the infection. Patients with a diagnosis of sepsis met the criteria of systemic inflammatory response syndrome[14].

Methods of treatment

Patients infected with SARS-CoV-2 were treated according to the standard of infection management, with antipyretics, steroids, painkillers and antibiotics. The first antibiotic was used empirically, and subsequent ones were used according to the results of bacteriological tests. Oxygen therapy and/or invasive mechanical ventilation in patients with respiratory failure were used. In more than 12% of patients convalescent plasma and (in some patients) the antiviral drug remdesivir were administered.

Study population

The study population consisted of 24 057 Caucasian patients including 798 patients with COVID-19 (51% males, mean age 67.6±16.5 years) consecutively hospitalized between 1 March 2020 and 31 May 2021 in our hospital, of whom 179 died (22.4% of patients with a diagnosis of COVID-19). The study included pediatric patients.

Statistical analysis

This study was based on a retrospective database analysis. Data gathering and characteristics were performed using Microsoft Excel, statistical analysis was performed with STATISTICA v9.1 (Statistica; https://statistica.software.informer.com/9.1 [https://statistica.software.informer.com/9.1] and StatSoft Polska; https://www.statsoft.pl/statistica-91 [https://www.statsoft.pl/statistica-91]) and R v.4.1.3 (R Project; https://cran.r-project.org/bin/windows/base/old/4.1.3 [https://cran.r-project.org/bin/windows/base/old/4.1.3]) implemented in RStudio 2023 v06.1 (Posit Software; https://dailies.rstudio.com/version/2023.06.1+524 [https://dailies.rstudio.com/version/2023.06.1+524]). All continuous variables were tested for a normal distribution and equality of variances. Because of the non-normality of the variables, non-parametric Wilcoxon–Mann–Whitney *U*-tests were used to perform the univariate analysis of the continuous variables. Categorical data was compared using Pearson's c^2 tests; *p*-values less than 0.05 were considered statistically significant. The multivariate analysis was performed using multiple logistic regression models in R for those factors identified in the univariate analysis with *p*-values less than 0.01. Each model was created by carrying out preliminary tests for correlations among predictor variables, for multicollinearity problem exclusion.

Ethics approval

The Ethics Committee of Jan Kochanowski University in Kielce approved all analytical data (number 9/2023).

Results

During the first and the second waves of the COVID-19 pandemic 22.4% of patients hospitalized in the community hospital in Sandomierz died. In univariate analysis a group of patients who died was characterized by older age; greater likelihood of being female; infection of virus SARS-CoV-2 confirmed only during hospitalization; previous myocardial infarction; previous or ongoing neoplastic disease; concomitant chronic kidney disease and other chronic disease; diagnosis of fever, pneumonia, sepsis or pulmonary embolism during hospitalization; and diagnosis of low levels of hemoglobin, high white blood cells, creatinine, D-dimer, activated partial thromboplastin time, C-reactive protein or procalcitonin on admission (Table 1).

Patients who died were more frequently treated with oxygen therapy, invasive mechanical ventilation, steroids and three or more antibiotics, and less frequently were treated with only one antibiotic and convalescent plasma (Table 2).

The multivariate logistic regression model showed that older age, diagnosis of fever and sepsis, and high levels of C-reactive protein, were factors related to mortality (Table 3). The group of patients in whom oxygen therapy and invasive mechanical ventilation were used more frequently, had higher mortality rates, whereas treatment with convalescent plasma increased the chance of survival (Table 4).

Table 1: Clinical characteristics by COVID patient subgroup (survived/died), Holy Spirit Specialist Hospital in Sandomierz, Poland, 1 March 2020 to 31 May 2021

Variable		All	Survived	Died	*p*-value
Total, *n* (%)		798 (100)	619 (77.6)	179 (22.4)	
Demographic data					
	Age (years), mean±SD	67.6±16.5	65.3±17.0	75.7±11.9	<0.001***

	Male gender, *n* (%)	407 (51.0)	312 (76.7)	95 (23.3)	<0.001***
Timing of diagnosis, *n* (%)					
	COVID-19 confirmed before hospitalization	160 (20.1)	131 (21.2)	29 (16.2)	0.176
	COVID-19 confirmed on admission	365 (45.7)	288 (46.5)	77 (43.0)	0.456
	COVID-19 confirmed during hospitalization	281 (35.2)	205 (33.1)	76 (42.5)	0.027*
	Number of days of hospitalization, median (IQR)	11 (11)	11 (11)	13 (16)	0.386
Concomitant disease, *n* (%)					
	Arterial hypertension	453 (56.8)	353 (57.0)	100 (56.0)	0.849
	Stroke	35 (4.4)	22 (3.6)	13 (7.3)	0.054
	Myocardial infarction	56 (7.0)	37 (6.0)	19 (11.0)	0.049*
	Neoplastic disease	51 (6.4)	26 (4.2)	25 (14.0)	<0.001***
	Obstructive pulmonary disease	47 (5.9)	32 (5.2)	15 (8.4)	0.154
	Diabetes mellitus treated with insulin	170 (21.3)	129 (21.0)	41 (23.0)	0.624
	Diabetes mellitus treated without insulin	16 (2.0)	14 (2.2)	2 (1.1)	0.560
	Chronic kidney disease	120 (15.0)	64 (10.3)	56 (31.2)	<0.001***
	Other chronic disease	326 (41.0)	231 (37.3)	95 (53.1)	<0.001***
In-hospital complications of treatment, *n* (%)					
	Fever	318 (39.9)	209 (33.8)	109 (60.9)	<0.001***
	Pneumonia	556 (69.7)	409 (66.1)	147 (82.1)	<0.001***
	Sepsis	155 (19.4)	89 (14.4)	66 (36.9)	<0.001***
	Pulmonary embolism	18 (2.3)	10 (1.6)	8 (4.5)	0.048*
Laboratory findings on admission, median (IQR)					
	Hemoglobin (g/dL)	13.2 (2.8)	13.3 (2.55)	12.5 (3.075)	<0.001***
	White blood cells ($\times 10^9$/L)	8 (5.5)	7.4 (4.75)	9.9 (6.55)	<0.001***
	Platelets ($\times 10^9$/L)	210 (112)	207 (109)	223 (123.5)	0.498
	Glucose (mmol/L)	6.8 (2.9)	6.75 (2.625)	7.15 (2.825)	0.127
	Creatinine (µmol/L)	87.25 (47.55)	83.0 (34.7)	114.2 (111.5)	<0.001***
	Fibrinogen (mg/dL)	415 (241)	415 (229.5)	432 (231)	0.671
	D-dimer (ng/mL)	1084 (1529)	927 (1180.25)	1663 (3528.5)	<0.001***
	Activated partial thromboplastin time (s)	31.7 (8.8)	31.5 (8.3)	32.1 (11.5)	0.025*
	C-reactive protein (mg/L)	49.6 (105.025)	43.4 (98)	86 (132.6)	<0.001***
	Procalcitonin (ng/mL)	0.1 (0.26)	0.07 (0.15)	0.27 (0.73)	<0.001***

*p<0.05, **p<0.01, ***p<0.001
IQR, interquartile range. SD, standard deviation.

Table 2: Impact of method of treatment by COVID patient subgroup (survived/died) on survival, Holy Spirit Specialist Hospital in Sandomierz, Poland, 1 March 2020 to 31 May 2021

Method of treatment, *n* (%)	All	Survived	Died	*p*-value
Oxygen therapy	509 (63.8)	355 (57.4)	154 (86.0)	<0.001***
Invasive mechanical ventilation	63 (8.1)	10 (1.6)	55 (30.7)	<0.001***
Therapy with one antibiotic	321 (50.2)	252 (53.4)	69 (41.3)	0.010*
Therapy with two antibiotics	235 (36.8)	179 (37.9)	56 (33.5)	0.359
Therapy with three or more antibiotics	83 (13.0)	41 (8.7)	42 (25.2)	<0.001***
Steroids	521 (65.2)	389 (62.8)	132 (73.7)	0.009**
Remdesivir	7 (0.9)	5 (0.8)	2 (1.1)	0.999
Convalescent plasma therapy	137 (17.1)	121 (19.5)	16 (8.9)	0.001**

*p<0.05, **p<0.01, ***p<0.001

Table 3: Multivariate logistic regression model showing factors associated with mortality in COVID patients, Holy Spirit Specialist Hospital in Sandomierz, Poland, 1 March 2020 to 31 May 2021

Variable	Mortality			
	OR	95%CI		*p*-value
Age	1.05	1.026	1.075	0.0
Male gender	1.37	0.799	2.33	0.254
COVID-19 confirmed during hospitalization	1.55	0.84	2.85	0.160
Coronary heart disease	1.17	0.65	2.104	0.600
Neoplastic disease	2.32	0.85	6.34	0.099
Chronic kidney disease	1.2	0.53	2.72	0.660

Other chronic disease	0.61	0.33	1.12	0.110
Fever	3.18	1.83	5.53	<0.001***
Pneumonia	0.96	0.42	2.20	0.920
Sepsis	2.93	1.72	4.99	<0.001***
Pulmonary embolism	1.82	0.42	7.85	0.423
Hemoglobin (g/dL)	0.99	0.87	1.12	0.836
White blood cells ($\times 10^9$/L)	1.00	0.99	1.003	0.866
Creatinine (μmol/L)	1.002	0.999	1.005	0.138
D-dimer (ng/mL)	1.00	0.99	1.00	0.520
Activated partial thromboplastin time (s)	1.014	0.99	1.031	0.107
C-reactive protein (mg/L)	1.003	1.00	1.005	0.041*
Procalcitonin (ng/L)	1.006	0.98	1.032	0.633

*p<0.05, **p<0.01, ***p<0.001
CI, confidence interval. OR, odds ratio

Table 4: Multivariate logistic regression model showing method of treatment associated with survival in COVID patients, Holy Spirit Specialist Hospital in Sandomierz, Poland, 1 March 2020 to 31 May 2021

Variable	Survived			
	OR	95%CI		*p*-value
Oxygen therapy	0.27	0.16	0.46	<0.001***
Invasive mechanical ventilation	0.054	0.025	0.12	<0.001***
Therapy with one antibiotic	0.74	0.49	1.12	0.150
Therapy with three or more antibiotics	0.55	0.28	1.05	0.069
Steroids	1.25	0.77	2.001	0.367
Convalescent plasma therapy	3.34	1.73	6.47	<0.001***

*p<0.05, **p<0.01, ***p<0.001
CI, confidence interval. OR, odds ratio

Discussion

The systematic analysis by the COVID-19 Excess Mortality Collaborators suggested that the highest COVID-19 excess mortality rates were observed in Andean Latin America, Eastern Europe and Central Europe. The authors also suggested that the complete impact of the pandemic was much greater than what has been suggested in official statistics[15]. The region in which we conducted the observational study is located in south-eastern Poland, a region classified according to the above analysis as a region with high mortality. According to data provided by Statistics Poland, in 2020 COVID-19 caused 41 442 deaths, representing about 8% of all deaths in Poland and nearly 60% of the increase in mortality[16,17]. According to data from the register of the National Institute of Public Health in Poland, covering 8840 COVID-19 cases of hospitalization in Polish hospitals reported between February and September 2020, 11.7% of patients died[18]. For patients admitted to two hospitals in northern Poland and diagnosed with COVID-19 between October 2020 and May 2021 the in-hospital mortality rate was 26% across all patients[19].

The results of the present study show that during the first two waves of COVID-19 pandemic 22.4% patients hospitalized in Sandomierz died due to COVID-19. Reports of in-hospital mortality from different countries and medical centers during the pandemic varied. The first information about in-hospital mortality of patients infected with SARS-CoV-2 came from China's Jinyintan Hospital and Wuhan Pulmonary Hospital, where 28.2% of patients died[3]. A single-center retrospective analysis of 28-day outcomes of consecutive adult inpatients with PCR-confirmed COVID-19 from 31 January to 16 April 2020 at the Newcastle upon Tyne Hospitals NHS Foundation Trust showed a mortality rate of 26.2%[20]. Mortality among COVID-19 patients hospitalized in a single transregional hospital in Cameroon between 18 March and 13 June 2020 was 22.2%[21]. Among those admitted to an urban teaching hospital during the first weeks of the COVID-19 pandemic in Glasgow, 23% died[22]. The death rate was 17% among 2491 adults hospitalized with PCR-diagnosed COVID-19 between 1 March and 2 May 2020 in 154 acute-care hospitals in 74 counties in 13 states of the US[23].

The authors of some studies have drawn attention to the different percentages of deaths among COVID-19 patients for individual months of the pandemic[24]. In some countries and individual centers, in-hospital mortality rates were very high, as exemplified by Brazil where the total in-hospital mortality was 37%[25] and in hospitals in South Arabia where Alharthy et al reported a 28-day mortality rate of 32.1%[26]. The influence of race and ethnicity on in-hospital mortality in COVID-19 patients has also been noted. African-American, Hispanic, Asian and Pacific Islander patients died more often than Caucasian patients[25,27]. In the meta-analysis by Subramaniam et al, evaluating the data of 25 studies reporting on 34 628 patients, 26.2% patients died within 30 days of hospitalization[28].

In most reports of in-hospital mortality in patients infected with SARS-CoV-2, the patients who died were older, male and had more serious comorbidities[28]. In our study group, patients who died were also older, had comorbidities such as neoplastic disease, chronic kidney disease and myocardial infarction, but more often they were female. We also showed that patients diagnosed with SARS-CoV-2 infection during hospitalization died more often. These patients were admitted to hospital due to other diseases, and a preliminary analysis of their symptoms did not lead to suspicion of COVID-19. However, after the introduction of testing the number of available tests allowed for testing only patients with

suspected SARS-CoV-2 infection. This probably led to late diagnosis and initiation of treatment. However, these results were not confirmed in multivariate regression analysis.

The most common clinical symptoms observed in patients infected with SARS-CoV-2 included fever and cough[29,30]. In the presented study, fever was the factor influencing mortality. Choron et al found that fever and hyperthermia associated with fever were predictors of in-hospital death in COVID-19 patients treated in ICUs in New Jersey in the US[31]. Khatri et al estimated that 49.3% of patients with fever in hospitals in western Nepal required ICU admission and 19.9% died[32]. Konya et al indicated high fever on admission as a risk factor for mortality[33]. There were also published results of studies reporting no relationship between fever and death[34], and studies suggesting that fever reduced mortality[35]. Ding et al pointed out the negative impact on increasing temperature in critically ill patients with early fever as an independent risk factor of mortality[36].

Bacterial coinfection and secondary bacterial infection increase severity and risk of death in COVID-19 patients. We think that this is due to an adaptive immune response to viral infection, which disrupts the host's previous resistance to bacterial infection[37]. In the critical stage of the disease, patients with COVID-19 present multiple organ dysfunction syndrome, coagulopathy and septic shock[14,38]. In our data, sepsis was a factor related to mortality. This adverse effect of severe bacterial coinfections had been confirmed in many observational studies and meta-analyses[39-42]. Bauer et al presented that the 30-day mortalities for sepsis among patients were 26.50% in Germany, 23.85% in Europe (excluding Germany) and 19.58% in North America[43]. Among 7029 deaths from COVID-19 in Brazil in 2020, the most frequent cause was sepsis (33.4%)[44].

Another factor associated with in-hospital mortality in the presented group of patients was the high level of C-reactive protein (CRP) on admission to hospital.

CRP as an indicator of systemic inflammatory response is strongly associated with critical illness and mortality in COVID-19. CRP levels can be used to distinguish groups of patients with sepsis. Such an important role of CRP in predicting the course of the disease has been demonstrated in many studies[45-47]. Milenkovic et al, based on the results of tests of 318 patients with COVID-19, determined the level of CRP at or above which in-hospital mortality can be predicted to be 81 mg/L[48]. A systematic review by Izcovich et al, conducted on the basis of laboratory test data from 176 studies, indicated high CRP on admission to the hospital as one of the most important laboratory variables predicting a severe course of COVID-19 and mortality[49].

In the initial period of the pandemic, the management of patients in each hospital was based on the principles of treating severe infections. Later, when recommendations appeared systematically, the availability of recommended drugs varied. Our findings on the lack of effects of oxygen therapy and invasive mechanical ventilation were mainly because these methods were used in more seriously ill patients. We only point to the beneficial effect of convalescent plasma observed in our group of patients. The results of randomized controlled trials evaluating the use of convalescent plasma in infected patients are inconsistent: this method of treatment was reported as partly beneficial[50,51], but the results of most studies were negative[52-56].

Meta-analysis by Jorda et al showed that treatment with convalescent plasma, compared to the control group, did not stop progression of COVID-19 and did not reduce the risk of death, regardless of disease severity and baseline antibody status[57].

The present study has significant limitations. First, it was a single-center observational study. Although data collection was conducted in a prospective study, the analysis was retrospective. Second, the study mainly analyzed the routine epidemiological and clinical data of COVID-19 patients. Third, the analysis included all patients with viral infection by SARS-CoV-2: those admitted as infected and those who became ill in the hospital. Separate analyses depending on the severity of the course of the disease, including patients treated in the ICU, were not performed. The population of the study consisted only of Caucasian patients. Fourth, the data on deaths covered only the period of hospitalization. Fifth, vaccinations were not included in the analysis for reasons described earlier.

It should be emphasized that it was very difficult to assess the effectiveness of COVID-19 therapy in an observational study, as the methods of treatment changed over time and it would have been difficult to identify systematic groups of patients. In addition, the availability of new treatments varied by country, region and hospital categorization.

Based on our results, we suggest that in patients with COVID-19 treated in a community hospital in a rural region, older age, fever and high laboratory values of inflammation, in particular coexisting sepsis, worsened the prognosis. Most of the traditional methods of treating the infection did not affect the course of the disease, and only the use of convalescent plasma increased the chance of survival. However, the last conclusion should be approached critically, due to the reservations given in the limitations of the study. It should be noted that the blood collected from convalescent patients and the preparation of the plasma took place in our hospital and the patients received the plasma without unnecessary delay, which could have contributed to the favorable treatment results.

During the first waves of the pandemic, we had no experience in diagnosing and treating patients infected with the SARS-CoV-2 virus, and we did not know the risk factors for the development of this serious clinical condition of patients, which meant that our procedures were often insufficient or even incorrect. For these and other reasons global adult mortality rates markedly increased during the COVID-19 pandemic in 2020 and 2021 worldwide[15,58]. Patients with severe clinical manifestations of COVID-19 presented and still constitute particular diagnostic and management challenges to physicians, including identifying and responding to concurrent coinfections. We currently know that severe and critical COVID-19 are risk factors for bacterial coinfection, and critical COVID-19 is also related to secondary infection[37-42]. Bacterial infections are significant risk factors for mortality in patients with COVID-19, especially leading to sepsis, and mortality from severe disease is significantly higher in older patients and those requiring mechanical ventilation[59]. The results of studies assessing fever as a risk factor for mortality in patients infected with SARS-CoV-2 are inconclusive[31-35]. Despite the growing knowledge about SARS-CoV-2 and experience in treating COVID-19, vaccines are of the

greatest importance in the fight against the pandemic, while methods of treating patients in serious and critical conditions are not always effective[60].

Due to recurrent waves of illness caused by the SARS-CoV-2 virus, the decreasing population of vaccinated people and the emergence of new variants of the virus that change the symptoms of the disease, we are still dealing with patients in serious conditions, with concomitant sepsis leading to death. Therefore, when COVID is suspected, paying attention to the occurrence of fever and an increase in laboratory markers of inflammation at the earliest possible stage of the disease, especially in the elderly, should be a signal to implement treatment as soon as possible to prevent the development of concomitant infections, which may lead to deterioration of a patient's condition.

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Conflicts of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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