

SEPSIS WITH ORAL ENTRY GATE IN IMMUNE DEPRESSED PATIENTS - A CHALLENGE TO CURRENT MEDICAL PRACTICE

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Abstract

Sepsis occurs especially in people with a compromised immune system. Hosts become immunocompromised by chronic conditions, HIV, neoplasms, diabetes, as well as immunosuppressive and cytotoxic treatments. This first research direction aims at conducting an etiopathogenic study on a representative group of patients diagnosed with severe sepsis with oral gateway, following the prevalence and incidence of each clinical entity in the corroborative context of a range of factors influencing the final results, outlining with the real image of a complex pathology on the territory of Moldova is very accurate, aspects with a profound impact in the therapeutic approach both for severe sepsis and for the prophylactic methods of oral pathology. For the clinical study, a representative group of patients was studied: 94 patients hospitalized in the Galați Infectious Diseases Clinic between 2018 and 2019. Patients included in the study group, anchored in the territory of immunosuppression, have a general condition affected by: diabetes mellitus, chronic hepatitis, liver cirrhosis, alcoholism, neoplasms, chronic renal failure, anemia. Age is an important factor in the evolution of sepsis. This study also highlighted a phenomenon described in the literature, namely that there is an increased incidence of sepsis in patients of extreme age.

Keywords: *sepsis; oral entry gate; immunocompromised patient.*

Introduction

The complexity of severe sepsis pathology lies in a plurivalent factor accumulation, the etiopathogenic individualization of each side is a targeted therapeutic approach. The correlation of the clinical examination with the paraclinical evaluations detects the triggering causes of the entire pathogenic area of the sepsis of the immunocompromised patient, the prevalence of such disorders is a clinical reality frequently encountered in practical activity [1-3]. The impact of severe sepsis with the oral entrance gate on the general condition of the patient is an eloquent plea for the realization of well-conducted prophylactic methods corroborated with a targeted approach in the oro-maxillo-facial territory [4-8].

Sepsis occurs especially in people with a compromised immune system. Hosts become immunocompromised by chronic conditions, HIV, neoplasms, diabetes, as well as immunosuppressive and cytotoxic treatments. The compromise of the immune system can also occur as a result of the application of new, invasive technologies to investigate or support life (organ transplant technology) but also due to the phenomenon of aging population, malnutrition and alcoholism [9-14].

This first research direction aims at conducting an etiopathogenic study on a representative group of patients diagnosed with severe sepsis with oral gateway, following the prevalence and

incidence of each clinical entity in the corroborative context of a range of factors influencing the final results, outlining with the real image of a complex pathology on the territory of Moldova is very accurate, aspects with a profound impact in the therapeutic approach both for severe sepsis and for the prophylactic methods of oral pathology.

Materials and method

For the clinical study, a representative group of patients was studied: 94 patients hospitalized in the Galați Infectious Diseases Clinic between 2018 and 2019. Patients included in the study group, anchored in the territory of immunosuppression, have a general condition affected by: diabetes mellitus, chronic hepatitis, liver cirrhosis, alcoholism, neoplasms, chronic renal failure, anemia.

Results and Discussion

The statistical study began with a descriptive demographic processing of the chosen sample. The first criterion was the distribution by year of the cases studied.

In the period 2018-2019, there were 94 cases of severe sepsis with oral or possibly oral gateway in immunocompromised patients. Of these, 40 cases were registered in 2018 and 54 cases in 2019 (Table 1).

Table 1. Distribution of cases according to the study year

		Frequency	Valid Percent (%)	Cumulative Percent
Year	2018	40	42.6	42.6
	2019	54	57.4	100.0
	Total	94	100.0	

The incidence of sepsis by year of study is 43% in 2018 and 57% in 2019. This study shows an increase in sepsis by 14%. This confirms the evolution rising incidence of sepsis worldwide. The relatively small number of patients diagnosed with sepsis in this study is due to the imposed selection criteria we listed above.

The study included 94 patients aged 2 to 89 years of age. Most of them were adults.

Our analysis shows that most patients were adults between the ages of 25 and 65 and over 65. In the extreme age category there were 6 patients aged between 0 and 5 years and 11 patients over 65 years (between 66 and 89 years). The age distribution was as follows: 8 patients aged between 0 and 15 years, representing 8.5% of the total, 5 patients aged between 15 and 25 years, representing 5.3% of the total, 53 patients with aged between 25 and 65 years representing 56.4% of the total and 28 patients over 65 years, representing 29.8% of the total.

Age is an important factor in the evolution of sepsis. This study also highlighted a phenomenon described in the literature, namely that there is an increased incidence of sepsis in patients of extreme age. The diagnosis of sepsis is diagnosed at any age. In the histogram representing the distribution of sepsis by age, this is highlighted, but we must take into account the fact that due to the selection criteria of the patients in this study the number of those of extreme age is small and 8 cases of children aged between 0 and 15 years and 28 cases over the age of 65. Thus the histogram represents an increased frequency of sepsis in adults and the elderly.

The study of 94 patients showed that sepsis was more common in males than in females. This is not only due to comorbidity but also to the inappropriate lifestyle better expressed in male patients (alcoholism, chronic smoking).

In absolute terms, of the 94 patients, 60 were men and 34 were women. In terms of frequency, the sex distribution of sepsis shows a predominance of males of 63.8% over females, which is only 36, 2%. By the analytical statistical method different correlations were established between the obtained data. Thus, a direct correlation was identified between patients with sepsis and the patient's sex, as well as chronic ethanolism and chronic smoking.

Of the 94 patients, 64% are male and 21.6% (23 patients) are chronic alcohol users and 15% (16 patients) suffer from chronic smoking).

There is a predominance of sepsis in males more exposed to chronic ethanolism than females. Underweight or obese patients had an increased risk of sepsis, which was highlighted by this study by statistically processing the body mass index. The frequency study shows that of the 94 patients, most of them, i.e. 52%, have problems with their body mass index. Thus, 12% were underweight, 33% were overweight and 7% were obese. Only 48% had a normal weight. This confirms the increased risk of sepsis in obese or underweight people.

Another demographic aspect that we discussed was the distribution of patients according to their background.

The distribution according to the environment of origin attests to the fact that the incidence of sepsis is higher in urban areas (50 patients) than in rural areas (44 patients).

Table 2. Distribution of cases by area of origin

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percentage (%)
Urban	50	53.2	53.2	53.2
Rural	44	46.8	46.8	100.0
Total	94	100.0	100.0	

In urban areas the frequency of sepsis is 53% compared to rural areas where the frequency is 47%. This may be due to the more polluted environment in large urban centers, the more intense antibiotic self-medication practiced in urban areas and the various dental interventions that are more common in urban areas than in rural areas.

The study draws attention to the fact that sepsis affects not only the disadvantaged categories but also people with a good financial situation but who have various comorbidities and benefit from various medical interventions (contact with the hospital environment). Thus, 36.56% of patients are retired, 19.35% are housewives or dependents, 18.28% are employees and only 9.68% are unemployed.

All the 94 patients in this study had different causes of immunodeficiency, which we classified as follows:

- comorbidities (DM, chronic hepatitis, cirrhosis of the liver, neoplasm, renal failure, anemia
- extreme ages
- chronic ethanolism and chronic smoking

Diabetes immunodeficiency is on the rise worldwide. This was also confirmed by the analysis of this sample of 94 patients as can be seen from this table. Of the 94 patients, 12 had diabetes.

Table 3. Immunodeficiency through diabetes

		Frequency	Valid (%)	Cumulative (%)
validity	YES	12	12.8	12.8
	NOT	82	87.2	100.0
	Total	94	100.0	

Of the 94 patients with sepsis, 13% had a major diabetes risk factor for sepsis in general. Among the patients with diabetes, 1.1% of patients were aged between 16-25 years, 5.3% were aged between 26-40 years, 4.3% were aged between 41-65 years and 2.1% were over 65 years.

The study showed an increased prevalence of diabetes in females. Thus, 7 patients, i.e. 7.4%, were females and 5 patients were males.

Chronic hepatitis is another type of comorbidity that irreversibly alters the immune status of a patient with sepsis. Of the 94 patients with sepsis, 35 (37.2%) had chronic hepatitis.

Table 4. Immunodeficiency in chronic hepatitis

		Frequency	Valid (%)	Cumulative (%)
validity	YES	35	37.2	37.2
	NOT	59	62.8	100.0
	Total	94	100.0	

Of these, 21 were between 25 and 65 years old and 14 were over 65 years old

Cirrhosis of the liver affects the immune system of patients with sepsis. Of the 94 patients, 6 had cirrhosis of the liver.

Table 5. Hepatic cirrhosis immunodeficiency in patients with sepsis

		Frequency	Valid (%)	Cumulative (%)
validity	YES	6	6.4	6.4
	NOT	88	93.6	100.0
	Total	94	100.0	

Regarding the sex, on 6 cirrhosis immunodeficient patient was identified 50% on male (3) cases and 50% of female cases (3) with 1 occurrence between 26 and 40 and the rest of 5 between 41 and 65 years old (liver cirrhosis).

From the analysis resulting in this study, 3 neoplasm patients were identified, of which 2 male patients and 1 female patient. 1 patient was in the age group 46-65 years and 2 patients in the age group over 65 years.

1 cystic adenoid carcinoma of the palate and 2 cases of bronchopulmonary neoplasm. Of the 94 patients with severe sepsis, 18 had chronic renal failure.

Particularly important for linking the data obtained in the study to the values of prevention in the world are statistical data that emphasize that in the US the incidence and mortality of sepsis far exceeds non-coronary heart disease (AIDS, colon and breast cancer).

The mortality rate has increased from 28% to 50% with all the major investments made in hospital systems.

Studies conducted by Critical Care Medicine in 2001 show that more than 750,000 cases of severe sepsis are diagnosed in the United States each year. What is worrying is that this figure is set to grow in the future.

Sepsis remains a major and significant health problem. Epidemiological data show that in the USA at 750,000 cases of sepsis per year, the mortality rate is higher than 200,000, a figure significantly higher than death from IMA and hypertension.

Sepsis is the leading cause of death in non-coronary intensive care units, and the financial effort to treat it has exceeded \$ 17 billion a year in the United States.

In the European Union, the incidence of severe sepsis is 88 / 100,000 inhabitants. This percentage far exceeds the incidence of cervical cancer, colon cancer, lung cancer, prostate cancer and even breast cancer. Epidemiological studies have shown that around the world, 1,700 people die daily from sepsis.

In the countries of the European Union, in intensive care units, due to severe sepsis and septic shock (severe sepsis combined with hypotension) mortality can reach up to 135,000 cases / year and is spent up to \$ 7.6 billion from health.

In Europe, the severity of severe sepsis is comparable to the annual mortality caused by lung, breast or colon cancer.

Conclusions

From the research we may draw the following conclusions:

- Age is an important factor in the evolution of sepsis. This study also highlighted a phenomenon described in the literature, namely that there is an increased incidence of sepsis in patients of extreme age. The diagnosis of sepsis is diagnosed at any age
- There is a predominance of sepsis in males more exposed to chronic ethanolism than females.
- 3. Cirrhosis of the liver affects the immune system of patients with sepsis. Of the 94 patients, 6 had cirrhosis of the liver.
- 4. A very large number of patients with sepsis had chronic anemia. Of the 94 patients in the study, 49 had chronic anemia.
- 5. From the analysis resulting in this study, 3 neoplasm patients were identified, of which 2 male patients and 1 female patient. 1 patient was in the age group 46-65 years and 2 patients in the age group over 65 years.

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