CONSIDERATIONS IN THE SEPSIS WITH ORAL ENTRANCE AT IMMUNODEPRESSED PATIENTS

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The systemic infection has continuously concerned the medical world, due to the impact it has in the complication and aggravation to exitus of certain affections that exceed the ability to respond of the organism. I started the statistic study with a demographic descriptive selection of the lot. The first criterion was the yearly distribution of the study cases. Between 2007 and 2008, 94 cases of severe sepsis with oral or possible oral entrance at immunodepressed patients were registered. Among these, 40 cases were registered in 2007 and 54 cases in 2008. The patients chosen for this study presented severe sepsis in cases when the entrance gate of the pathogen agent was oral or allegedly oral. In this situation, I took into consideration only those cases of sepsis with dental entrance gate, the submandibular suppurations, periamygdalitis abscesses and their otic and sinus complications, without taking into consideration the sepsis of the upper respiratory ways of the pharyngitis or amygdalitis type.

Key words: Sepsis; Immunodepressed patients; Oral pathology.

INTRODUCTION

The systemic infection has continuously concerned the medical world, due to the impact it has in the complication and aggravation to exitus of certain affections that exceed the ability to respond of the organism. The systemic infection is the more virulent as it addresses patients with a low resistance to infection, the so-called "immunodeficitary or immunocompromised hosts". The terminology is confusing when we refer to a septic patient. At the moment terms like "septicemia", "septic syndrome" or "sepsis" are also used. Richmond defined sepsis (2003) as a specter of clinical conditions caused by the immune response of a host to an infection, characterized by systemic inflammation and coagulation. It varies from the systemic inflammatory response to organ dysfunction, multiple organ insufficiency and eventually death.

The Consensus Conference ACCT (American College and Chest Physicians) and SCCM (Society of Critical Care Medicine) established in 1991 a series of criteria of definition for the systemic inflammatory response. The works of this conference were re-actuated in 2001 and 2003 when the classification criteria for the systemic infection were established, as well as and its clinic forms which represent, in fact, evolutionary stages of the same disease.

MATERIAL AND METHOD

We started the statistic study with a demographic descriptive selection of the lot. The first criterion was the yearly distribution of the study cases.

Between 2007 and 2008, 94 cases of severe sepsis with oral or possible oral entrance at immunodepressed patients were registered. Among these, 40 cases were registered in 2007 and 54 cases in 2008 (Table 1).

The frequency of the sepsis cases depending on the year of study is of 43% in 2007 and 57% in 2008 (Fig. 1). From this study, it is to be noticed an increase of the sepsis cases by 14% in 2008 as compared to 2007. This confirms the ascending evolution of the incidence of sepsis at a worldwide level. The relatively small number of patients diagnosed with sepsis in this study is due to the selection criteria imposed I mentioned previously.

Table 1

Case distribution depending on the year of study

YEAR OF STUDY					
		Frequency	%	Valid Percent	Cumulative Percent
Year	2007	40	42.6	42.6	42.6
	2008	54	57.4	57.4	100.0
	Total	94	100.0	100.0	

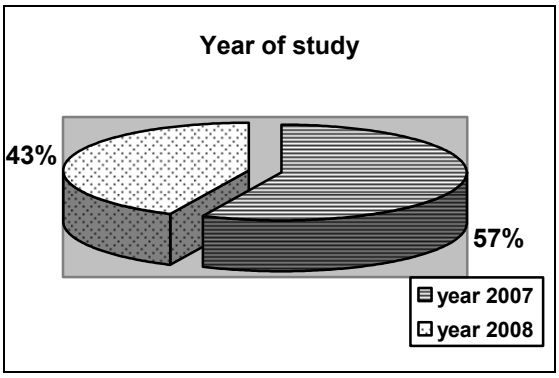

Fig. 1. Frequency of sepsis depending on the year of study.

RESULTS AND DISCUSSIONS

Entrance gate

The patients chosen for this study presented severe sepsis in cases when the entrance gate of the pathogen agent was oral or allegedly oral. In this situation, I took into consideration only those cases of sepsis with dental entrance gate, the submandibular suppurations, periamygdalitis abscesses and their otic and sinus complications, without taking into consideration the sepsis of the upper respiratory ways of the pharyngitis or amygdalitis type.

From the 94 cases studied, 39.4% had an oral entrance gate. The rest of 60.6% were diagnosed based on the anamnesis and the clinical examination with sepsis with possible oral entrance gate (Fig. 2).

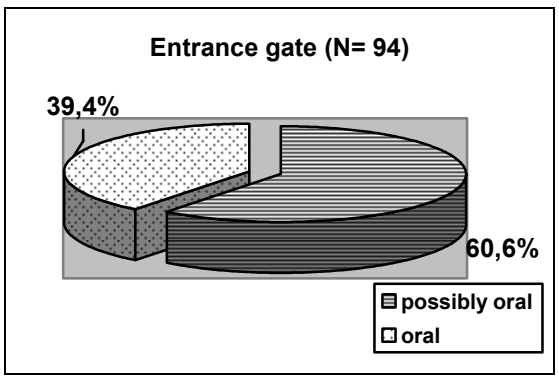

Fig. 2. The entrance gate of sepsis.

The entrance gate represented an inclusion criterion in this study. I took into consideration only the oral entrance represented by the dental entry, periamygdalitis phlegmons, submandibular suppurations as well as their complications, otitis and sinusitis.

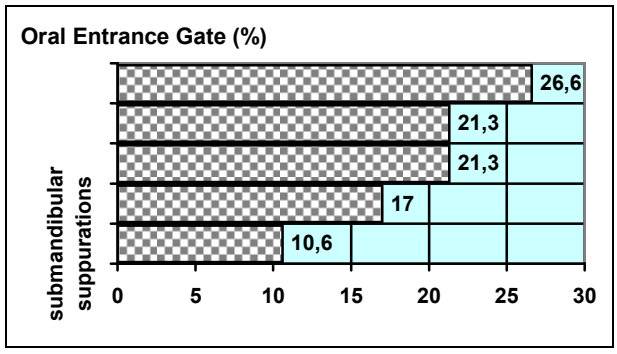

Fig. 3. The oral entrance gate depending on the basic affections.

The sinusitis was identified in 26.6% of the cases and is by far the most common in the sepsis with oral entrance. On the second place come the otitis and the dental entrance, with a percentage of 21.3% of the cases. The periamygdalitis phlegmons were incriminated in 17% of the cases and the submandibular suppurations came last, with a percentage of 10.6% (Fig. 3).

It can be noticed that the dental entrance gate is rather frequent and most of the times neglected in the diagnosis of a severe sepsis.

Sepsis etiology

Sepsis etiology could be appreciated by the help of the hemocultures and the clinic and paraclinical study. Following this study I obtained the following results (Table 2).

Streptococcus bovis in 2.7% of the cases, *Staphylococcus aureus* in association with *Bacteroides fragilis* in 1.8% of the cases, Staphylococcus aureus in association with Lactobacillus in 0.9% of the cases, Staphylococcus aureus in association with Fusobacterium in 1.8% of the cases and Staphylococcus aureus in association with Veionella in 0.9% of the cases were incriminated.

Table 2

Etiological agents in the sepsis with oral entrance

Entrance gate – Isolated etiological agents	
Infectious Agent	**No. cases**
S.Aureus and *Bacteroides Fragilis*	2
Streptococcus Bovis	3
Staphylococcus Aureus and *Lactobacillus*	1
Staphylococcus Aureus and *Fusobacterium*	2
Staphylococcus Aureus and *Veionella*	1

Debut in sepsis

The debut is insidious in all cases, varying between 3 and 30 days, averaging around 14.70 days.

Diagnosis in sepsis

Etiologic diagnosis

The etiology of the sepsis cases in this study could be determined with the help of the hemocultures. The hemocultures were conducted during the moments of fever rise and were repeated at least three times.

Considering the fact that most patients showed pre-medication with antibiotics, the positive results were reached at a very small number of patients. Thus, 9 patients showed positive hemocultures and the rest of 85 patients showed negative hemocultures (Fig. 4).

The positive hemocultures evidenced unique pathogenic agents or in association in infections of mixed aerobic-anaerobic type for the sepsis with oral entrance gate (Table 2).

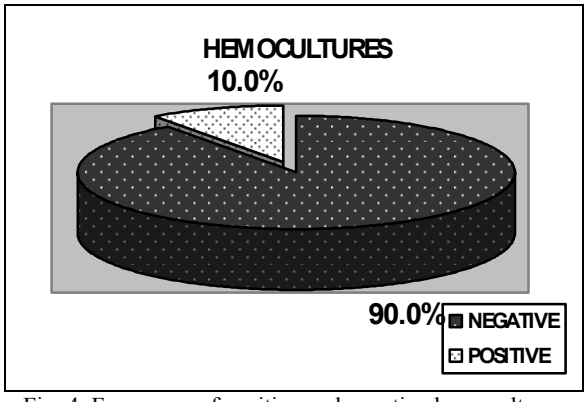

Fig. 4. Frequency of positive and negative hemocultures

Clinic diagnosis

Within the clinical manifestations, I followed mainly the 5 curves which define the sepsis diagnosis, namely: the fever curve, the curve of respiratory frequency, the curve of cardiac frequency, the curve of blood pressure and the curve of diuresis.

a) Fever curve

The fever curve was the first parameter that allowed the diagnosis of the inflammatory syndrome from the sepsis.

At the 94 patients with sepsis under investigation, the temperatures varied from 35.2°C to 40 °C (Figs. 5, 6). 49 % of the patients showed temperatures over 38.4°C, 46.8% of the patients showed temperatures between 38.3 °C and 39°C and the rest of 3.2 % of the patients showed temperatures under 35.6 °C.

b) Teguments and mucosa

The examination of the teguments and mucosa was simultaneous with the study of the temperatures and revealed important data regarding the status of the patients with sepsis.

From the study of the teguments and mucosa, there results that 61.7% of the patients showed edifying pale teguments for the anemic syndromes secondary to sepsis or co-morbidities (anemia), 3.2% showed icteric teguments (in complicated cases with hepatobiliary diseases) and only 35.1% showed normally colored teguments and mucosa (Fig. 7).

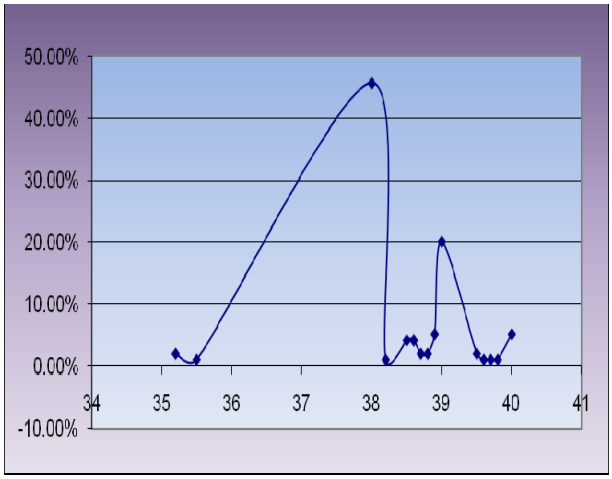

Fig. 5. The curve of temperatures.

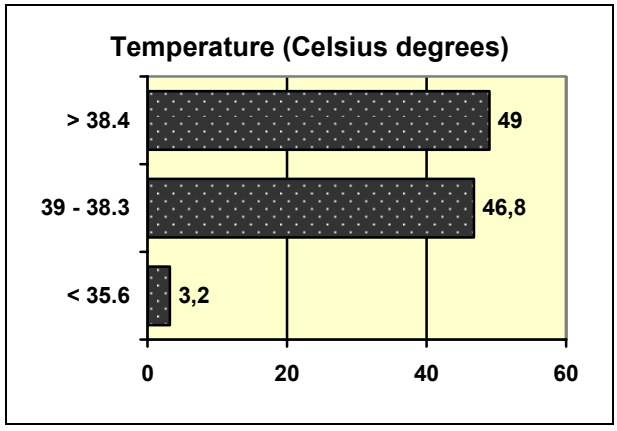

Fig. 6. Frequency of temperatures.

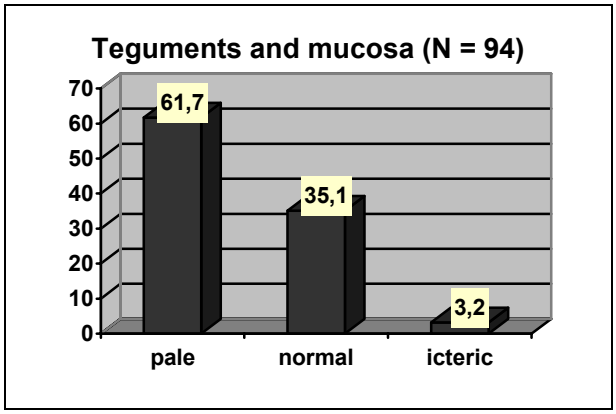

Fig. 7. Teguments and mucosa.

c) The implication of the respiratory system

The standard pulmonary radiological exam was conducted for all the patients admitted in the Clinic of Infectious Diseases from Iasi. Out of the 94 patients, 1 patient did not benefit from this investigation.

The respiratory frequency is the second parameter followed in the dynamics during the study. All the patients diagnosed with sepsis showed tachypnea. The average respiratory frequency of the monitored patients was 27.8 respirations per minute (tachypnea). The minimum respiratory frequency was 24 respirations / minute while the maximum was of 40 respirations / minute (Table 3).

Table 3

Respiratory frequency: Descriptive statistics

	N	Minimum	Maximum	Average	Std. Deviation
Respiratory frequency	94	24,00	40,00	27,8936	3,11247
Valid N (listwise)	94				

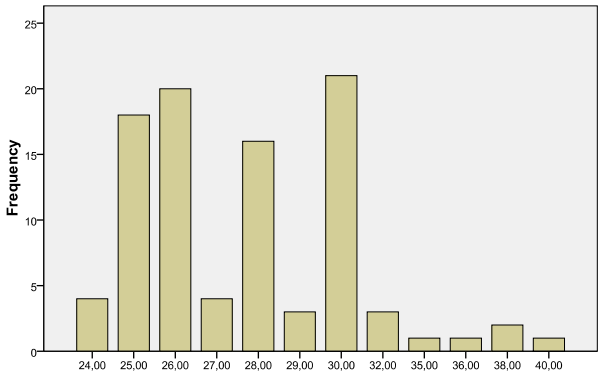

Fig. 8. Respiratory frequency in absolute values.

From Figure 8 one can notice that 50% of the patients had a respiratory frequency under 28 resp./minute and 50% of the patients had over 28 resp./minute.

Most of the patients had a respiratory frequency equal to 30 resp / minute.

Hypoxia is a very important criterion in the sepsis diagnosis, namely of a patognomic respiratory dysfunction for sepsis.

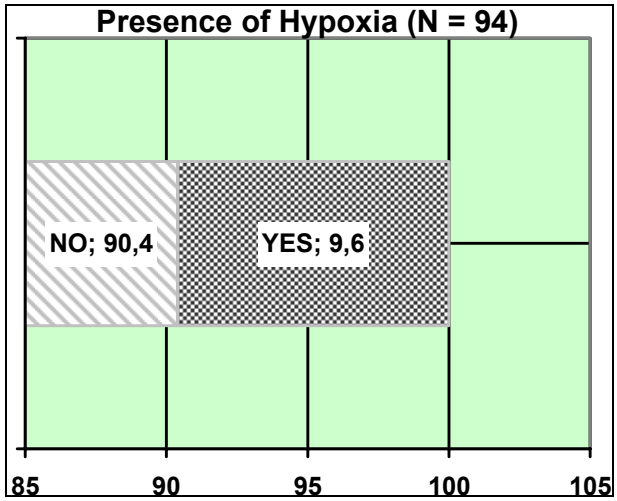

Figure 9. Frequency of Hypoxia.

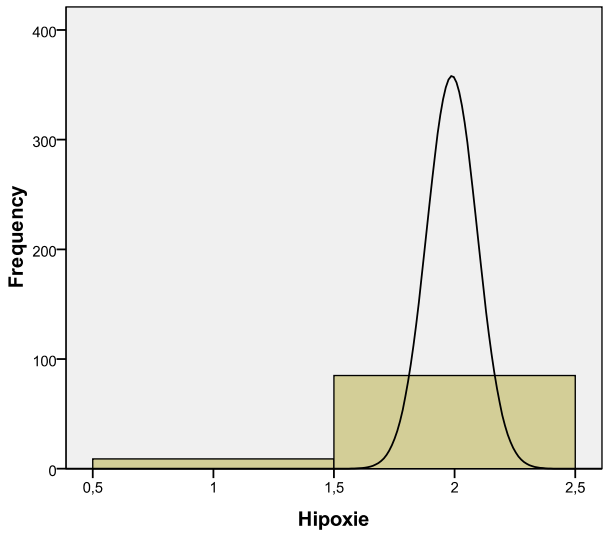

Figure 10. Histogram of Hypoxia.

In Figure 9 it is shown the frequency of hypoxia. Thus, out of the 94 patients with sepsis, 9 patients showed clinical and paraclinical signs of hypoxia. The histogram shows a prevalence of hypoxia especially at the age groups between 25 and 65 and at those aged over 65 (Fig. 10). It is observed that 90.4% of the patients did not show hypoxia and only 0.4% of the patients showed hypoxia.

Imagistic

A percentage of 98.9% of the patients had a pulmonary radiology, 1 patient died before the examination. 83% of the patients were examined by the help of abdominal echography, 20.2% through CT, 12.8% had cardiac echographic examination and 6.4% had RMN (Fig. 11).

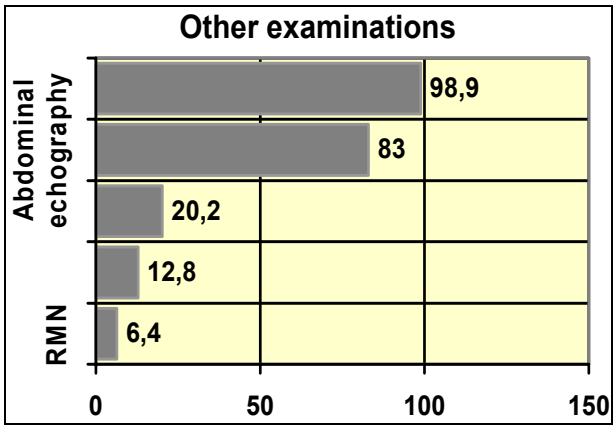

Fig. 11. Other examinations – frequencies.

Regarding the central nervous system symptoms, 67 of the patients showed headaches (71.28%), 20 patients showed confusion (21.28%), 15 of the patients showed agitation (15.95%), 1 patient showed convulsions (1.06%) and 10 patients presented coma (10.64%) – Fig. 12.

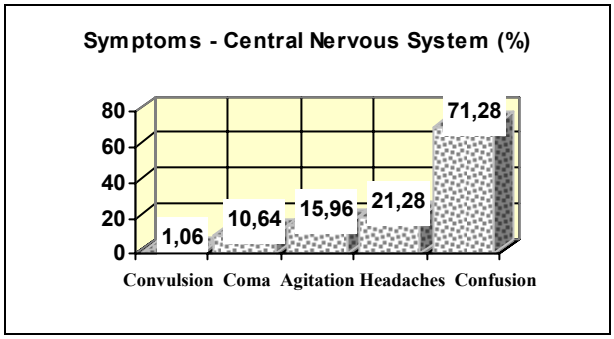

Fig. 12. Symptoms of the Central Nervous System (%).

CONCLUSIONS

1. The importance of knowing the terminology and definitions in sepsis.

2. The importance of knowing the inflammation mediators in the pathogenic diagnosis of the forms of sepsis and in the treatment of sepsis.

3. The importance of knowing the oral (dental) entrance gate in the severe sepsis.

4. Knowing the mechanisms that lead to negative hemocultures (pre-medication).

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