

NOSOCOMIAL INFECTIONS - REGISTRATION, NOSOLOGICAL AND ETIOLOGICAL STRUCTURE

Paunov Ts.¹, Sv. Staneva², N. Valkanova³, K. Yordanova⁴

¹MU-Varna, Department of Biomedical Sciences, ²RIPCPH (Regional inspectorat for prevention and control of public health - Varna), ³MU-Varna, Department IDETM (Infectious diseases, epidemiology and tropical medicine), ⁴Medical College Varna

Reviewed by: Assoc. Prof. K. Bojkova

SUMMARY

Nosocomial infections (NI) gain importance in medical practice due to the increase of the invasive remedial and diagnostic handling, raise in the rate of survival of patients, increase in the average age of the population in the country (2,4). In our practice, we have experienced how costly a treatment of a patient with added NI could be (3). The situation has further complicated by the adaptation of new nosocomial pathogens and their increase resistance of antibiotics. The absence of preferred policy from Health ministry and Health-ensure cash in regards to NI and the lack of clinical paths lead to decline in the interest of the medical personnel and their anticipation in the anti-epidemic battle (1).

Key words: nosocomial infections, nosocomial pathogens, registration, etiological structure

INTRODUCTION

Registration of **nosocomial infections (NI)** and awareness of their structure helps in establishing proper research and solving the problems.

PURPOSE AND GOALS

Our objective is to present the etiological and nosological structure of registered NI in 19 hospitals in Varna region for the period of 2001-2007.

MATERIALS AND METHODS

We have used the official documentation of RIPCPH and hospitals for registration of NI, data from the microbiological research of the laboratory department of RIPCPH and other medical microbiological laboratories.

RESULTS AND DISCUSSION

Figure 1 shows the most common isolated agents of NI for the viewed period.

Address for correspondence:

Ts.Paunov, Dept. of Infectious diseases, Tropical medicine and Epidemiology, Medical University Prof. Dr. Paraskev Stoyanov, 55 Marin Drinov Str., 9002 Varna, BULGARIA

There is a great variety of etiological agents. Their number varies throughout the years from 22 to 33 types with a growing trend. (Fig.1) In the first three years from the period some microorganisms have not been isolated (Table.1).

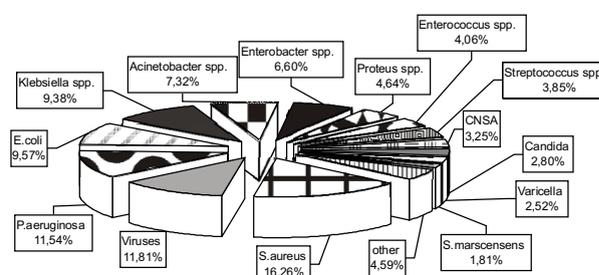


Fig.1. Etiological structure of NI at the hospitals of Varna region during the period of 2001-2007

Viruses are examined in a large scale only until 2003 (671). 20.16% were not etiologically decoded and 25.13% were not studied at all. In this category there is a declining trend. The most common are *S.aureus*, *P.aeruginosa*, *E.coli*, *Klebsiella spp.*, *Acinetobacter spp.*, although their order has changed throughout the years of the viewed period. Usually this "competition" is related to small epidemic outbursts of NI. Figure 2 shows the general nosological structure of the 19 hospitals. Leading types of NI are Respiratory infections – 41.24, lung diseases – 15.85%, surgical wound related – 12.99% and urine infections – 8.39%. (fig.2) Our results do not differ greatly from the information about the rest of the country (1).

The dynamics in the viewed period shows decrease in the total count of NI, as well as decrease in their relative part in

Table 1

S.maltophilia	Candida spp.
S.marcescens	Chlamydia spp.
Salmonella spp.	Citrobacter spp.
Shigella	CNS
Staphylococcus spp.	E.coli
Streptococcus spp.	Enterobacter spp.
Xantomonas spp.	Enterococcus spp.
L.monocytogenes	Flavobacter spp.
Varicella virus	H.influenzae
Corynebacterium spp.	MRSA
M.tuberculosis	Aeromonas spp.
Moraxella spp.	Alcaligenes spp.
Morganella spp.	B.catharralis

regards to patients 1.24% (figure 3). Those numbers are smaller in comparison with average for the country and the European Union (4,5). We believe this is because of the partial registration of NI and also due to the positive actions by the anti-epidemical control, such as increase qualification, proper and prompt actions when notified of a first infection, following the general preventive and disinfection measures, improving the medical-diagnostic procedures, which leads to decentralization and shorter hospital stay, antibiotic policy.

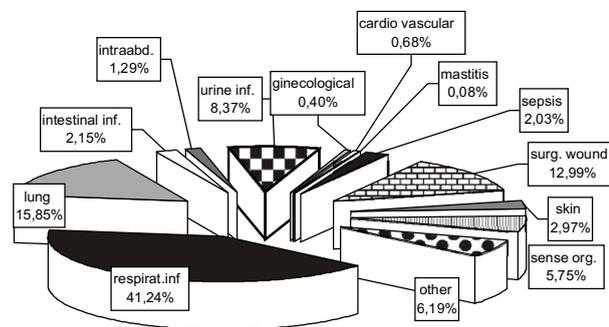


Fig.2. Structure types of NI at the hospitals of Varna region during the period of 2001-2007

One of the most important factors for the decline of NI and the lack of “nosocomial strains” is the proper organization and application of antibacterial drugs. The availability of a new and discontinued used of the older antibiotics

(gentamicin, erythran) helps for the permanently trend to decline of the NI (1.25%). There is a sharp decrease in the

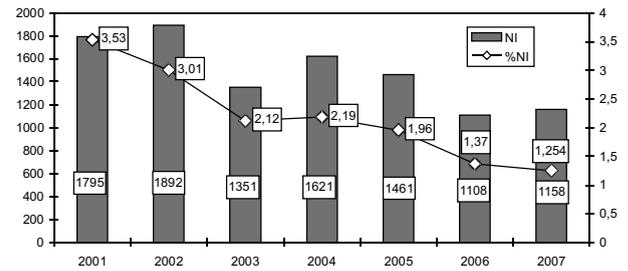


Fig.3. Distribution of NI and their relative part by years at the hospitals of Varna region during the period 2001-2007

use of antibiotics in 2003, since the health reform of the hospitals 28.83% (fig. 4). We assume that the patients pur-

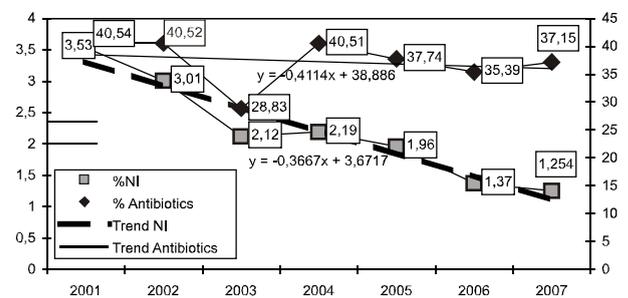


Fig.4. Percentage of NI and treated with antibiotics patients at the hospitals of Varna region during the period 2001-2007

chase the antibiotics.

The use of antibiotics in general is declining as well but in very slow terms. Thus, we doubt in the full registration and decoding of NI.

CONCLUSIONS

Our etiological and nosological analysis of the structure of NI in Vama region provides us with the following conclusions:

1. There is a proper organization for registration of NI.
2. There is improvement in the etiological decoding of nosocomial infections from 22 to 33 types.
3. Leading bacterial agents in this period are *S.aureus*, *P.aeruginosa*, *E.coli*, *Klebsiella spp.* and *Acinetobacter spp.*
4. Leading types of NI are Respiratory infections – 41.24, lung diseases – 15.85%, surgical wound related – 12.99% and urine infections – 8.39%.
5. The declining trend of NI is well visible as oppose to the relative part of the patients treated with antibiotics.

RECOMMENDATIONS

The “hidden” morbidity of NI requires the commitment of the medical personnel, improvements in the antibiotic con-

trol and medical policy towards preventive measures that will limit the nosocomial infections.

REFERENCES

1. Гачева Н., М.Тодорова и сътр., Вътреболнични инфекции в Р.България през 2005-2006г. (анализ), *Информационен журнал НЦЗПБ* 2008,**3**, 4-32
2. Канъовска Е., Х.Хиткова, Д.Митов, Характеристика на вътреболничните инфекции в Университетска болница-Плевен за 2004г., *Life Guard health magazine*, 2005,**1**, 26-28.
3. Карачолев Ил., За епидемиологията на медицинското обслужване и борбата с вътреболничните инфекции – наблюдения, размисли и поглед напред, *ДДД Бюлетин*, 2002, **1-4**, 7-14.
4. Рибарова Н., Й. Митова, Етиологична характеристика на вътреболничните инфекции в различни по профил рискови болнични отделения в България през периода 1990-1998г., *Инфектология*, 2000, **1**, 11-17.
5. Norwegian Institute of Public Health. Surveillance of Communicable Diseases and Nosocomial Infections in Norway 2006. Available from: <http://www.fhi.no/dav/3d326fd31e.pdf>
6. U. Dumpis and al., Prevalence of nosocomial infections in two Latvian hospitals, *Eurosurveillance*, 2003, Volume 8, Issue 3. Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=405>Инфектология, 2000, 1, 11-17.]