PROS AND CONS REPORTING NOSOCOMIAL INFECTIONS. MEDICAL AND ECONOMIC - FINANCIAL ISSUES

MONICA MARILENA ŢÂNŢU[1], CRISTINA PLEŞA[2], MAGDALENA DIACONU[3], CĂTĂLIN LULCIUC[4], CARMEN DANIELA DOMNARIU[5]

[1]University of Piteşti, [2,4]"Carol Davila" Central Military University Emergency Hospital Bucharest, [3]University of Medicine and Pharmacy Craiova, [5]"Lucian Blaga" University of Sibiu

Keywords: *Nosocomial Infection (NI)*

Abstract: *Nosocomial infection (NI) is a problem for all health systems, not only for the Romanian one. Nosocomial infection is a major cause of morbidity and mortality, significantly affecting patients' quality of life and impacting hospital institution by influencing human resources and increasing costs, striking important and underfunded health systems. The prevalence of nosocomial infections is different from one health system to another, depending on the type of hospital and its financing, systems of prevention and control of infections related to care implemented by each medical institution, the quality and assumed responsibility of human resources involved in healthcare, material and financial potential available for the health system concerned, especially the resources allocated to the prevention and proper management of the cases of nosocomial infection. Nosocomial infection is a real and familiar public health problem with medical and financial-economic facets that affect all stakeholders in the healthcare process. Prevention and control work should be intensified and the first step is to recognize the problem and take responsibility for the proper management of the case.*

INTRODUCTION

Nosocomial infection (NI) is a problem for all health systems, not only for the Romanian one. As defined in Order no. 916/2006 on the approval of surveillance, prevention and control of nosocomial infections in hospitals, it is acquired from the beds in hospitals (public and private), which refers to any infectious disease that can be recognized clinically and/or microbiologically and for which there is epidemiological evidence of developing during hospitalization/medical care or medical activities affecting either patient - because of medical care received or health workers - due to their work and it is linked via incubation to medical assistance period in the establishment, whether symptoms occur or do not occur during hospitalization.(1) To identify a case of nosocomial infection clinical data, laboratory, epidemiological and other diagnostic tests are taken into account.

Nosocomial infection is a major cause of morbidity and mortality, significantly affecting patients' quality of life and impacting hospitals by influencing human resources and increasing costs, striking important and underfunded health systems. In Europe, it is estimated that annually 37 000 deaths are caused by infections taken from hospitals and additional costs are about 7 bln. Euro.(2)

The prevalence of nosocomial infections is different from one health system to another, depending on the type of hospital and its financing, systems of prevention and control of infections related to care implemented by each medical institution, the quality and assumed responsibility of human resources involved in care, material and financial potential available for the health system concerned, especially the resources allocated to the prevention and proper management of the cases of nosocomial infection.

A study of 14 996 patients treated in hospitals representative of Germany, showed a prevalence rate of 3.5% of nosocomial infections, with a difference of 0-8.9% between hospitals (3), while another study conducted in a university hospital in Tunisia, on an obviously much smaller group of patients, of only 312 patients, identified a level of 14.5%.(4) In the USA, hospital infection rate is 4%, the result revealed by a study made in 183 hospitals, on a number of 11 282 patients.(5) Denmark has a prevalence of 9.7% of nosocomial infections from a group of 792 patients.(6)

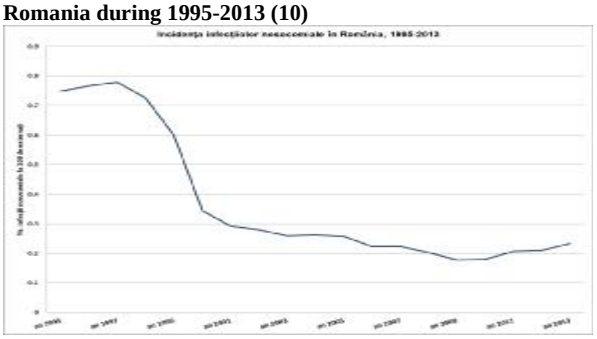
The World Health Organization (WHO) states that in the developed countries, the prevalence of healthcare-associated infections is situated in the range 3.5% -12%, while in medium and underdeveloped countries the rate varies between 5.7% and 19.1%. For these countries, it is also important to note the proportion of patients who contract a hospital-acquired infection in Intensive Care Unit (ICU) from 4.4% and reaching worrying levels of 88.9%. For European countries, the European Centre for Disease Prevention and Control (ECDC) has reported a prevalence of 7.1% of nosocomial infections, and on cases of infections occurring in intensive care patients it is estimated a rate of up to 51%.(7) ECDC report (study conducted in 2011-2012 in 1,149 hospitals, 10 hospitals from Romania) states that in Romania the prevalence of nosocomial infections is of 2.8%, which is twice lower than the European average (8) and obviously much lower than in countries such as Germany, which has rigorously organized and substantially funded medical systems. This last point raises doubt about the representativeness of our health system of reporting units included in the study. The analysis also highlights other situations, illogical at first glance, like an increased prevalence of nosocomial infections in the Netherlands, known for its good organization of the prevention of infections linked to care. The large number of infections detected and reported is justified by the considerable and real involvement of healthcare professionals in this activity, supported by a substantial funding.(9)

Regarding Romania, as statistics show, we can discuss about underreporting of these situations, caused by an inefficient system for identifying hospital infections, insufficient financial resources, low number of epidemiologists, low compliance of

[1]Corresponding author: Marinela Monica Ţânţu, Poiana Lacului, Judeţul Argeş, România, E-mail: tantumonica@yahoo.com, Phone: +40745 946078
Article received on 12.09.2015 and accepted for publication on 06.03.2016
ACTA MEDICA TRANSILVANICA March 2016;21(1):14-16

clinicians to case definitions, low involvement in applying prevention measures. In the Romanian health system, there is a wrong perception of the necessity of declaring these cases. Is it unconsciousness, indifference or fear of incurring coercive measures? Does the misunderstanding of the notion of control, both from the organisms - persons empowered to control, and from the controlled ones, generate attitudes like "hiding garbage under the carpet?"

Figure no. 1. The evolution of hospital-acquired infections in Romania during 1995-2013 (10)



In 2014, there were reported 10 630 cases of nosocomial infections in a total of 4.120.514 discharged patients, resulting in a prevalence of 0.25%. The rank of counties shows in superior position Bucharest with 2611 cases, followed by Iaşi – 1738, Cluj - 1169, Timiş - 1005, and the lowest number of hospital infections are in the counties of Tulcea – 7, Ialomiţa and Bistriţa-Năsăud – 14, Ilfov and Constanţa - 20, Covasna - 22. In terms of wards, most cases are in the ICU and surgery.(11)

Nosocomial infection is characterized by the following:

- it affects both patients and medical staff;
- it worsens clinical condition and evolution of the patient;
- it increases the need for care and thus augmenting the number of days of hospitalization, cost and care time, crowding wards by extended occupying of the bed, changing the average duration of hospitalization (ADH);
- eradication is difficult because the causes are complex (multiple diagnostic methods, increased number of elderly, depressed immune systems, increasing microbial resistance);
- prevention can be achieved through surveillance, guidelines, procedures, management and collaboration;
- it is an important topical public health problem for Romania;
- in our country, there is an underreporting of nosocomial infections and an underestimation of the importance of this issue;
- the rate of nosocomial infections is an indicator of hospital management performance, an indicator assumed by the manager when signing the contract and it is also stipulated in the management contracts of medical department heads;
- the rate of nosocomial infections is an indicator of the quality of medical services and care provided;
- nosocomial infection has a great impact on hospital activity;
- prevention and control of nosocomial infections is the duty of all employees in a health facility;
- nosocomial infection is a priority in Decision 2119/98/EC; in Romania, preventing, monitoring and control of nosocomial infections is regulated by Order no. 916/2006
- nosocomial infection draws the attention on developing an effective strategy for surveillance and control by identifying, analyzing, controlling and monitoring the risk of infection in a hospital, reconsidering policies of antibiotic prescribing with prophylactic and/or therapeutic purpose, training and appraisal healthcare professionals on the prevention and control of nosocomial infections;
- nosocomial infection is associated with morbidity and mortality and increased financial consumption, thus having a double character: medical and economic;
- the most common nosocomial infections are respiratory infections, urinary tract infections, operative wound infections, gastrointestinal infections, their prevalence is varied in literature. A representative survey reveals a level of 21.8% for pneumonia, the same percentage for surgical wound infections is very close to the gastrointestinal infections with a level of 17.1%. Of these, 12.1% were caused by Clostridium difficile infection.(12) The same study shows that a significant share - 25.6% is attributable to infections caused by various medical devices used in invasive procedures (central catheter, supportive devices, urinary catheters);
- the most exposed areas: ICU, surgical departments/burned, oncology, hematology. According to the EPIC study (The European prevalence of Infection in Intensive Care Study) - 20.6% in ICU infections are due to mechanical ventilation, to the multitude of invasive procedures (catheter infections) and immunocompromised patients.(13)
- the majority of nosocomial infections can be prevented.

Failure to declare nosocomial infections may have multiple causes. Generally, it is considered a case of nosocomial infection that is recognized to benefit from proper management can show that:

- universal precautions are not followed;
- hand washing is not performed properly and whenever needed;
- poor cleaning and disinfection;
- random accommodation of patients without keeping the septic/aseptic criterion;
- failure to follow aseptic and antiseptic measures in performing medical and nursing techniques;
- unrestricted access, uncontrolled visitors;
- failure/intersection of functional circuits;
- exaggerated and unjustified use of antibiotics;
- failure of epidemiological triage of the staff;
- lack of regular medical examination of the staff;
- waste mismanagement.

The list of possible "deficiencies" can continue. Factors that cause nosocomial infections are diverse. In addition, it is estimated that the reporting of nosocomial infections attracts sanction and opprobrium from the management staff, from the control bodies, we fear the embarrassment, that we remove patients from the hospital that has a significant number of similar cases, that we are incompetent and want to hide the fact that we face difficulties in managing infections related to care. Underreporting of hospital-acquired infections is caused by the lack of staff.

Obligation to declare nosocomial infections comes from different levels:

- legislative provision;
- attribution in the job description, that is professional duty;
- we ensure the proper case management, leading to improved suffering of the patient, reduced costs for extra care (do the right thing);
- we benefit from funds allocated through national programs for prevention, surveillance and control of NI;

- we identify the high risk areas and shortcomings in our work - corrective measures;
- we increase the quality of medical care;
- we remove the suspicion that we are not upfront about the situation in our hospital unless we declare NI that everything is at a higher quality level, that we do not have such problems. FALSE! NI is a reality that cannot be hidden or disguised!;
- we avoid forgery in public documents;
- we favour the professional development of medical staff in this area;
- we develop appropriate and customized strategies according to their needs;
- we strengthen prevention and control rules;
- we develop the quality management system.

CONCLUSIONS

Nosocomial infection is a real and familiar public health problem with medical and financial-economic facets that affect all stakeholders in the healthcare process. Prevention and control work should be intensified and the first step is to recognize the problem and take responsibility for the proper management of the case.

It requires a sustained involvement of professionals and a consistent allocation of resources to ensure the operation of the management system of nosocomial infections. In respect to nosocomial infections, we should be characterized by the following words: *Professionalism, Conscience, Honesty, Fairness, Responsibility*.

REFERENCES

1. Ordinul nr. 916/2006 privind aprobarea Normelor de supraveghere, prevenire şi control al infecţiilor nosocomiale în unităţile sanitare.
2. Negoescu R, Bălan C, Niţulescu D, Bănăţeanu M. Infecţii nosocomiale: perspectiva 2013, Buletinul SVS, INSP Bucureşti. 2013;38.
3. Gastmeier P, Kampf G, Wischnewski N, Hauer T, Schulgen G, Schumacher M, Daschner F, Rüden H. Prevalence of nosocomial infections in representative German hospitals, J Hosp Infect. 1998 Jan;38(1):37-49.
4. Mahjoub M, Bouafia N, Bannour W, Masmoudi T, Bouriga R, Hellali R, Ben Cheikh A, Ezzi O, Ben Abdeljellil A, Mansour N. Healthcare-associated infections in a Tunisian university hospital: from analysis to action, Pan Afr Med J. 2015 Mar 3;20:197.
5. Magill SS, Edwards JR, Bamberg W, Beldavs ZG, Dumyati G, Kainer MA, Lynfield R, Maloney M, McAllister-Hollod L, Nadle J, Ray SM, Thompson DL, Wilson LE, Fridkin SK. Multistate point-prevalence survey of health care-associated infections, N Engl J Med. 2014 Mar 27;370(13):1198-208.
6. Petersen MH, Holm MO, Pedersen SS, Touborg Lassen A, Pedersen C. Incidence and prevalence of hospital-acquired infections in a cohort of patients admitted to medical departments, Danish Medical Bulletin. 2010;57(11):1-5.
7. www.who.int /gpsc/country_work/gpsc_ccisc_fact_sheet_en.pdf.
8. Mihalache DD. Infecţiile intraspitaliceşti în România: miracol pe hârtie, Viaţa medicală. 2013;42(1240).
9. Welte T. Nosocomial Infections - a Present and Future Challenge, Dtsch Arztebl Int. 2013;110(38):625-6.
10. Popescu GA, Şerban R. Raport privind Consumul de antibiotice, Rezistența microbiană și Infecțiile Nosocomiale în România, INSP Bucureşti; 2013.
11. www.insp.gov.ro.
12. Magill SS, Edwards JR, Bamberg W, Beldavs ZG, Dumyati G, Kainer MA, Lynfield R, Maloney M, McAllister-Hollod L, Nadle J, Ray SM, Thompson DL, Wilson LE, Fridkin SK. Multistate point-prevalence survey of health care-associated infections, N Engl J Med. 2014 Mar 27;370(13):1198-208.
13. Spencer RC. Epidemiology of infection in ICUs, Intensive Care Medicine. 1994;20(4):s2-s6.