MANAGEMENT OF NOSOCOMIAL INFECTIONS WITHIN THE CLINICAL EMERGENCY COUNTY HOSPITAL ORADEA

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Abstract

In order to quantify the results of implemented measures we have realized a comparative study between the years 2011 and 2012 regarding the rate of nosocomial infections within the Clinical Emergency County Hospital Oradea. The rate of nosocomial infections has decreased significantly in the year 2012 compared to the year 2011, especially in males. Nosocomial infections are mostly surgical plague, respiratory and urinary infections. The most identified germs are E-coli and Staphylococcus Aureus. The management of nosocomial infections involves prophylaxis, adequate treatment as well as the correct reporting of the number of cases and sensibilizing the staff in regards to the specifics of a nosocomial infection (circulating micro-organisms, resistance to antibiotics, etc) and establishing local priorities which need to be considered in elaborating a specific supervision plan.

Key words: management, nosocomial infections

INTRODUCTION

The management of nosocomial infections is part of the process of quality management (Coffin SE, Zaoutis TE., 2008, Hughes JM, 1998, NINSS, 2002). A defective management has a negative impact both medically (for the patient) and economically, due to an increase in hospital stay and medication cost. Within the aforementioned hospital, based on centralized data, there have been a number of 196 nosocomial infections in the year 2011 followed by 138 cases in the year 2012. We need to underline the fact that in the past year the hospital has had a number of 44973 discharged patients. The most common infections seen are infections of the respiratory tract such as pneumonia, local infections due to surgical procedures as well as urinary tract infections. These are often caused by the E-coli and Staphylococcus Aureus, which have demonstrated a capability to whitstand even the most serious antibiotics.

Romanian hospitals report a number of infections sustained by patients during their hospital stay which is ridiculously small, mostly between 1 and 2%, while the European average is situated at 8-10% (Inweregbu K., Dave J., Pittard A, 2005, Hospital Infections Program, 1992). Nosocomial infections (gained by patients during hospital stay) are extremely rare in all the hospitals in the country (Haley RW, White JW,

Culver DH, et al., 1985). However, these things only look good statistically, because in reality their number is much higher but hospital managers never exactly report the number of infections properly (Louis V, Bihari MB, Suter P, et al. 1995). Studies show that within the EU, 8-10% of patients contract such infections which can be more or less severe, while our country prides itself with statistics that show 1 out of 100 or even 200 patients with such infections (Hospital Infection Working Group, 1995, Rosenthal VD, Maki DG, et. al., 2008).

Nosocomial infections can relate to hygene, sterilization or medical maneuver deficiencies (Gastmeier P, Geffers C, 2006) (Consiliul European, 2009). According to a report by the European Center for Transmissible Diseases, annually approximately 3 million people within the EU get sick due to an affliction relating to medical care and around 50.000 people die because of the disease (Tikhomirov E., 1997, Timsit JF, 2012, Zaoutis TE,, 2008).

MATERIAL AND METHOD

In order to quantify the results of implemented measures we have realized a comparative study between the years 2011 and 2012 regarding the rate of nosocomial infections within the Clinical Emergency County Hospital Oradea (INSP – CNSCBT, 2013).

RESULTS AND DISCUSSIONS

The rate of nosocomial infections has decreased from 0,46% in 2011 to 0,31% in 2012, showing a significant drop (p=0,001). Table 1 below shows the rate of nosocomial infections:

Table 1

Rate of nosocomial infections

	2011			2012		
	Female	Male	Total	Female	Male	Total
Discharged	24.928	17.951	42.879	27.175	17.798	44.973
Nosocomial inf.	110	86	196	96	42	138
Nosocomial inf. rate	0,44%	0,48%	0,46%	0,35%	0,24%	0,31%

In 2011, the rate of nosocomial infections was significantly larger in males than in females (0,48% versus 0,44%, p=0,423) while in the year 2012 the rate was significantly larger in females than in males (0,35% versus 0,24%, p=0,010). In both males and females, the rate of nosocomial infections decreased in 2012 compared to 2011, although not very

significantly in women (0,44% to 0,35%, p=0,059) and significantly in males (0,48% to 0,24%, p<0,001) (fig.1).

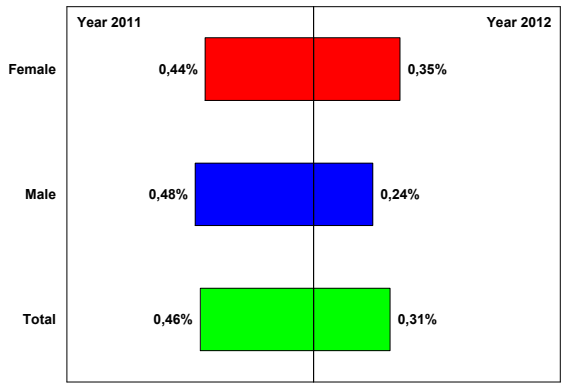

Fig. 1 – Evolution of nosocomial infection rate

Table 2

Distribution of nosocomial infection cases based on clinical form

	2011		2012	
	No.	%	No.	%
Respiratory	83	42,3	34	24,6
Plague	41	20,9	46	33,3
Urinary	53	27,0	56	40,6
Cutaneous	9	4,6	1	0,7
Digestive	8	4,1	1	0,7
Sepsis	2	1,0	0	0,0
Total	**196**	**100**	**138**	**100,0**

In 2011, over 40% of nosocomial infections were localized at respiratory tract level (42,3%) followed by urinary tract infections (27%) and surgical plague infections (20,9%) (table 2). In the year 2012, respiratory infections significantly decreased to 24,6% (p<0,001) while the urinary and surgical plague infections grew to 40,6% and 33,3% respectively (p=0,008, p=0,006) (fig.2).

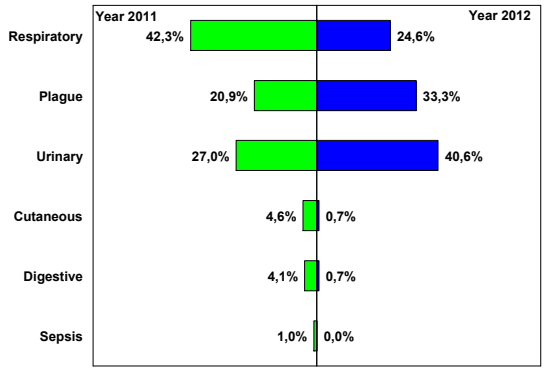

Fig. 2 – Distribution of nosocomial infections cases based on clinical form

Table 3

Distribution of nosocomial infection cases based on determined germs

	2011		2012	
	No.	%	No.	%
E.coli	98	50,0	60	43,5
Staphylococcus Aur.	34	17,3	20	14,5
Enterococcus	3	1,5	12	8,7
Staphylococcus Epi.	11	5,6	6	4,3
Proteus	15	7,7	14	10,1
Enterobacter	16	8,2	7	5,1
Piocianic	11	5,6	8	5,8
Enterobacter/Candida	1	0,5	0	0,0
Klebsiella pneumoniae	2	1,0	0	0,0
Acinetobacter	0	0,0	1	0,7
Candida	0	0,0	1	0,7
Undetermined	5	2,6	9	6,5

In both 2011 and 2012, E-coli had the largest occurring frequency of 50 and 40,3% followed by the Staphylococcus Aureus with 17,3% and 14,5% respectively (table 3, fig.3).

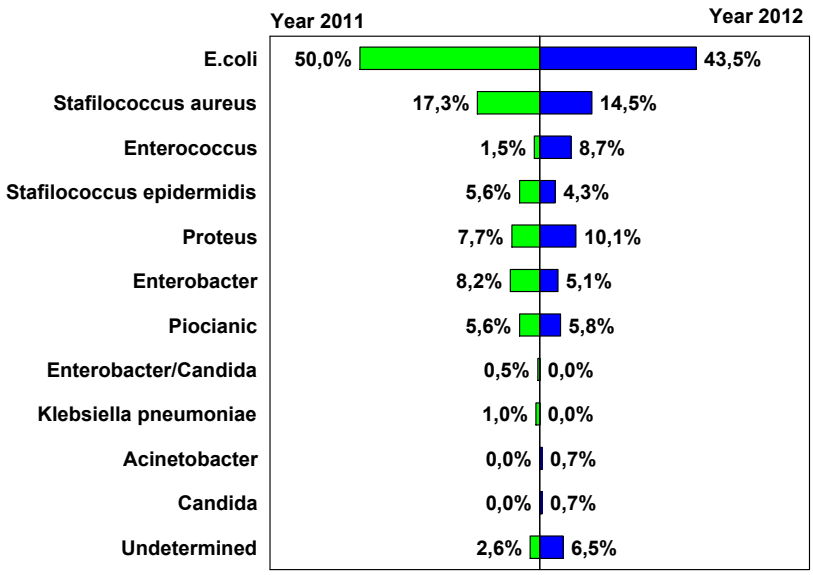

Fig. 3 – Distribution of cases based on identified germs

CONCLUSIONS

The rate of nosocomial infections has decreased significantly in the year 2012 compared to the year 2011, especially in males.

Nosocomial infections are mostly surgical plague, respiratory and urinary infections.

The most identified germs are E-coli and Staphylococcus Aureus.

The management of nosocomial infections involves prophylaxis, adequate treatment as well as the correct reporting of the number of cases and sensibilizing the staff in regards to the specifics of a nosocomial infection (circulating micro-organisms, resistance to antibiotics, etc) and establishing local priorities which need to be considered in elaborating a specific supervision plan.

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