Clostridium difficile infections hospitalized in The "Prof. Dr. Matei Bals" Romanian Institute of Infectious Diseases during the first three months of 2012

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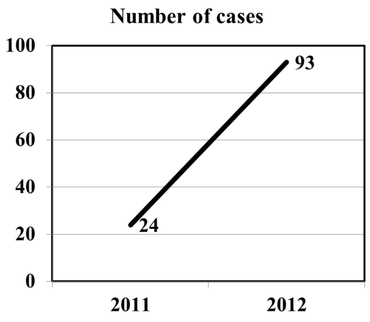
INTRODUCTION:

Infection with *Clostridium difficile* (CDI) is the leading cause of medical care associated diarrhea in most developed countries.

In Romania the incidence of CDI is largely underevaluated due to the insufficient clinical awareness of this problem and to the lack of microbiological diagnosis capacities; however, since 2011, the incidence raised dramatically and we aimed to determine the clinical aspects and evolution of the patients hospitalized at Romanian National Institute for Infectious Diseases with CDI.



METHODS :

We retrospectively listed the patients discharged from our hospital during three consecutive months (January to March 2012) with one of the next diagnosis: "Clostridium difficile infection (or diarrhea)", " antibiotic-associated diarrhea ", "pseudomembranous colitis", and cases with other diagnoses at discharge, but with positive bacteriological samples.

We retained for the final analysis 93 cases considered as CDI or „probable CDI".

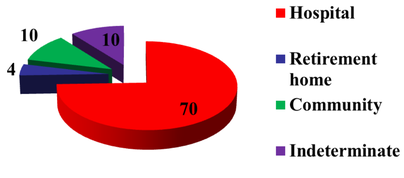


Figure 1. Patients background

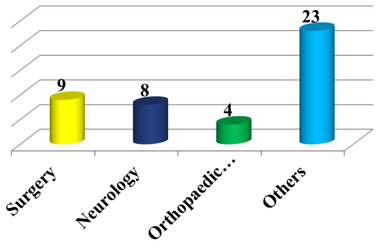


Figure 2. Medical branches

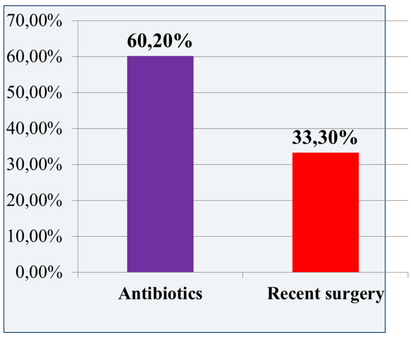


Figure 3. Risk factors

Parameter	*0 points*	*1 point*	*2 points*
Age	< 60 yrs	60 - 79 yrs	≥ 80 yrs
Temperature	≤ 37.5°C	37.6 – 38.5°C	≥ 38.6°C
Leukocytosis (cells/mmc)	< 16,000	16,000 – 25,000	> 25,000
Albumin (g/dL)	> 3,5	2,6 – 3,5	≤ 2,5
Systemic concomitant antibiotics	**No**	---------	**Yes**

Figure 4 ATLAS bedside score IDSA: Abstract 452: Healthcare – and Community – Aquired Infections and Infection Control, Friday, October 22, 2010, Dr M. Miller

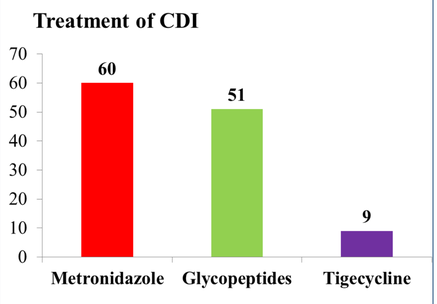


Figure 5. Drugs used for treatment of CDI

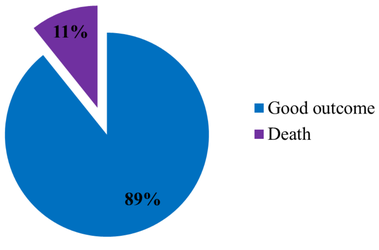


Figure 6. Mortality rate

RESULTS:

The number of cases in the first 3 months of 2012 is about six times higher than in the same period of 2011: 31 cases vs 4.8 cases/month, $p < .001$.

In the studied group women were predominent(55.9%), and the average age was 65.2 years, with extremes ranging from 22 to 93 years.

In 75.3% of cases cultures were positive, suggestive changes for colitis in the stool exam were detected in 50.5% of cases. As origin, 74 cases were healthcare facility-associated, 10 cases were community-associated, and the other 9 cases were classified as indeterminate; from the 74 patients with healthcare-associated disease, 70 patients came from hospitals (25 different hospitals) and 4 patients came from retirement homes.

At least 60.2% of patients have received antibiotics recently (more than one antibiotic was used in 42.5% of cases), and 33.3% of patients have undergone recent surgery.

We were able to calculate the ATLAS score in 63.4% of cases, which was higher than 5/10 for 21 patients (35.6%). Relapses were recorded for 11 patients (11.8%), 95% CI 6.7-19.9%. The serum procalcitonin was tested in 29 patients (31.2%), being higher than 0.5 ng/mL in 51.7% of them.

Patients received specific therapy with metronidazole (78.9%), glycopeptides (67.1%) and tigecycline (11.8%). Unfortunately, in 50.5% of cases other antibiotics were associated.

There were 10 deaths recorded (10.75%) in patients with a mean age of 78.4 years and with an average ATLAS score value of 5.9, compared to 3.39 in survivors, $p=0.00012$. All deceased patients received associate systemic antibiotic treatment during hospitalization, had hyponatremia and 8 of them had elevated creatinine. 6 of the deceased patients had a procalcitonin level higher than 0.5 ng/ml.

All patients with an increased procalcitonin level have recieved systemic antibiotics; when compared with carbapenems, the use of tigecycline has significantly improved the outcome ($p = 0.04$, Fisher's exact test).

CONCLUSIONS:

1. CDI incidence recorded an increase from previous years.
2. ATLAS score proved to be useful in assessing the evolution of this infection.
3. Tigecycline can be succesfully used in selected cases