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Clostridium difficile infection in haemato-oncologic patients – a two years single centre survey

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Abstract:

The aims of this survey were to ascertain the incidence and death rate of Clostridium difficile Infection (CDI) in oncology-patients at a university hospital and to analyse the case fatality ratio by PCR- ribotypes of the causative *Clostridium difficile* strains. In the study period of 24 months, 121 patients fulfilled the definition of a case of CDI. Out of these, 22 patients (18%) fulfilled the critieria of severe CDI. The CDI fatality was 16% (19/121 cases).
We found a high fatality among oncology patients with CDI.

Objectives:

Clostridium difficile infection (CDI) has been changing in its clinical severity and epidemicity. Hypervirulent strains of *Clostridium difficile* (C.diff.) are causing hospital outbreaks in the US and Europe. This phenomenon is associated with particular PCR-ribotypes including Ribotype 027.
Patients with haematologic malignancies are of specific concern in this context, especially when they are receiving immunosuppressive chemotherapy.
The aims of this survey were to ascertain the incidence and death rate of CDI in oncology-patients at a university hospital and to analyse the case fatality ratio by PCR-ribotypes of the causative C.diff. strains.

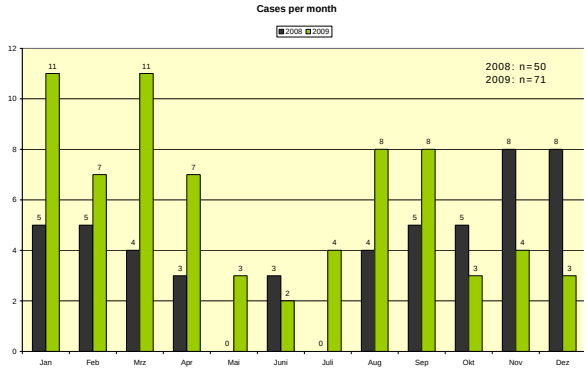
Material and Methods:

During a 24-months-period (January 2008 to December 2009), all patients with diarrhea admitted at the haemato-onocology department were tested for toxigenic C.diff by stool culture.
The identification of a case of CDI and severe CDI ocurred according to the case definition proposed by the German hospital infection surveillance system protocol for CDI, 2009 (CDAD_KISS-protocol).

Results:

In the study period of 24 months, 121 patients fulfilled the definition of a case of CDI.
Mean age: 62,5 years (with a range of 19 – 91)
Gender-distribution was Female: Male = 69:52
Distribution of cases over time. (Graph 1)
Out of these, 22 patients (18%) fulfilled the critieria of severe CDI.
The CDI fatality was 16% (19/121 cases).
Among these patients with lethal outcome, 16 had solid tumors and 3 haematologic malignancies as underlying diseases. (Chart 1)
Isolates obtained from 64 CDI-cases (53%) were available for PCR-ribotyping.
PCR-ribotype 053 was with 14% (9/64) the predominant strain. (Chart 2)
Ribotype 027 was not found.
PCR-ribotype 053 was also the dominant strain among the fatal cases (3/9; 33,3%). (Chart 3)

Results I



Results II

Chart 1

CDI - Case/Fatality-ratio in relation to underlying disease

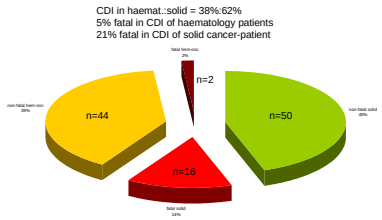


Chart 2 :

High diversity among PCR-Ribotypes of 64 ribotyped strains

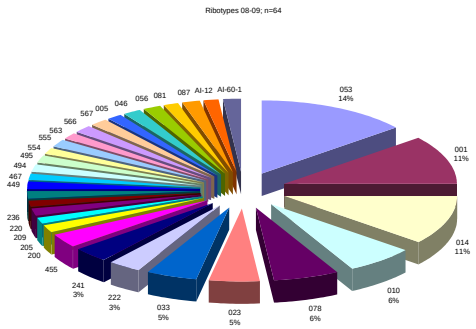
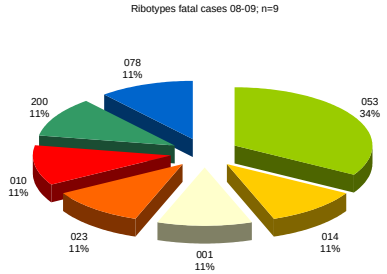


Chart 3 :

PCR-Ribotype – Fatality- correlation



Conclusions:

We found a high fatality among oncology patients with CDI (16%)

CDI incidence was higher in patients with solid tumors than in haematologic malignancies (62%:38%).

PCR-ribotype 053 was the dominating strain among the CDI oncology patients and CDI-fatal cases.

PCR-ribotype 027 was NOT found.

CDI must be taken as a serious complication in the oncology patient group.

Infection control measures and antibiotic stewardship are challenged to prevent these nosocomial infections.

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